Psychotherapy Research

ISSN: 1050-3307 (Print) 1468-4381 (Online) Journal homepage: https://www.tandfonline.com/loi/tpsr20

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To cite this article: Ueli Kramer, Franz Caspar & Martin Drapeau (2013) Change in biased thinking in a 10-session treatment for borderline personality disorder: Further evidence of the motive-oriented therapeutic relationship, Psychotherapy Research, 23:6, 633-645, DOI: 10.1080/10503307.2013.791404

To link to this article: https://doi.org/10.1080/10503307.2013.791404

Published online: 30 Apr 2013.

Psychotherapy Research, 2013
Vol. 23, No. 6, 633–645, http://dx.doi.org/10.1080/10503307.2013.791404

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Change in biased thinking in a 10-session treatment for borderline personality disorder: Further evidence of the motive-oriented therapeutic relationship

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(Received 16 July 2012; revised 7 December 2012; accepted 19 March 2013)

Abstract
Borderline Personality Disorder (BPD) is characterized by both maladaptive thinking and problematic schemas. Kramer and colleagues (2011) showed that using the motive-oriented therapeutic relationship (MOTR), based on the individualized understanding of the patient according to Plan Analysis (Caspar, 2007), can improve treatment outcomes for BPD. The present process-outcome pilot study aimed to examine the effects of the motive-oriented therapeutic relationship on the cognitive biases of patients with BPD. Change in biased cognitions in $N=10$ patients who were subject to MOTR was compared to that of $N=10$ patients who received psychiatric-psychodynamic treatment (Gunderson & Links, 2008). Results show a greater decrease in over-generalizations in patients who received MOTR, compared to the patients who received the psychiatric-psychodynamic treatment. These changes were related to outcome in various ways. These findings underline the importance of an individualized case formulation method in bringing about therapeutic change.

Keywords: borderline personality disorder; cognitive biases; cognitive errors; cognitive errors rating scale; CERS; plan analysis; motive-oriented therapeutic relationship

Relational techniques, i.e., therapeutic techniques focusing and using the therapeutic relationship (Smith, Barrett, Benjamin, & Barber, 2006), optimally take into account the dialogical nature of psychotherapy (Hermans & Dimaggio, 2004), implying that both participants in the interaction may have a momentary influence on each other. This can be understood to reflect therapist responsiveness (Stiles, 2009; Stiles, Honos-Webb, & Surko, 1998), which implies that it is difficult for the therapist to adhere to a manual, even if this is what the therapist reports doing (Stiles et al., 1998). This problem has motivated researchers to define procedures consistent with the challenge of therapist responsiveness in psychotherapy (Caspar & Grosse Holtforth, 2009). One possible operationalization is the Plan Analysis concept and the ensuing therapist Motive-Oriented Therapeutic Relationship (MOTR; Caspar, 2007; Grawe, 1980, 1992). In a recent recommendation for the treatment of patients presenting with Personality Disorders (PD), Gaebel and Falkai (2009); also Herpertz, 2008) suggested that the Motive-Oriented Therapeutic Relationship may be particularly relevant as a relational technique for the treatment of this patient population.

Motive-Oriented Therapeutic Relationship

Plan Analysis, an integrative method of case formulation based on the works of Grawe and Dziewas (Grawe, 1980), has been developed further by Caspar (2007). In several ways, it may be paralleled with what the Mount Zion group has called the Plan Formulation method (Curtis & Silberschatz, 2007) and, in a different way, with the Core Conflictual Relationship Theme by Luborsky and Barrett (2007); Jarry, 2010); also, case formulation was shown to be particularly important in the domain of Personality Disorders (Dimaggio & Attina, 2012). Plans, as defined originally by Miller, Galanter and Pribram (1960), and written in the upper case to emphasize that its meaning deviates from the common meaning, connect concrete patient behaviors or experiences to purposes or motives "behind" visible

