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Patients with Borderline Personality Disorder Show Increased Agency in Life Stories after 12 Months of Psychotherapy

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Abstract

Objectives: Patients with borderline personality disorder (BPD) display disturbances in self and other understanding, which is also evident when they narrate events from their own and significant others' lives. In a recent study, we found that patients described both their own and their parents' life stories as more negative and with fewer themes of agency and communion fulfillment. Hence, we examined whether 12 months of psychotherapy would change how patients described their own and their parents' life stories. *Methods:* At baseline, thirty BPD patients and thirty matched control participants described and answered questions about their personal and their parents' life stories. At follow-up, twenty-three patients and twenty-three control participants repeated the same procedure after patients had completed 12 months of psychotherapy. At both baseline and follow-up, the life stories were coded for complexity and themes of agency, communion, communion fulfillment, and self-other confusion. *Results:* BPD patients' personal life stories increased significantly in agency from baseline to follow-up compared to the control group, while other aspects of personal and parents' life stories did not change significantly after therapy. *Conclusion:* Development of agency through the reconstruction of personal life stories may be a crucial mechanism in psychotherapy with BPD patients.

Keywords: borderline personality disorder; life stories; agency; self and other understanding; therapeutic change

Introduction

Borderline personality disorder (BPD) is a severe disorder characterized by identity disturbance, relational difficulties, and affect instability (American Psychiatric Association, 2013), and is associated with low quality of life (Soetman, Verheul, & Busschbach, 2008). Controlled trials provide support for the effectiveness of various forms of psychotherapeutic treatments for BPD (Cristea et al., 2017), most notable Dialectical Behavior Therapy (Linehan et al., 1999; 2006), Schema-Focused Therapy (Giesen-Bloo et al., 2006), Transference-Focused Psychotherapy (Clarkin, Levy, Lenzenweger, & Kernberg, 2007; Levy et al., 2006), and Mentalization Based Therapy (Bateman & Fonagy, 2016).

Although the various therapeutic approaches are based on different understandings of what underlies patients' pathology, a central aspect is a disturbed understanding of self and others (Bateman & Fonagy, 2016; Beeney, Hallquist, Ellison, & Levy, 2016; Bender & Skodal, 2007; Clarkin et al., 2007; Dimaggio, Salvatore, Popolo, & Lysaker, 2012; Semerari et al., 2003). Such disturbances are common to personality disorders in general (APA, 2013) and studying self and other disturbances in patients with BPD, who often suffer from other co-morbid personality disorders, may help gain insight into personality disorders more broadly.

Research shows that psychotherapy improves many aspects of BPD patients' self and other understanding such as their reflective functioning (Bales et al., 2012, Fisher-Kern et al., 2010; Fonagy et al., 1996; Levy et al., 2006), identity integration (Bales et al., 2012), attachment style (Levy et al., 2006), emotion regulation (Goodman et al., 2014), personality organization (Doering et al., 2010), and interpersonal problems (Bateman & Fonagy, 2009). Some studies of therapeutic effect have focused on attachment narratives (e.g., Blatt et al.,

1988; Levy et al., 2006), but no studies have investigated whether therapy affects BPD patients' life stories. This is an important gap in the literature because life stories are temporally organized and phenomenologically rich first-person accounts of how individuals perceive themselves and their close others' lives (McAdams, 1996; 2001).

In a recent study, we showed that BPD patients described both their personal and their parents' life stories as more negative and with fewer themes of agency and communion fulfillment. Patients and control participants reasoned about their personal life stories in equally complex ways, but patients displayed less complex reasoning and more self-other confusion with respect to parents' life stories (Lind et al., 2016). In the present study, we investigated whether 12 months of psychotherapy would change how patients with BPD constructed their personal and parents' life stories. Below, we first describe central components of life stories. Then, we review studies relevant to understanding how therapeutic interventions may change BPD patients' life stories.

Personal life stories

Life stories are internalized stories of an individual's past, present, and future life (McAdams, 1996). By constructing life stories, individuals create temporally extended and experience-near narratives of important events and how these events shaped the person he or she is today (Pasupathi, Mansour, & Brubaker, 2007). Life stories are based on autobiographical memory (Conway & Pleydell-Pearce, 2000), which is hierarchically organized with multiple levels that mutually influence each other. Life story chapters constitutes a superordinate level in this organization and refer to important, temporally extended periods with perceived beginnings and endings that include information about the people, places, activities, and objects associated with that period, e.g. *"my time in high school"* (Thomsen, 2009). Here, we focus on chapters because they are central in

constructing overall coherent life stories and the emotional valence of chapters is closely related to other aspects of the self, indicating their importance for self-understanding (Thomsen, 2009; Thomsen, Steiner, & Pillemer, 2016).

Two fundamental, superordinate themes related to agency and communion emerge in the construction of life stories (McAdams, 2001). In some life stories, themes of agency dominate; the individual narrates himself or herself as autonomous, achieving important goals, and as able to influence the course of his or her life. In other life stories, communion themes of caring for others and reaching out for love are central (e.g., McAdams, 1996; 2001). Communion fulfillment constitutes an aspect of communion (Adler et al., 2012) referring to whether communion needs are thwarted or fulfilled. While life stories contain other themes, agency and communion are particularly relevant here, since Adler and colleagues (2012) found disturbances in these themes in participants with BPD traits. Additional research has shown that BPD patients' narratives, elicited through the Thematic Apperception Test, indicate that they perceive themselves less positively and are less confident in their abilities to influence life (Ackerman et al., 1999; Stein, Janet, Pinsker-Aspen, & Hilsenroth, 2007).

Autobiographical reasoning is the reflective process through which selected parts of autobiographical memory are organized into temporally, causally, and thematically coherent accounts of individuals' lives (Habermas & Bluck, 2000). Causal connections are especially important because they construct relations between chapters and between chapters and the self, thus contributing to a sense of meaning and purpose (Habermas & Bluck, 2000). Causal connections may be characterized by positive or negative emotional valence. Thus, individuals may interpret the effects of chapters as positive ("*this chapter made me more confident as a person"*) or negative ("*this chapter made me less confident as a person"*)

(Banks & Salmon, 2013; Lilgendahl & McAdams, 2011). In other words, the selection and interpretation of chapters influence how the individual comes to understand who he or she is and whether good or bad things can be expected. Studies show that BPD patients generally evaluate themselves more negatively than healthy control participants (Westen & Cohen, 1993) and narrate their lives with more emphasis on negative events and causal connections (Lind et al., 2016).

Causal connections also vary in complexity (McLean & Pratt, 2006). On one end of the spectrum, highly complex causal connections integrate information in a nuanced way and provide insightful and elaborative explanations of how events are connected and how they led to changes in the self. On the other end of the spectrum, less complex reasoning tends to be vague and simplistic. Although not focused on life stories, research has shown that BPD patients' reasoning is less complex compared to both healthy and depressive individuals (Westen, Ludolph, Lerner, Ruffins, & Wiss, 1990).