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or intrapsychic actions. The underlying assumption is that those behaviors survive and become part of a relatively stable repertoire, and are instrumental in the sense of presenting an advantage for an individual, conscious or not, which does not necessarily imply that they are adaptive from a larger perspective. One behavior may serve several Plans; Plans are organized in an instrumental hierarchy, with situation-specific Plans—which are close to behavior—on the bottom to the highest general motives, corresponding to psychological needs. These are, although with varying weights, similar across patients (i.e., the needs for companionship, intimacy or autonomy). In the concrete analysis, the therapist must determine "Which conscious or unconscious *purposes* underlie a particular aspect of an individual's behavior or experience?" or, from a top-down perspective, "What means does the patient use to achieve a specific goal?" (Caspar, 2007, p. 251). In this context, Plans are closely related to emotions and cognitions, as mental activities related to the treatment of person-relevant contents. A particular function of adaptive—versus biased—cognitions is to deliver the premises on which Plans develop. For example, the belief that "others will reject or abandon me if I'm less than perfect" would be the cognitive underpinning of a Plan such as "be perfect," whereas the more profound motive behind this Plan might be related to "be accepted" or "be close to others," suggesting that there is a fear of rejection or of abandonment implied in this functioning. A second important type of relation between Plans and cognitions is that Plans can serve the purpose of protecting and maintaining convictions. For example, a Plan such as "avoid situations in which you could fail and be confronted by your mediocrity" serves the purpose of maintaining the conviction of being perfect. Cognitive biases are here formal process (as opposed to content) aspects of beliefs or schemas as cognitive underpinnings of Plans. The latter relate to motives and fundamental needs in an instrumental fashion. Case conceptualizations based on Plan Analysis rely on an individualized perspective of the patient's functioning, but there are prototypical examples for a variety of mental disorders, including Borderline Personality Disorder (e.g., Berthoud, Kramer, de Roten, Despland, & Caspar, 2013) and depression (Caspar, 2007) which facilitate and speed up the individualized inductive therapist inferences. Plan Analysis differs from other standardized case conceptualization procedures in its individualized methodology, without any pre-set categorical system suggesting contents, and in its particular emphasis on relationship heuristics called the Motive-Oriented Therapeutic Relationship.

Motive-Oriented Therapeutic Relationship (MOTR) is a concept related to the planning and implementation of therapist interventions on relationship and process levels of psychotherapy. The concept involves two assumptions: (1) Even the most problematic patient interpersonal behavior can be related to motives that are not problematic, i.e., not impeding therapy. (2) If a therapist has understood these motives and is able to satisfy them sufficiently and in a proactive way, the patient has what he or she needs. The use of problematic means is thus no longer necessary, and resources and attention can be directed towards problem-solving (as opposed to struggling in the therapeutic relationship). As these interventions are based on the individualized understanding of the patient's functioning based on Plan Analysis, the MOTR is always a custom-tailored, highly individualized intervention. It is often crucial to address patient needs in a highly specific manner, as opposed to giving attention to all needs. The therapist behavior should be proactive and not be reactive contingently to problematic patient behavior. If the therapist's understanding is accurate, and the deduced therapist behavior appropriate, then problematic interpersonal behaviors, in particular interpersonal hostility, interpersonal avoidance behaviors, (para-) suicidal behaviors aiming to mobilize the therapist outside office hours and repetitive complaints with regard to insufficient therapist activity should decrease. Along with this decrease in problematic interpersonal patterns, it can be believed that a decrease in the pervasiveness of problematic cognitive-affective structures underlying such Plans may be found. Grawe (1998, 2004) suggested that repeated need satisfaction and resource activation—in an individualized fashion consistent with MOTR—in early treatment sessions may have an impact on cognitive structures. Using a neurobiological metaphor and within his Consistency Theory, Grawe (2004) postulated that psychotherapy based on MOTR principles should help create novel connections within the brain by repeatedly activating *the approach- (as opposed to avoidance-) based* regulatory systems, by producing in-session corrective implicit-relational experience with the therapist. Change in cognitive-affective structures, of which biased thinking is a discourse marker, may be viewed as a mediator of change in these treatments.

For example, a female patient with Borderline Personality Disorder (BPD) and presenting the typical assumption "all close relationships are abusive" (see Arntz, 1994; Arntz, Dietzel, & Dreessen, 1999; Pretzer, 1990)—which may be coded as negative over-generalizing—tells the therapist in an assertive way: "I want to stop treatment, because

I am doing well now!," based on the implicit assumption "if I stay in therapy, the therapist will abuse me." Behind this specific interactional behavior, the Plans may be "show the therapist that you are well," "avoid engaging more fully in therapy," "maintain a distance with the therapist." Possible motives behind the latter Plans may involve both "remain in control" (distance towards others may refer to the underlying need for control) and "stay close to others" (self-presentation as being well may imply avoiding seeing negative aspects, but also relate to the basic needs of accepting relationship and sound attachment; see also Drapeau and Perry, 2009, for typical interpersonal patterns related to this patient population). A therapist who stops treatment simply based on the content of the patient's utterings would not act according to these latter motives. In contrast, a therapist using MOTR would verbally and non-verbally reassure the patient that even if she sees much progress, the therapist continues to be there for her while proactively assuring that she is allowed to take control over the themes discussed in session. Such an intervention, facing an activated Plan "show the therapist that you are well," may look like this: "I can see that you made much progress. I want you to know that if there is a subject you feel that I can help you even more, I will do it with every means I have."

These interventions aim at producing a novel corrective experience in the patient which contradicts the underlying assumption (i.e., "all close relationships are abusive") and therefore the pervasiveness of the cognitive structures may be changed. Note that we referred to an example from a BPD patient, but the MOTR principle presented applies to all forms of psychological disorders. It also becomes clear that MOTR goes beyond simply "being positive" or "focus on resources" in the patient, as so-called "positive" aspects are also understood within the hierarchy of Plans and might be underpinned by problematic higher-order Plans. Differentiated complementarity in this particular case focuses on the underlying, higher-order, motives and advocates non-complementarity to all lower-order levels, including the apparently positive aspect. The example given (i.e., the uttering "I want to stop treatment, I am well" extraneous of its context could be understood as marker of positive change) speaks to this argument.

Empirical Evidence of the Effects Of Motive-Oriented Therapeutic Relationship

A number of these assumptions have been tested empirically. Caspar, Grossmann, Unmüssig and Schramm (2005) have shown that the non-verbal component of MOTR—therapist behavior assuring on non- or para-verbal levels the underlying activated motive—is particularly linked with therapeutic outcome in a sample of depressed inpatients ($N = 22$) undergoing interpersonal psychotherapy. Similar results were found by Kramer et al. (2011) with outpatients presenting with depression and co-morbid personality disorders ($N = 20$) and undergoing a short form of psychodynamic psychotherapy. According to this study, these conclusions apply to patients with co-morbid personality disorder (PD), but no effect was found for patients presenting with major depression alone. Schmutz, Berger and Caspar (2011) presented findings showing that MOTR is tied to outcome ($N = 162$), in particular for a subsample presenting with PD features ($n = 27$). Schmitt, Kammerer and Holtmann (2003) have shown that training in Plan Analysis in students in psychosomatic medicine has positive effects on the quality of clinical competencies. Finally, in a recently published pilot study of an ongoing randomized controlled trial, we showed that MOTR, applied to a 10-session treatment for Borderline Personality Disorder, as compared to a control treatment, produced significant effects for change in interpersonal problem areas, in the therapeutic alliance and in the quality of the therapeutic relationship ($N = 25$; Kramer et al., 2011). The study included 10 sessions of active treatment (if indicated, more treatment was proposed to these patients, but was not assessed in this study); indeed, MOTR appears to produce its optimal effects in the early phase of therapy, in particular when working with patients presenting with Personality Disorders (Caspar & Ecker, 2008; Gaebel & Falkai, 2009; Kramer, 2009; Schmutz et al., 2011). Therefore, it seems sensible to further explore the effects of MOTR in these early sessions of therapy, in particular its effect on cognitive processing.