Parents' life stories

Recent research shows that people also construct life stories for close others, such as parents, friends, and romantic partners, termed vicarious life stories (Lind & Thomsen, 2017; McLean, 2016; Panattoni & Thomsen, 2017; Thomsen & Pillemer, 2016; Zaman & Fivush, 2013). Vicarious life stories are important to both self and other understanding. Knowing how other people view their life stories may help us to understand their behavior and emotional reactions and thus facilitate empathic responding. Vicarious life stories may also contribute to self-understanding since individuals' understanding of who they are develops within a web of other peoples' stories (Merrill & Fivush, 2016; McLean, 2016). For example, one study found relations between positive causal connections in close others' life stories and less disturbed personal identity (Lind & Thomsen, 2017).

Recent studies show positive relations between how individuals describe their personal and close others' life stories in terms of emotional tone, causal connections, and themes (Lind & Thomsen, 2017; Panattoni & Thomsen, 2017; Thomsen & Pillemer, 2016). These findings are consistent with a wide range of research emphasizing that self and other understanding are intertwined (Aron, Aron, Tudor, & Nielson, 1991; Bucker & Carroll, 2007; Dimaggio et al., 2008; Spreng, Mar, & Kim, 2009). Thus, individuals may use other peoples' life stories to reflect on their personal life stories and construct close others' life stories using their personal life stories as templates (Thomsen & Pillemer, 2016). Because patients with personality disorders and especially BPD struggle with understanding self and others, it is important to examine both their personal and vicarious life stories since these represent intertwined, temporally extended understandings of self and others.

Life stories and psychotherapy

Research has shown that life story characteristics are related to well-being (see Adler et al., 2016). That is, more positive and coherent life stories high on themes of agency and communion are related to higher well-being whereas more negative and less coherent life stories lower on agency and communion themes are related to lower well-being and mental illness (e.g., Adler, 2012; Adler et al., 2008; Blatt, 2008). Research also shows that individuals displaying more complex reasoning in life stories are more aware of emotions, thoughts, and behavioral patterns and demonstrate a more mature identity and high optimism (McLean & Pratt, 2006; McLean & Thorne, 2003).

Studies show that individuals in psychotherapy change their life stories, such that they include more characteristics that are typically associated with higher well-being. For example, therapy contributes to constructing more positive, coherent, and complex life stories in patients with depression, PTSD, and schizophrenia (e.g., Hermans, 2006; Lysaker,

Lancaster, & Lysaker, 2003; Lysaker et al., 2005). In addition, Adler (2012) has shown that agency in life stories increase over the course of therapy.

Only few studies have examined narrative changes in BPD patients undergoing therapy. Levy and colleagues (2006) showed that one-year of Transference-Focused Psychotherapy improved narrative coherence in BPD patients (Levy et al., 2006). Studies also demonstrate higher reflective functioning in attachment narratives after therapy (Fisher-Kern et al., 2010; Levy et al., 2006). That is, BPD patients constructed more complex narratives about attachment episodes after therapy. Furthermore, Blatt and colleagues examined individuals with BPD organization from an object-relation perspective asking for narratives about self and others and found that therapy changed patients' narratives (Blatt et al., 1988; Blatt & Auerbach, 1988; Gruen & Blatt, 1990). These studies, however, mainly focused on narratives of circumscribed events, rather than full life stories.

To our knowledge, no studies have used McAdams' narrative framework to examine multiple aspects of both personal and parents' life stories (complexity, emotional valence, agency, and communion) in patients with BPD after psychotherapy. Examining life stories after psychotherapy could enrich previous studies by providing a broader, first-person perspective on how patients may change their understanding of themselves and close others.

The present study

The present study aimed to examine changes in BPD patients' personal and parents' life stories after 12 months of psychotherapy compared to a control group. We expected that patients' life stories would show characteristics associated with higher well-being, that is, more agency and communion fulfillment themes, more positive emotional tone and causal connections, and more complexity after therapy compared to before therapy, whereas no changes were expected in the healthy control group that did not receive any treatment.

Research generally emphasizes that BPD patients struggle with taking another person's perspective (e.g., mentalization difficulties, Bateman & Fonagy, 2016), but that this ability can improve in therapy (e.g., Bales et al., 2012, Fisher-Kern et al., 2010; Fonagy et al., 1996; Levy et al., 2006). Since reflecting about a close other's life story requires one to step inside the other person's mind, we expected that BPD patients would show improvements and evidence less self-other confusion when describing their parent's life story after therapy compared to pre-treatment, whereas no changes were expected in the control group.

Methods

Participants

Thirty outpatients with a DSM-IV confirmed diagnosis of BPD (SCID-II) (First, Spitzer, Gibbon, & Williams, 1996) participated in the baseline study shortly after receiving the BPD diagnosis (Lind et al., 2016). Twenty-three of the BPD patients participated in the follow-up after 12 months of therapy and seven patients dropped out. The patients were enrolled in a long-term treatment program specialized in treating personality disorders, but the present follow-up study was conducted after only one year of therapy.

The mean age of the 23 patients at the time of follow-up was 29.52 years (*SD* = 8.73) and 91.3% of the BPD participants were women. Regarding education 13% of the participants had completed primary school, 39% had completed high school, 22% had completed a professional degree, 17% had completed a bachelor degree, and 4% had completed a master degree.

The patients were assessed for comorbid personality disorders at baseline using the SCID-II interview. Two patients were diagnosed with histrionic personality disorder (301.50), two with obsessive-compulsive personality disorder

(301.4), two with dependent personality disorder (301.6), and five with other personality disorders (301.8). It was not possible to obtain information about Axis I diagnoses. Exclusion criteria were organic brain-disorder or being influenced by alcohol or drugs at the day of testing.

The twenty-three patients participated in psychodynamic treatment for patients with personality disorders at two outpatient psychiatric hospitals. At the first hospital (N = 17), patients were enrolled in psychodynamic treatment incorporating Wilfred Bion's thoughts and principles (Bion, 1962, 1970, Symington, 1996). The patients initiated three-six months of individual therapy followed by group therapy for 12-18 months. During treatment, patients were offered six additional sessions of psychoeducation. At the second hospital (N = 6), patients participated in Mentalization-Based Therapy (Bateman & Fonagy, 2009). Patients began treatment with 10-12 group sessions of psycho-education (based on mentalization-focused principles). Next, they attended group therapy or combined individual and group therapy for 12-18 months. Patients' mean number of individual therapy sessions was 32.52 (range 0-70; *SD* = 20.66), the mean number of group therapy sessions was 17.00 (range from 0-79; *SD* = 22.22), and the mean number of overall sessions (excluding psychoeducation) was 49.52 (range from 5-99; *SD* = 25.84).

At baseline, 30 control participants were recruited to match the patient group on age, gender, and level of education (see Lind et al., 2016). Exclusion criteria were a BPD diagnosis or five or more BPD symptoms on the SCID-II questionnaire (American Psychiatric Association, 2013; First, Gibbon, Spitzer, Williams, & Benjamin, 1997), having a parent or sibling with a BPD diagnosis, having organic brain-disorder, or being influenced by alcohol or drugs at the day of testing. Twenty-

three of these control participants participated at follow-up. The control group did not differ from the BPD group on age (M = 26.09, SD = 7.23, $t(44) = 1.45$, $p > .05$, gender $\chi^2(1) = .36$, $p > .05$, or current level of education, $\chi^2(5) = 8.61$, $p > .05$.