Cognitive Processing in Borderline Personality Disorder

There is a dearth of research with regard to the patient's processes potentially bringing about change in these interpersonal problems in Borderline Personality Disorder. One factor that may influence outcome is the patient's cognitive and affective in-session processing of relevant contents. Biased thinking has been thought of as being one factor contributing to personality pathology, together with poor abilities in appraising in a mature and nuanced way the minds of the others. Such a compromised ability to make sense of the other's mind makes it hard to correct baised attributions of negative intentions to others (Dimaggio, Semerari, Carcione,

Procacci, & Nicolo, 2006; Ghiassi, Dimaggio, & Brüne, 2010; Kendall & Hollon, 1981). Traditionally (Arntz, 2005; Beck, 1963; Pretzer, 1990), cognitive errors are believed to be associated with psychopathology; those errors are expected to decrease over the course of treatment. More recently, research on heuristics (Gigerenzer & Brighton, 2011) has suggested that biased thinking may produce adaptive behavior under certain circumstances; thus cognitive errors are—to some extent—part of adaptive human functioning (Baron, 2008). An example of this can be found in Mind-reading, a cognitive error according to Beck (1963, 1995), which overlaps to some extent with the therapeutic function of mentalization, implying an elaborate theory of mind with regard to the other's functioning (Liotti & Gilbert, 2011). Under certain circumstances, the production of a discourse about the other's intentions, even if perceived negatively, may be adaptive; in other contexts, it functions as a cognitive error.

With regard to patients presenting with BPD, Dimaggio et al. (2006) postulated that the specific heuristic "better safe than sorry," representing an overestimation of an anticipated danger and therefore not choosing a limited risk (whilst ignoring negative consequences of this absence of choice), was associated with this patient population. Furthermore, self-enhancement heuristics, limited anticipation of satisfaction, interpersonal reassurance-seeking and the restricted ability to feel joy were discussed in relation to narcisstistic personality disorder and BPD (Dimaggio et al., 2002, 2006; Leahy, 2002). Based on this position, maladaptive heuristics are complex structures of a set of individual cognitive errors (i.e., the heuristic "better safe than sorry" includes such cognitive errors as catastrophizing and discounting the negative information) which together impact the individual's adaptive ability. It is a set of biases, along with their mutual interactions, that influence psychopathology and therapeutic outcome, rather than a single error in logic. Consistently, heuristics are complex decision-making strategies influenced by affects (Bower, 1981; see also Greenberg and Paivio, 1997 for the links between cognitive processing and affects). "Rational" decisions are underpinned by affective mood states. Thus far, most empirical research on cognitive errors in BPD has failed to fully address this complexity, in particular with regard to change in biased thinking over the course of therapy; the present study will not use the heuristics concepts, but is based on the affect-infused cognitive theory (e.g., Bower, 1981) imposing the detailed analysis of in-session speech.

To date, it has been shown that single cognitive errors such as dichotomous thinking—or all-or-nothing thinking—are associated with BPD (Napolitano & McKay, 2007; Veen & Arntz, 2000). High frequencies of biases, i.e., judging others aggressively and negatively (in addition to less positively, compared to controls), were reported elsewhere (Barnow et al., 2009). Some of these studies rely on self-reports. A number of conceptual and methological limitations related to this approach need to be taken into account (Kramer, Vaudroz, Ruggeri, & Drapeau, in press), in particular when one is interested in the in-session production of cognitive activity potentially influenced by affect (e.g., Bower, 1981). Using an observer-rated method to rate in-session cognitive activity and thus responding to some of this criticism, Kramer et al. (in press) showed that a pattern of negative cognitive errors, fortune-telling and over-generalizing together were related to BPD. The negative valence of a cognitive error, as opposed to its positive valence, denotes a bias towards negative evaluation of the self and the other. It is in line with the concept of biased thinking itself to assess these in-session processes individually and not only conceive and measure them on a general level, as global biases towards the negative for example (e.g., Barnow et al., 2009) or as global assessment of cognitive flexibility.