Materials and Procedure

All participants were invited individually to a session that included descriptions and ratings of their own and their parents' life stories (as well as other measures not relevant to the present study). The session lasted approximately two hours and was conducted by the first author. Patients were interviewed at the hospital and the control participants were interviewed at the university or in an office near the participant's home. All participants received a gift card (corresponding to 16 USD) for participating in the study. Below, we describe the materials used in the session, which is very similar to the description in Lind et al. (2016) because we used the same materials and procedure at baseline and follow-up.

Life story interview: We used a method that was a mixture of semi-structured interviews and questionnaires. Participants were asked to describe chapters in their own and their parents' life stories and rate these on questions of emotional valence and causal connections in a questionnaire, while elaborating on the questions orally. Participants' elaborations on the life stories were recorded and transcribed.

One questionnaire addressed the participant's personal life story and one concerned the parent's life story. The two questionnaires were organized similarly and were identical to the questionnaire used at baseline (Lind et al., 2016). The interviewer began the first part of the interview with the following instruction: "*This part of the study is about your life story. I want you to think about your whole life and identify life story chapters. Chapters are defined as periods in your life, which can last for months or even years. An example of a*

chapter could be: "my time in primary school". You will be asked to describe every chapter and note how old you were at the beginning and end of every chapter or if the chapter has not finished yet." The participants were asked to identify and describe up to ten chapters. For every chapter they were first asked to answer one question about the emotional valence of the chapter and then two questions about the emotional valence of the causal connections of the chapter 1) *"How would you describe this chapter emotionally?"* (rated on a 5-point scale with 1 = *"very negative"*, 3 = *"mixed or neutral"*, and 5 = *"very positive"),* 2) *"Has this chapter influenced how you perceive yourself?"* (rated on a 5-point scale with 1 = *"yes, in a very negative way"*, 3 = *"not at all"*, and 5 = *"yes, in a very positive way")* and 3) *"Has this chapter influenced later life story chapters?"* (rated on a 5-point scale with 1 =*"yes, in a very negative way"*, 3 = *"not at all"*, and 5 = *"yes, in a very positive way").* After each question, the interviewer asked participants to elaborate on their answers. The questions on chapter valence and valence of causal connections have been used in previous studies where they correlated in meaningful ways with trait anxiety and depressive symptoms (Thomsen et al., 2016), personality traits (Thomsen & Pillemer, 2016), and identity disturbance (Lind & Thomsen, 2017) testifying to the validity of the questions.

The second part of the interview concerned the parent's life story. The participants were instructed to choose the same parent figure that they described at baseline. First, the participants were asked to note the age of the parent and to answer two questions regarding the quality of the relationship: *"Do you feel, that you know your parent well?",* rated on a 5-point scale from 1 =*"not at all"* to 5 = *"very well"* and: *"How would you characterize your relationship with your parent?",* rated on a 5-point scale from 1 = *"very negative"* to 5 = "*very positive"*. The structure of the interview and the questionnaire were otherwise similar to the first part of the interview but they were asked to imagine how the parent would think

about his/her life story when identifying chapters and answering questions about the emotional valence and causal connections for the chapters. After each chapter, the participants were asked to rate how sure he/she felt about his/her knowledge about each chapter using a 5-point scale, from 1 = *"very uncertain"* to 5 = *"very certain"*.

We summed the questions for valence across chapters and divided by the number of chapters rated on this question for personal and parents' life stories separately, yielding two measures: valence for personal and parents' life stories (labeled "chapter valence" and "chapter valence parent") that each ranged from 1-5. The internal reliabilities for valence were generally lower than what is observed for scales (Cronbach's alphas: chapter valence before therapy = 0.51, after therapy = 0.61, chapter valence parent before therapy = 0.47, and after therapy = 0.50). The low reliabilities may decrease effects, but were used in analyses based on the assumption that overall emotional valence has a cumulative impact on other processes. For causal connections, we summed question two and three in personal and parents' life stories respectively and divided by the number of chapters rated, yielding two measures: Valence of causal connections in personal and parent's life stories (labeled "causal connections" and "causal connections parent"), which each ranged from 1-10. Cronbach's alphas were good: Causal connections before therapy = 0.85, after therapy = 0.82, causal connections parent before therapy = 0.74, and after therapy = 0.82. Note that cronbach's alphas for both valence and causal connections were calculated on the first five chapters to maintain as many participants as possible in the analyses.

Depressive symptoms: Beck's Depression Inventory-II (BDI-II) **(**Beck, Steer, & Brown, 1996) was included to assess comorbidity with depression. The BDI-II is a commonly used 21 items self-report questionnaire that measures the degree of different symptoms of depression within the past two weeks. The total score can range from 0 to 63

with a higher score indicating more depressive symptoms. The reliability and validity of the instrument have been repeatedly confirmed and the scale also showed good internal reliability in the present study (Cronbach's alpha of 0.96).

Codings

We used adapted versions of existing coding scales to code for complexity and themes of agency and communion. We adapted the scales slightly because they were originally used with other samples and other life story components and coding rules need to fit the method, sample, and culture of the study (note that adapting coding rules is common practice; e.g. Adler et al., 2008, 2012; McLean & Pratt, 2006). Initial coding efforts showed that simplifying the coding manuals slightly was necessary because coders could not reliably distinguish between all categories. We explain these minor adjustments below.

Complexity (0-2). Complexity was coded using a coding scale developed by McLean and Thorne (2003) and modified by McLean and Pratt (2006). For the present study, the scale was simplified into a 0-2 scale. A score of 0 indicated that the elaboration never becomes clear or might end up bizarre. A score of 1 included life lessons and meaning-making containing some insight. Finally, a score of 2 was given to reasoning with nuanced insights. Complexity was rated regardless of whether it was positive or negative.

Agency (0-2). Agency was coded using a scale developed by Adler and colleagues (2012), which we modified into a 0-2 scale. A score of 0 indicated a chapter with none or very little agency, a score of 1 indicated some degree of agency, and a score of 2 indicated a high degree of agency.

Communion (0-2). Communion was coded based on a coding scale developed by Adler and colleagues (2012). The scale was originally a 0-3 scale, but the scale was simplified to range from 0-2, where a score of 0 indicated lack of communion motivation, a

score of 1 indicated motivation towards communion, and a score of 2 indicated high motivation towards communion.

Communion fulfillment (0-2). This theme was only rated if a communion theme was identified (i.e. if communion was coded 1 or 2), because the purpose of this code is to distinguish between expressed communion needs that were either fulfilled or not fulfilled. The coding scale was developed by Adler and colleagues (2012) where a 0 indicated not having one's communion needs met, a score of 1 indicated that communion needs were being met to some degree, and a score of 2 indicated that communion needs were met to a very high degree.