The aim of the present study was to test the effects of Motive-Oriented Therapeutic Relationship on change of in-session cognitive errors, as assessed by a valid oberver-rated system with patients presenting with Borderline Personality Disorder. Our hypotheses were that: (1) The frequency of cognitive errors (overall score) would decrease over the course of 10-session psychodynamic-psychiatric treatment for Borderline Personality Disorder; (2) that there would be a decrease in the frequency of cognitive errors that is greater in subjects who received the Motive-Oriented Therapeutic Relationship, as compared to subjects who underwent psychodynamic-psychiatric treatment as usual; and (3) that there would be a decrease in cognitive errors that is related to a decrease in symptoms over the course of 10-session psychodynamic-psychiatric treatment for Borderline Personality Disorder.

Method

Design

The current process-outcome study is based on a randomized controlled trial (RCT), published elsewhere (Kramer, Berger et al., 2011). The outcome study involved is a two-group RCT add-on effectiveness design (group 1: comparison; group 2:

comparison plus MOTR, hereafter referred to as MOTR) on 10 sessions of an outpatient psychodynamic-psychiatric treatment. A detailed flow chart of the entire sample of $N = 25$ patients of the pilot study can be found in Kramer, Berger and colleagues (2011, p. 246). One criterion used to include a participant was that a sufficient number of therapy sessions were recorded ($M = 7.2$; $SD = 1.4$; range 4–12), in order to be able to perform analyses based on change over the course of the 10-session-treatment. Based on this criterion, no participant needed to be excluded. In order to increase the feasibility of the current process-outcome study, we randomly chose 20 patients from the sample of the pilot study. The participants were chosen irrespective of their treatment status (completers or drop-outs).

Participants

Patients. A total of $N = 20$ outpatients presenting with Borderline Personality Disorder (BPD) were included in the study. Eighteen (80%) were female; the patients had a mean age of 32 years ($SD = 12.45$; ranging from 19 to 56). All patients were French-speaking and had a DSM-IV (APA, 1994) diagnosis of BPD, as diagnosed by the treating clinician using the Structured Clinical Interview for DSM-IV (SCID-II; First, Spitzer, Williams, & Gibbons, 2004). The mean number of BPD criteria met was 6.70 ($SD = 1.59$; ranging between 5 and 9). Additional axis II diagnoses included paranoid PD (one patient) and narcissistic PD (two patients). A trained researcher independently reviewed 20% of the videotaped SCID-II interviews (randomly selected) to reassess the diagnosis. Inter-rater reliability for the SCID-II was assessed on the item level using κ statistics; the reliability of axis II diagnoses was satisfactory ($\kappa = .79$). Some of the patients ($n = 10$; 50%) presented co-morbid axis I disorders, such as major depression (four patients; 20%), agoraphobia (one patient), dysthymia (one patient), bulimia (one patient), anorexia (one patient), panic disorder (one patient), alcohol abuse (one patient), somatoform disorder (one patient), schizoaffective disorder (one patient). Axis I diagnoses were obtained using the MINI and were only rated for present disorders (Lecrubier et al., 1997); inter-rater agreement was not examined for these diagnoses. Two of the 20 patients (one per condition) received short-term inpatient treatment (i.e., crisis intervention) during the studied time-frame; 14 patients (seven per condition) had additional psychopharmacological treatment.