Self and other confusion (0-1). This coding was developed for the baseline study (contact first author for a more detailed description). A score of 0 indicated no difficulties distinguishing one's personal life story from the parent's life story. That is, the participant reasoned about the parent's thoughts, feelings, and experiences without elaborating on personal thoughts and feelings in a way that interfered with taking the parent's perspective. A score of 1 indicated elaborations containing self-other confusion. That is, the participant confused his or her personal thoughts, feelings, and experiences with the parent's thoughts, feelings, and experiences.

Coding procedure. The first author trained a co-rater (who was blind to hypotheses and the status of the participants) in the use of the five coding categories. In order to assess complexity of reasoning, only elaborations on the questions addressing causal connections were coded, because these questions targeted reasoning. Themes of agency, communion, and communion fulfillment were coded based on all transcribed material for each chapter, since themes may emerge in both descriptions of chapters and in reasoning about the causal connections for chapters. Self-other confusion was coded based on transcription of all parts

of parents' life stories. Each chapter was examined for all five coding categories. The first author and the co-rater coded 16 interviews together and the first author and co-rater then coded the remaining 30 interviews independently. Cohen's kappa revealed good interrater reliability between the two independent raters across all coding categories: agency, kappa = .70, $p < .001$, communion, kappa = .70, $p < .001$, communion fulfillment, kappa = .71, $p < .001$, complexity, kappa = .70, $p < .001$, and self-other confusion, kappa = .79, $p < .001$.

For each coding category, we summed the ratings across chapters and divided it by the number of chapters described by the participants for personal and parents' life stories yielding nine measures: Complexity, complexity-parent, agency, agency-parent, communion, communion-parent, communion fulfillment, communion fulfillment-parent, self-other confusion.

Results

Below, we first present preliminary analyses on differences between the patients participating in the follow-up study and the patients that dropped out. Then, we present analysis assessing group differences between baseline and follow-up in terms of number of chapters, relationship with parent, knowledge of the parent's life story, and depressive symptoms. We then report analyses on group differences in personal and parents' life stories between baseline and the follow-up twelve months later.

Preliminary analyses

We examined whether the seven patients who dropped out of the study at follow-up differed from the patients participating in the follow-up in terms of the life story characteristics examined in the study. At baseline, the seven patients were significantly lower on complexity in their personal life stories ($M = 2.45$, $SD = .45$) compared to the other patients ($M = 2.89$, $SD = .44$), $t(28) = 2.29$, $p < .05$, $d = .989$; lower on agency in their

personal life stories (M = .50, SD = .16) compared to the other patients (M = .77, SD = .37) $t(24.40) = 2.69$, $p < .05$, d = .947; and also lower on communion fulfillment in their personal life stories (M = .40, SD = .30) compared to the other patients (M = .75, SD = .40), $t(28) = 2.19$, $p < .05$, d = .989 (see Appendix for details on calculating d). No other significant differences were found between these two patient groups.

In the BPD group, 60.9% chose mother's life story and 39.1% chose father's life story. In the control group, 73.9% chose mother's life story and 26.1% chose father's life story, the difference was not significant, $\chi^2(1) = .89$, $p > .05$.

A series of two-way mixed ANOVAs were conducted entering time point (baseline/follow-up) as the within-subject factor and group (BPD/control) as the between subject factor to examine group differences on number of chapters, relationship with parent, and depressive symptoms (see Table 1). Significant group effects showed that BPD patients rated the quality of their relationship to the parents as poorer compared to the control group. In addition, the BPD patients rated overall knowledge of their parents lower but did not feel less confident about their knowledge of the parents' chapters compared to the control group. No significant time and interaction effects were found for these measures. Furthermore, we found significant time effects with respect to number of chapters in personal and parents' life stories. That is, both groups identified *fewer* chapters in their personal life stories at the follow-up compared to baseline and *more* chapters in their parents' life stories at follow-up compared to baseline.

We found a significant group effect with respect to depressive symptoms (Table 1). BPD patients were more likely to report depressive symptoms than control participants at baseline and follow-up. No significant time and interaction effects were found. Patients'

decrease in depressive symptoms from before to after therapy showed an effect size of d = .415 (see Appendix for details on calculating d).

Group differences in personal and parents' life stories

A series of two-way mixed ANOVAs were conducted in order to investigate group differences with respect to personal life stories from baseline to follow-up (see Table 2). Below, we focus on interaction effects, because these were most interesting given the present focus on changes in the BPD patients' life stories after therapy (see Appendix for details on calculating d).

Agency showed a significant group, time, and interaction effect. Follow-up dependent t-tests showed that the BPD group improved significantly in agency between baseline and follow-up, ($t(22) = -7.87$, $p < .0005$, $d = 1.632$) while differences between baseline and follow-up were not significant for the control group ($t(22) = -.73$ $p = .47$, d = .122). We explored whether number of therapy sessions was a significant predictor of the increase in agency among the BPD patients by conducting a multiple regression analysis entering agency at Time 2 as the dependent variable and agency at Time 1 as predictor variable and total number of therapy sessions as predictor variable. The regression analysis showed that agency at Time 1 (β =.63, $p = .002$) but not number of therapy sessions (β = .04, $p = .847$) significantly predicted agency at Time 2 in the BPD patients ($F(2, 20) = 6.43$, $p < .007$). The model explained 39% of the variance in agency at follow-up.

Except for agency, only complexity showed a significant interaction (Table 2). Follow-up dependent t-tests showed significant within-group differences between baseline and follow-up. That is, BPD patients increased significantly in complexity at follow-up ($t(22) = -2.90$, $p = .008$, $d = .610$) whereas the control participants did not show significant differences between baseline and follow-up ($t(22) = .43$, $p = .67$, $d = .090$).

In terms of parents' life stories, we found no interactions, indicating that parents' life stories were not described in a more adaptive way after therapy. Otherwise, we found the same pattern as for baseline (see Table 2).

Discussion

The aim of the study was to examine how twelve months of psychotherapy would influence BPD patients' personal and parents' life stories compared to a control group. BPD patients' personal life stories increased significantly in agency after therapy compared to the control participants. BPD patients also improved in complexity of reasoning when describing their personal life stories compared to the control group, but the two groups did not differ significantly in this aspect before therapy. Both groups tended to identify fewer personal life story chapters and more chapters in parents' life stories at follow-up indicating a move towards integrating events into broader chapters over time, whereas the higher number of chapters in parents' life stories could reflect increased knowledge of their parents' lives. However, since these changes were not specific to the BPD group, the findings are not further interpreted in terms of how life stories may change in therapy. Finally, although there was an improvement in depression, indicating some effect of therapy, depression remained high among the BPD patients suggesting that they still suffered from significant psychological problems.

For many life story aspects, we found no significant change after therapy. It is of course possible that patients changed their *present* view of themselves even though we found no significant changes in many life story aspects (e.g., "my childhood was terrible, but now that I understand how it has affected me, I can make better decisions"). However, given that the past is reconstructed through the lens of the present, we believe that such changes would also have shown up in how patients thought about their past life stories. The

few significant changes in life stories after therapy are consistent with research emphasizing that life stories are relative stable over time (e.g., Köber & Habermas, 2017). Thus, once a problematic life story has been constructed it may not change easily, emphasizing the need for early intervention before life stories stabilize in maladaptive ways.

Increased agency in BPD patients' personal life stories

The study indicates that agency may be particularly important in understanding how therapy for BPD works and is consistent with research demonstrating that therapy is associated with increased agency in narratives in other client groups (Adler, 2012). Life story researchers emphasize agency as a key element in establishing life stories that provide the individual with a sense of meaning and purpose (McAdams, 2001). Thus, the improved agency may be highly important for BPD patients who often feel that they cannot influence the course of their lives in the direction they wish.

Before the BPD patients began therapy, they showed low levels of agency and tended to construct themselves as passive victims of a never-ending circle of negative past events that felt impossible for them to break free from. After 12 months of therapy, the patients' personal life stories had been reconstructed to support a budding understanding of themselves as agentic beings capable of influencing their lives and deal more constructively with their difficulties. An example of such reconstruction is presented below.

> Example one (before therapy): When I think about my childhood I just get completely confused and do not understand anything. I have not learned to look at it in a more constructive way yet. It is complex because my parents were extremely good at you know raising a child in a culturally correct way, you now, this is how you ought to behave but being emotionally available and providing me with security was not their focus. So I have not learned how to be me, believe in myself or think of myself as

valuable at all. Instead I have learned how to be a decent human being, learned how to take care of others, listen to others and also found an interest in architecture, which I have maintained today. It has also made me stronger in a way…however, 90% of the time I criticize myself for all the things I am not good at, guilt, shame and self-hate. The worthlessness that I feel has its starting point at that time and I still find it hard to get rid of that hopelessness.

Example two (after therapy): Emotionally I am very mixed about this chapter in my life. Things happened back then that no child should ever experience but at the same time I can look back at my life and realize that I developed some tools because of these experiences. Today I have actually turned it into something I can use in a constructive way because I became stronger as a person, you know. In that sense, the experiences have affected me in a lot of different ways. It is extremely mixed and a year ago I would probably have focused on the negative whereas today I chose to focus on the constructive aspects. It has been helpful getting some answers from my mum regarding her alcohol treatment. I do not feel as guilty anymore for the things happening back then I chose to put that aside and focus on the constructive aspects and at the same time also be aware of my weaknesses. I have finally come to realize that I do not have to end up as my mum. I have found an inner strength to do something else with my life… it is crazy how much those things can affect you and of course I would have preferred a less maladaptive family but that was simply not the case for me. Luckily, it has turned me into a fighter, which has been helpful later on.

The increased agency achieved through reconstructing personal life stories may reduce symptoms stemming from an experience of lack of control, like self-harm, suicidal behavior, and emotional dysregulation, and potentially be a first step towards recovery.

Increased agency and psychotherapy

The results of the present study extend research showing that several aspects of self- and other understanding improve after psychotherapy, for example emotion regulation (Goodman et al., 2014), reflective functioning (Bales et al., 2012; Fisher-Kern et al., 2010; Fonagy et al., 1996), identity integration (Bales et al., 2012), attachment styles (Levy et al., 2006), psychosocial functioning, and personality organization (Doering et al., 2010).

Agency may deserve more attention in treatment approaches to BPD, a suggestion also put forward within self-determination theory (Ryan & Deci, 2004). According to Ryan (2005), therapy for BPD should always be in an atmosphere of autonomy support, a concept closely related to agency (Jørgensen, 2010). By conducting therapy that supports the development of agency, therapists strengthen the sense of self, mastery, and emotional adjustment in persons with BPD (Ryan, 2005). Thus, increasing agency may be one of the first steps in order for BPD patients to develop a more robust understanding of themselves, which should be recognized as an important mechanism of change in BPD. From a narrative perspective, increases in agency may be supported through therapeutic conversations that reconstruct stories to emphasize alternative and more agentic interpretations (McLean, Pasupathi, & Pals, 2007).

Limitations and future directions

There are several limitations of the present study. First, the design of the study did not allow examination of elements in therapy that contributed to higher agency. Second, since the BPD patients showed high comorbidity with other personality disorders and may have suffered from Axis I disorders, the findings could reflect patients with personality disorder or psychiatric disorders more generally. Thus, to determine the specificity of the findings, future studies should investigate life stories in patients with a range of personality disorders

as well as patients with Axis I disorders. Third, the sample overrepresented women and even though this limitation is general to the majority of studies on BPD, future studies should include males. Fourth, since the patients that did not participate in the follow-up study described life stories with characteristics associated with lower well-being, the results of the present study may only apply to the most resourceful patients. Fifth, the follow-up was conducted before patients completed the full course of therapy. Therefore, future studies should examine narrative changes while following the patients for longer time periods and after therapy completion. In addition, future studies may also include outcome measures (e.g. diagnostic measures of BPD, medicine, and hospitalization) and relate changes in life stories to these outcomes.

Conclusion

The present study is the first to examine several aspects of BPD patients' personal life stories and vicarious life stories for parents before and after 12 months of psychotherapy compared to a control group. Life stories are not the main focus in most prominent therapeutic approaches to BPD, but are important to study because they encapsulate temporally organized self- and other understanding that provide a first-person perspective on how patients change their understanding of their own and parents' lives during therapy. Although many aspects of life stories did not change significantly after 12 months of therapy, agency in personal life stories increased in the BPD group compared to the control group. Higher agency may be a first step towards recovery because interpreting the past in ways that support a sense of empowerment and control may help the patients towards more adaptive behavior. Thus, agency as constructed through life stories may be an important factor for therapeutic change in BPD patients.

References

Ackerman, S., Clemence, J., Weatherhill, R., & Hilsenroth, M. (1999). Use of the TAT in the assessment of *DSM–IV* Cluster B personality disorders. *Journal of Personality Assessment, 73,* 422–448.

Adler, J. M. (2012). Living into the story: Agency and coherence in a longitudinal study of narrative identity development and mental health over the course of psychotherapy. *Journal of Personality and Social Psychology, 102,* 367–389.

Adler, J.M., Chin, E.D., Aiswarya, P., Kolisetty, P. & Oltmanns, T.F. (2012). The distinguishing characteristics of narrative identity in adults with features of borderline personality disorder: An empirical investigation. *Journal of Personality Disorders, 26,* 498-512.

Adler, J.M., Lodi-Smith, J., Philippe, F.L., & Houle, I. (2016). The incremental validity of narrative identity in predicting well-being: A review of the field and recommendations for the future. *Personality and Social Psychology Review,* 20, 142–175.

Adler, J.M., Skalina, L.M., & McAdams, D.P. (2008). The narrative reconstruction of psychotherapy and psychological health. *Psychotherapy Research, 18,* 719–734.

American Psychiatric Association (2013). Diagnostic and statistical manual of mental disorders (5th ed.). Washington, DC: American Psychiatric Publishing.

Aron, A., Aron, E.N., Tudor, M. & Nelson, G. (1991). Close relationships as including other in the self. *Journal of Personality and Social Psychology, 60,* 241-253.