Therapists. In total, eight therapists (psychiatrists, psychologists, nurses) participated in the treatment of the patients included in the study on the 10-session therapy. Training of the therapists in the psychiatric-psychodynamic model proposed by Gunderson and Links (2008); see under Treatment conditions) began at the onset of the study and continued over its course. The basic training included between 3 and 5 years of training in psychodynamic psychotherapy and psychiatric clinical management, prior to the study. All the therapists were involved in both treatment conditions. All treatments were supervised at least twice over the course of the treatment process; the first supervision took place after the intake session, the second session during the second half of the process. The supervisors were experts in both treatment conditions (comparison and MOTR). The therapists received the same amount of supervision in both conditions. Therapists treated between one and five patients, across both conditions: two therapists treated five patients each (both therapists had two in one condition, three in the other), one treated three (two in one condition, one in the other), two treated two (one per condition) and three treated one each (two in one condition, one in the other); on average (patient per therapist) 2.50; $SD = 1.58$. The therapists were blind to the hypotheses of the study.

Raters. Raters included four Master's-level University students in Clinical Psychology who were trained in the use of the CERS measure (see below) according to recent training recommendations (Kramer, de Roten, & Drapeau, 2011). The training took place over 6 months and included rating 13 cases (not included in this study), followed by ongoing recalibration and supervision with the first author. Such an in-depth training was necessary, aiming at avoiding confusion between categories in cases of statements which could potentially be interpreted in multiple ways and aiming at the highest quality of assessment of individual cognitive errors. The raters were blind to the treatment condition and the study hypotheses. The independent variable of interest being a subtle one (MOTR), it was almost impossible for a student rater not trained in the MOTR concept to differentiate the two conditions.

Treatment Conditions

Condition 1: comparison group. The 10-session treatment included weekly psychiatric sessions based on the manual by Gunderson and Links (2008). This treatment has been shown to be equally effective as Dialectical-Behavior Therapy in a study on a 1-year treatment period (McMain et al., 2009) and on 2-year follow-up (McMain, Guimond,

Streiner, Cardish, & Links, 2012). The principle-based manual was adapted to the first 10 sessions of the therapy, in particular by proposing at the outset of the intervention a specific treatment contract encompassing only 10 sessions for all patients; all further therapy was to be discussed based on the clarified clinical indication at the very last interview. The 10-session treatment included the following: (1) The establishment of a reliable clinical diagnosis, including co-morbidities and specific problem areas and the communication of this diagnosis to the patient; (2) a psychiatric anamnesis; (3) a focus on the main problem(s) to be treated; (4) a global enhancement of motivation for long-term treatment and elaboration of short-term objectives; (5) the treatment of therapy-interfering problems; and (6) the formulation of relational interpretations of core conflictual themes. If necessary, short-term inpatient treatment or pharmacotherapy was provided. No adherence checks were performed specifically on the variables related to Gunderson and Link's manual (2008). If clinically indicated, all patients received therapy beyond the 10 sessions; however, this study did not focus on those subsequent therapy sessions.

Condition 2: MOTR. The MOTR condition differs from the comparison condition in that a Plan Analysis and the ensuing Motive-Oriented Therapeutic Relationship were used, in addition to the treatment described under condition 1. The total duration, the contents and therapeutic objectives of the MOTR treatment were the same as the comparison treatment; the MOTR principle was an integral part of the early therapy process (sessions 2 to 10) and no sessions were added. MOTR was implemented after session 1; the intake session gave the therapist the material needed to build a case formulation according the Plan Analysis/MOTR procedures (Caspar, 2007).

Adherence to MOTR in the MOTR-condition vs. non-adherence to MOTR in the control group. Independent adherence controls were done on both treatment groups, in order to ensure that the therapists in the MOTR group were implementing the MOTR principle to a sufficient extent and, in parallel, to ensure that the therapists in the comparison condition did not do so. Detailed adherence results on the MOTR scale were presented by Kramer, Berger and colleagues (2011) on the same data set as in the present process study, along with reliability checks for these adherence ratings, using blind raters for the latter (for the procedure, see Caspar & Grosse Holtforth, 2009; Kramer, Berger, & Caspar, 2009). In order to do so, a validated observer-rated scale was used assessing therapist in-session behavior consistent with MOTR which is the idiographic method of assessing Plan structure and MOTR from an independent research perspective (Caspar et al., 2005). On average, MOTR was implemented in the MOTR condition (mean = 2.09; $SD = 0.41$, range: 1.12–2.54; cut-off being at 1; range of the 7-point MOTR-scale between -3 and 3) and MOTR was not implemented in the comparison condition (mean = 0.25; $SD = .23$; range: 1.98–0.94; cut-off being 1; Kramer, Berger, et al., 2011). According to these results, it can be concluded that adherence to MOTR was sufficient in the MOTR condition (above the cut-off of 1), whereas adherence to MOTR was, as expected, under the cut-off in the comparison condition. Thus, no cases needed to be excluded from the treatment protocol based on the MOTR-adherence ratings and we can confidently exclude potential spill-over effects from one condition to the other; we can also confidently exclude spontaneous implementation of MOTR in the comparison group and insufficient implementation of MOTR in the MOTR condition.

Instruments

Cognitive Errors Rating Scale (CERS; Drapeau, Perry, & Dunkley, 2008; French translation and validation by Kramer & Drapeau, 2011). The CERS is an observer rating system assessing cognitive errors in interview transcripts. It includes 15 different cognitive errors, based on J. Beck (1995) and A.T. Beck's (1963) work: (1) Fortune-telling, (2) Labeling, (3) Over-generalizing, (4) All-or-nothing, (5) Discounting the positive/negative, (6) Emotional reasoning, (7) Magnification/minimization of positive/negative, (8) Mental filter, (9) Should and must, (10) Tunnel vision, (11) Jumping to conclusions, (12) Mind-reading, (13) Personalization, (14) Inappropriate blaming of self, and (15) Inappropriate blaming of others. All errors are rated according to their valence: positive and negative. According to Lefebvre (1981), they can be classified in four higher-order categories: fortune-telling (error 1), overgeneralizing (errors 2 and 3), selective abstraction (errors 4 through 11) and personalization (errors 12 through 15). For all computations, relative frequencies are used, by weighting the absolute frequency of each error by the number of words spoken by the patient (excluding therapist interventions and patient hesitations), yielding a score for each error per 1000 words. Empirical validation data were presented in several studies, accounting for sufficient internal and external validity both for the original English version (D'Iuso, Blake, Fitzpatrick, & Drapeau, 2009; Drapeau,

Blake, & Dobson, 2011) and for the French version used in this study (Kramer, Bodenmann, & Drapeau, 2009; Kramer, de Roten, & Drapeau, 2011; Kramer & Drapeau, 2009, 2011). A manual (Drapeau, Perry, & Dunkley, 2008) guides the rater, in order to ensure high-quality ratings, in particular with regard to typical statements which could be confounded between categories. For example, in order to be able to identify a Cognitive Error (CE) on a specific transcript excerpt, the rater must find evidence elsewhere in the same session. For the current study, reliability coefficients were calculated on 32% (13 of 40 sessions) of the ratings; inter-rater reliability was satisfactory, with intra-class correlation coefficients (ICC(2, 1); Shrout & Fleiss, 1979) varying between .66 and .95 ($M = .83$; $SD = .11$). These coefficients are established on higher-order categories per error valence as the unit of analysis (eight categories); in order to increase power, for the presentation of the results, only the four higher-order categories, broken down into both valences, were examined.

Outcome Questionnaire-45.2 (OQ-45; Lambert et al., 1996). This self-report questionnaire includes 45 items addressing three main domains of distress: Level of symptoms, interpersonal relations and social role. A general sum score was computed for this study. A Likert-type scale is used to assess the items, from 0 (never) to 4 (almost all the time). Validation coefficients of the original English version are satisfactory, in particular for internal consistency and sensitivity to change over psychotherapeutic treatment (Vermeersch, Lambert, & Burlingame, 2000). The validation of the French version used in this study was carried out by Emond et al. (2004) and yielded satisfactory results. Cronbach's alpha for this sample was .93. This questionnaire was given at intake and at discharge (after session 10) of treatment.