Bales, D., von Beek, N., Smits, M., Willemsen, S., Busschbach, J. J. V., Verheul, R., & Andrea, H. (2012). Treatment outcome of 18-month, day hospital Mentalization-

Based Treatment (MBT) in patients with severe borderline personality disorder in the Netherlands. *Journal of Personality Disorders, 26*, 568-582.

Banks, M.V. & Salmon, K. (2013). Reasoning about the self in positive and negative ways: relationship to psychological functioning in young adulthood. *Memory, 21*, 10-26.

Bateman, A., & Fonagy, P. (2009). Randomized controlled trial of outpatient mentalization-based treatment versus structured clinical management for borderline personality disorder. *The American Journal of Psychiatry*, *166*, 1355-1364.

Bateman, A., & Fonagy, P. (2016). *Mentalization-based treatment for personality disorders: A practical guide.* Oxford: Oxford University Press.

Beck, A.T, Steer, R.A. & Brown, G.K. (1996). *Manual: Beck Depression Inventory - Second Edition*. The Psychological Corporation. San Antonio, US: Hartcourt & Brace.

Beeney, J.E., Hallquist, M. N., Ellison, W. D., & Levy, K. N. (2016). Self-other disturbance in borderline personality disorder: Neural, self-report, and performance based evidence. *Personality Disorders: Theory, Research, and Treatment, 7*, 28-39

Bender, D.S., & Skodol, A.E. (2007). Borderline personality as a self-other representational disturbance. *Journal of Personality Disorders, 21*, 500–517.

Bion, W.R (1962): A Theory of Thinking. In: *Second Thoughts*. London: William Heinemann Medical 1967 [reprinted London: Karnac, 1984]

Bion W.R (1970): Attention and Interpretation [reprinted London: Karnac 1984)

Blatt, S.J. (2008). *Polarities of experience: Relatedness and self-definition in personality development, psychopathology, and the therapeutic process.* American Psychological Association, Washington, DC.

Blatt, S J., & Auerbach, J.S. (1988). Differential cognitive disturbances in three types of "borderline" patients. *Journal of Personality Disorders*, 2, 19-25.

Blatt, S. J., Ford, R. Q., Berman, W., Cook, B., & Meyer, R. (1988). The assessment of change during the intensive treatment of borderline and schizophrenic young adults. *Psychoanalytic Psychology*, *5*, 127-158.

Buckner, R.L., & Carroll, D.C. (2007). Self-projection and the brain. *Trends in Cognitive Sciences*, *11*, 49–57.

Choi-Kain, L.W. & Gunderson, J.G. (2008). Mentalization: Ontogeny, assessment, and application in the treatment of borderline personality disorder. *American Journal of Psychiatry, 165*, 1127-1135.

Clarkin, J.F., Levy, K.N., Lenzenweger, M.F., & Kernberg, O.F. (2007). Evaluating three treatments for borderline personality disorder: A multiwave study. *American Journal of Psychiatry, 146*, 922-928.

Conway, M.A. & Pleydell-Pearce, C.W. (2000). The construction of autobiographical memories in the self-memory system. *Psychological Review, 107*, 261-288.

Cristea, I.A., Gentili, C., Cotet, C.D., Palomba, D., Barbui, C., Cuijpers, P. (2017). Efficacy of psychotherapies for borderline personality disorder; A systematic review and meta-analysis. *JAMA Psychiatry, 74*, 319-328.

Dimaggio, G., Lysaker, P.H., Carcione, A., Nicolò, G., and Semerari, A. (2008). Know yourself and you shall know the other ...to a certain extent: multiple paths of

influence of self-reflection on mindreading. *Consciousness and Cognition.* 17, 778–789.

Dimaggio, G., Salvatore, G., Popolo, R. & Lysaker, P.H. (2012). Autobiographical memory and mentalizing impairment in personality disorders and schizophrenia: Clinical and research implications. *Frontiers in Psychology, 3,* 1-4.

Doering, S., Hörz, S., Rentrop, M., Fischer-Kern, M., Schuster, P., Benecke, C., Buchheim, A., Martius, P., Buchheim, P. (2010). Transference-focused psychotherapy vs. treatment by community psychotherapists for borderline personality disorder: a randomised controlled trial. *British Journal of Psychiatry, 196,* 389-395.

Field, A. (2017). Discovering Statistics Using IBM SPSS Statistics, 5th ed. London: Sage.

First, M,B., Gibbon, M., Spitzer, R,L., Williams, J,B,W., & Benjamin, L,S. (1997). SCID-II Personality Questionnaire, Washington, DC: American Psychiatric Press.

First, M.B., Spitzer, R.L., Gibbon, M., & Williams, J.B.W. (1996). User's guide for the structured clinical interview for DSM-IV personality disorders (SCID-II). Washington, DC: American Psychiatric Press.

Fischer-Kern, M., Buchheim, A., Hörz, S., Schuster, P., Doering, S., Kapusta, N.D., . . . Fonagy, P. (2010). The relationship between personality organization, reflective functioning, and psychiatric classification in borderline personality disorder. *Psychoanalytic Psychology, 27,* 395-409.

Fonagy, P., Leigh, T., Steele, M., Steele, H., Kennedy, R., Matoon, G, Target, M, Gerger, A. (1996). The relation of attachment status, psychiatric classification, and

response to psychotherapy. *Journal of Consulting & Clinical Psychology, 64,* 22-31.

Giesen-Bloo J., Van Dyck R., Spinhoven, P., Van Tilburg, W., Dirksen, C., Van Asselt.,… Arntz, A. (2006). Outpatient psychotherapy for borderline personality disorder: Randomized trial of schema-focused therapy vs transference-focused psychotherapy. *Archives of General Psychiatry, 63,* 649-658.

Goodman, M., Carpender, D., Tang, C.Y., Goldstein, K.E., Avedon, J., Fernandez, N., . . . Hazlett, E.A. (2014). Dialectical behavior therapy alters emotion regulation and amygdala activity in patients with borderline personality disorder. *Journal of Psychiatric Research, 57,* 108-116.

Gruen, R. J., & Blatt, S. J. (1990). Change in self- and object representation during long-term dynamically oriented treatment. *Psychoanalytic Psychology*, *7*, 399-422.

Habermas, T. & Bluck, S. (2000). Getting a life: The emergence of the life story in adolescence. *Psychological Bulletin, 126*, 748-769.

Hermans, H. J. M. (2006). The self as a theater of voices: Disorganization and reorganization of a position repertoire. *Journal of Constructivist Psychology, 19,* 147-169.

Jørgensen, C.R. (2010). Invited essay: Identity and borderline personality disorder. *Journal of Personality Disorders, 24*, 344–365.

Jørgensen, C.R., Berntsen, D., Bech, M., Kjølbye, M. Bennedsen, B.E., Ramsgaard, S.B. (2012). Identity-related autobiographical memories and cultural life scrips in patients with borderline personality disorder. *Consciousness and Cognition, 21,* 788-798.

Köber, C., & Habermas, T. (2017). How stable is the personal past? stability of most important autobiographical memories and life narratives across eight years in a life span sample. *Journal of Personality and Social Psychology, 113*, 608-626.

Levy, K.N., Meehan, K.B., Kelly, K.M., Reynoso, J.S., Weber, M., Clarkin, J.F., & Kernberg, O.F. (2006). Change in attachment patterns and reflective function in a randomized control trial of transference-focused psychotherapy for borderline personality disorder. *Journal of Consulting and Clinical Psychology, 74,* 1027-1040.

Lilgendahl, J.P. & McAdams, D.P. (2011). Constructing stories of self-growth: How individual differences in patterns of autobiographical reasoning relate to well-being in midlife. *Journal of Personality, 79*, 392-428.

Lind, M., & Thomsen, D.K. (2017). Functions of Personal and Vicarious Life Stories: Identity and Empathy *Memory.* 10.1080/09658211.2017.1395054

Lind, M., Thomsen, D.K., Bøye, R., Heinskou, T., Simonsen, S., Jørgensen, C.R. (2016). Personal and parents' life stories in patients with borderline personality disorder. Manuscript submitted for publication.

Linehan, M.M., Comtois, L.J., Heard, H.L. et al., (2006). Two year randomized controlled trial and follow-up of dialectical behavior therapy vs therapy by experts for suicidal behaviors and borderline personality disorders. *Archives of General Psychiatry, 63,* 757-766.

Linehan, M.M., Schmidt, H., Dimeff, L.A., Craft, J.C., Kanter, J., & Comtois, K.A. (1999). Dialectical behavior therapy for patients with borderline personality disorder and drug-dependence. *The American Journal of Addictions, 8,* 279-292.

Lysaker, P. H., Lancaster, R. S., & Lysaker, J. T. (2003). Narrative transformation as an outcome in the psychotherapy of schizophrenia. *Psychology and Psychotherapy: Theory, Research and Practice, 76*, 285-299.

Lysaker, P. H., Davis, L. W., Hunter, N. L., Nees, M. A., & Wickett, A. (2005). Personal narratives in schizophrenia: Increases in coherence following 5 months of vocational rehabilitation. *Psychiatric Rehabilitation Journal, 29*, 66-68.

McAdams, D.P. (1996). Personality, modernity, and the storied self: A contemporary framework for studying persons. *Psychological Inquiry, 7*, 295-321.

McAdams, D.P. (2001). The psychology of life stories. *Review of General Psychology, 5*, 100-122.

McLean, K.C. (2016). *The co-authored self: Family stories and the construction of personal identity.* Oxford: Oxford University Press.

McLean, K.C., Pasupathi, M. & Pals, J.L. (2007). Selves creating stories creating selves: A process model of self-development. *Personality and Social Psychology Review*, *11*, 262-278.

McLean, K.C., & Pratt, M.W. (2006). Life's little (and big) lessons: Identity statuses and meaning-making in the turning point narratives of emerging adults. *Developmental Psychology, 42*, 714-722.

McLean, K.C., & Thorne, A. (2003). Late adolescents' self-defining memories about relationships. *Developmental Psychology, 39,* 635–645.

Merrill, N., & Fivush, R. (2016). Intergenerational narratives and identity across development. *Developmental Review, 40*, 72-92.

Morris, S. B., & DeShon, R. P. (2002). Combining effect size estimates in meta-analysis with repeated measures and independent-groups designs. *Psychological Methods, 7*, 105-125.

Panattoni, K., Thomsen, D.K. (2017). My story of you tells about me: Relationships between personal and vicarious life stories within romantic couples. Manuscript submitted for publication.

Pasupathi, M., Mansour, E., & Brubaker, J.R. (2007). Developing a life story: Constructing relations between self and experience in autobiographical narratives. *Human Development, 50*, 85-110.

Ryan, R.M. (2005). The developmental line of autonomy in the etiology, dynamics, and treatment of borderline personality disorders. *Development and Psychopathology*, *17*, 987-1006.

Ryan, R.M., Deci, E.L. (2004). Autonomy is no illusion: Self-determination theory and the empirical study of authenticity, awareness, and will. In. J. Greenberg, S.L. Koole & T. Pyszczynski (Eds.), *Handbook of experimental existential psychology* (pp. 449-479, Chapter xv, 528 pages). Guilford Press, New York, NY.

Semerari, A., Carcione, A., Dimaggio, G., Falcone, M., Nicolo`, G., Procacci, M., & Alleva, G. (2003). How to evaluate metacognitive functioning in psychotherapy? The metacognition assessment scale and its applications. *Clinical Psychology and Psychotherapy*, *10*, 238–261.

Soeteman, D. I., Verheul, R., & Busschbach, J. J. V. (2008). The burden of disease in personality disorders: Diagnosis-specific quality of life. *Journal of Personality Disorders*, *22*(3), 259-268.

Spreng, R.N., Mar, R.A., & Kim, A.S.N., (2009). The common neural basis of autobiographical memory, prospection, navigation, theory of mind and the default mode: a quantitative meta-analysis. *Journal of Cognitive Neuroscience, 21,* 489–510.

Stein, M.B., Janet, H., Pinsker-Aspen, Hilsenroth, M.J. (2007). *Journal of Personality Assessment, 88,* 81-89.

Symington (1996): The Patient Makes the Analyst, *Psychoanalytic Inquiry, 16,* 362-375.

Thomsen, D. K. (2009). There is more to life stories than memories. *Memory*, *17*, 445-457.

Thomsen, D.K., Matthiesen, S., Frederiksen, Y., Ingerslev, H.J., Zachariae, R., & Mehlsen M.Y. (2016). Trait anxiety predicts the emotional valence of meaning-making in life stories: A 10-year prospective study. *Personality and Individual Differences, 102,* 51-55.

Thomsen, D. K., & Pillemer, D. B. (2016). I know my story and I know your story: Developing a conceptual framework for vicarious life stories. *Journal of Personality*, *85*, 464–480.

Thomsen, D.K., Steiner, K.L., & Pillemer, D.B. (2016). Life story chapters: Past and future, you and me. *JARMAC, 5*, 143-149.

Westen, D., & Cohen, R.P. (1993). The self in borderline personality disorder: A psychodynamic perspective. In Z. V. Segal & S. J. Blatt (Eds.), *The self in emotional distress: Cognitive and psychodynamic perspectives* (pp. 334–368). New York, NY: Guilford.

Westen, D., Ludolph, P., Lerner, H., Ruffins, S., & Wiss, C. (1990) Object relations in borderline adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 29*, 338-348.

Zaman, W., & Fivush, R. (2013). Stories of parents and self: Relations to adolescent attachment. *Developmental Psychology, 49*, 2047-2056.

Table 1

Means (*SD*) and ANOVAs for relationship with parent, knowledge of parent, knowledge of parent's life story, number of chapters, and depressive symptoms.

	Patients (N =23)		Controls (N = 23)		Time	Group	Interaction
	Baseline	Follow-up	Baseline	Follow-up			
Quality of relationship	3.13 (1.06)	3.26 (1.14)	4.57 (.59)	4.65 (.57)	$F(1, 44) = 1.46$, $\eta_p^2 = .03$	$F(1, 44) = 33.85$***, $\eta_p^2 = .44$)	$F(1, 44) = .06$, $\eta_p^2 = .00$
Knowledge of parent	3.91 (1.08)	4.09 (.90)	4.83 (.39)	4.78 (.42)	$F(1, 44) = 1.38$, $\eta_p^2 = .03$	$F(1, 44) = 13.72$**, $\eta_p^2 = .24$	$F(1, 44) = 3.82$, $\eta_p^2 = .08$
Knowledge of story	3.59 (.89)	3.68 (.82)	3.93 (.45)	4.06 (.44)	$F(1, 44) = 1.58$, $\eta_p^2 = .04$	$F(1, 44) = 4.06$, $\eta_p^2 = .08$	$F(1, 44) = .04$, $\eta_p^2 = .00$
Personal chapters	7.13 (1.91)	6.21 (2.04)	6.30 (1.58)	6.04 (1.80)	$F(1, 44) = 4.41$*, $\eta_p^2 = .09$	$F(1, 44) = 1.15$, $\eta_p^2 = .03$	$F(1, 44) = 1.36$, $\eta_p^2 = .03$
Parents chapters	4.48 (1.88)	4.57 (2.04)	4.57 (1.44)	5.43 (1.88)	$F(1, 44) = 5.48$*, $\eta_p^2 = .11$	$F(1, 44) = .92$, $\eta_p^2 = .02$	$F(1, 44) = 3.67$, $\eta_p^2 = .08$
BDI-II	26.27 (15.79)	21.41 (14.65)	3.04 (3.27)	2.74 (2.26)	$F(1, 43) = 4.07$, $\eta_p^2 = .09$)	$F(1, 43) = 49.91$***, $\eta_p^2 = .54$)	$F(1, 43) = 3.17$, $\eta_p^2 = .07$)

* $p < .05$ ** $p < .005$ *** $p < .0005$

Table 2

Means (*SD*) and ANOVAs for personal life stories and parents' life stories

	Patients (N =23)		Controls (N = 23)		Time	Group	Interaction
	Baseline	Follow-up	Baseline	Follow-up			
Chapter valence	2.86	2.82	3.92	4.07	$F(1, 44) = .74$,	$F(1, 44) = 103.03$***,	$F(1, 44) = 1.80$,
	(.53)	(.53)	(.38)	(.35)	$\eta_p^2 = .02$	$\eta_p^2 = .70$	$\eta_p^2 = .04$
Causal connections	6.20	6.35	8.05	8.14	$F(1, 43) = .95$,	$F(1, 43) = 56.46$***,	$F(1, 43) = .09$,
	(1.13)	(.99)	(.69)	(.72)	$\eta_p^2 = .02$	$\eta_p^2 = .57$	$\eta_p^2 = .00$
Complexity	2.89	3.18	3.01	2.96	$F(1, 44) = 2.33$,	$F(1, 44) = .14$,	$F(1, 44) = 4.79$*,
	(.44)	(.44)	(.65)	(.50)	$\eta_p^2 = .05$	$\eta_p^2 = .00$	$\eta_p^2 = .10$
Agency	.77	1.30	1.66	1.70	$F(1, 44) = 36.48$***,	$F(1, 44) = 55.69$***,	$F(1, 44) = 24.96$***,
	(.37)	(.38)	(.31)	(.27)	$\eta_p^2 = .45$	$\eta_p^2 = .56$	$\eta_p^2 = .36$
Communion	1.59	1.75	1.68	1.77	$F(1, 44) = 3.77$,	$F(1, 44) = .68$,	$F(1, 44) = .30$,
	(.38)	(.27)	(.29)	(.24)	$\eta_p^2 = .08$	$\eta_p^2 = .02$	$\eta_p^2 = .00$
Communion fulfillment	.75	.87	1.45	1.60	$F(1, 44) = 6.58$*,	$F(1, 44) = 53.87$***,	$F(1, 44) = .11$,
	(.40)	(.38)	(.41)	(.31)	$\eta_p^2 = .13$	$\eta_p^2 = .55$	$\eta_p^2 = .00$

Chapter valence parent	2.98 (.54)	3.27 (.62)	3.77 (.62)	3.83 (.60)	$F(1, 44) = 4.61$*, $\eta_p^2 = .10$	$F(1, 44) = 18.54$***, $\eta_p^2 = .30$	$F(1, 44) = 1.92$, $\eta_p^2 = .04$
Causal connections parent	6.31 (1.04)	6.73 (.93)	7.70 (1.10)	7.79 (1.12)	$F(1, 44) = 2.89$, $\eta_p^2 = .06$	$F(1, 44) = 18.86$***, $\eta_p^2 = .30$	$F(1, 44) = 1.28$, $\eta_p^2 = .03$
Complexity parent	2.34 (.53)	2.53 (.70)	2.74 (.56)	2.64 (.53)	$F(1, 41) = .25$, $\eta_p^2 = .01$	$F(1, 41) = 2.74$, $\eta_p^2 = .06$	$F(1, 41) = 2.99$, $\eta_p^2 = .07$
Agency parent	.74 (.52)	.88 (.51)	1.67 (.37)	1.56 (.38)	$F(1, 43) = .05$, $\eta_p^2 = .00$	$F(1, 43) = 52.85$***, $\eta_p^2 = .55$)	$F(1, 43) = 2.71$, $\eta_p^2 = .06$
Communion parent	1.36 (.50)	1.64 (.47)	1.71 (.29)	1.86 (.25)	$F(1, 43) = 11.93$**, $\eta_p^2 = .22$	$F(1, 43) = 8.43$**, $\eta_p^2 = .16$	$F(1, 43) = 1.41$, $\eta_p^2 = .03$
Communion fulfillment parent	.69 (.56)	.92 (.47)	1.52 (.41)	1.51 (.41)	$F(1, 42) = 3.02$, $\eta_p^2 = .07$	$F(1, 42) = 33.47$***, $\eta_p^2 = .44$	$F(1, 42) = 3.32$, $\eta_p^2 = .07$
Self and other confusion	.21 (.21)	.23 (.53)	.03 (.07)	.04 (.21)	$F(1, 43) = .14$, $\eta_p^2 = .00$	$F(1, 43) = 6.15$*, $\eta_p^2 = .13$	$F(1, 43) = .00$, $\eta_p^2 = .00$

* $p < .05$, ** $p < .005$ *** $p < .0005$

Appendix

For analyses comparing patients who dropped out of the study with patients who remained in the study, *d* was calculated based on the formula for comparing independent groups; $d = (M_2 - M_1) / SD_{pooled}$; (Field, 2017) and using this online calculator:

http://www.socscistatistics.com/effectsize/Default3.aspx)

For analyses comparing levels of depressive symptoms as well as agency and complexity in life stories in patients from before to after therapy, *d* was calculated based on the following formula for dependent groups, which takes the correlation between pre- and posttest into account; $d = (\mu_D / \sqrt{SD_1^2 + SD^2_2/2*(\sqrt{2(1-p)})}$ (Morris & DeSchon, 2002) and using this online calculator:

http://www.cognitiveflexibility.org/effectsize/