Procedure

All therapy interviews were video- or audio-recorded. The intake interview was chosen to be included in the present study for all treatments, as for this intake interview the Plan Analysis and Motive-Oriented Therapeutic Relationship-procedure had not been applied; it was applied only from session 2 onward and the intake session served as baseline information; therefore, no between-group difference was assumed for the intake session. Of the remaining sessions, the penultimate session was chosen for analysis. These two interviews were transcribed verbatim by Master's-level psychology students, using the rules defined by Mergenthaler and Stigler (1997).

Interviews were rated using the transcripts. All ratings were done by the same four-Master's-level students in psychology.

Data Analysis

As preliminary analyses, we first tested the comparability of both groups at intake interview on various variables, such as socio-demographic variables, gender and age, and variables related to symptomatic variables, the OQ-45 and the number of presenting BPD criteria on the SCID-II, in-session production of number of words and frequencies of cognitive errors at baseline. This was done using Wilcoxon's non-parametric testing and *t*-tests, where appropriate. Hypothesis (1) stated a decrease of CEs over the course of the 10-session treatment; paired-sample *t*-tests were performed comparing frequencies of CEs at intake sessions with the frequencies of CEs from the penultimate session. Hypothesis (2) stated a greater decrease in CEs in the MOTR: a set of *t*-tests were performed comparing change (residual gains) between the MOTR and the comparison condition with regard to the frequency of CEs (partialling out the frequency of CEs at intake). For all between-group comparisons, we applied Bonferroni's correction and divided the *p*-value by 10 (number of tests applied). We also tested the potential effect of the presence of medication on change in cognitive change; no effect was found. Therefore, this variable was not included in any of the statistical analyses. Hypothesis (3) stated a link between the decrease in CEs and symptom decrease: Pearson's correlations were used to test this hypothesis ($N = 20$).

Results

Preliminary Analyses

First, socio-demographic variables, as well as symptomatic variables, and the number of presenting BPD criteria on the SCID-II (First et al., 2004) were examined for possible between-group differences (MOTR vs. comparison). Results showed no significant difference on any of these variables. Next, we conducted similar analyses on the baseline profile of cognitive errors with regard to possible between-group differences (MOTR vs. comparison; see Table I). Again, we did not find any significant between-group differences. Finally, no between-group differences were found with regard to the frequency of inpatient treatment during the study period or with regard to the medication. Both groups may therefore be considered comparable at baseline on these variables.

According to Kramer, Berger and colleagues (2011), MOTR may have an impact on therapeutic

Table I. Sociodemographic characteristics and frequencies of Cognitive Errors at intake, as function of group ($N = 20$)

	Comp		MOTR			
Cognitive errors	*M*	*SD*	*M*	*SD*	*U/t*	*p*
Socio-demographics						
Gender (% female)	80		80		50.00[a]	1.00
Age	29.70	13.73	34.30	11.26	−.82[b]	.42
Medication (% use)	70		70		50.00 [a]	1.00
Inpatient (% use)	10		10		50.00 [a]	1.00
OQ-45 total	92.80	16.45	87.70	26.65	.52[b]	.61
Symptoms	54.30	13.12	49.80	17.96	.64[b]	.53
Interpersonal problems	23.00	3.02	22.00	5.03	.54[b]	.60
Social role	15.50	4.65	15.90	5.23	−.18[b]	.86
Number BPD	6.60	1.58	6.90	1.66	−.55[b]	.58
Cognitive errors						
Number of words	4583.50	612.98	4812.70	1725.58	−.40[b]	.70
Cognitive errors total	1.65	.92	2.13	1.58	−.84[b]	.41
Positive	.48	.40	.58	.78	−.36[b]	.72
Negative	1.17	.92	1.55	1.69	−.64[b]	.53
Positive cognitive errors						
Fortune-telling	.00	.00	.00	.00	n.a.	n.a.
Over-generalizing	.00	.00	.04	.09	−1.47[b]	.16
Selective abstraction	.44	.40	.53	.79	−.35[b]	.73
Personalization	.04	.09	.00	.00	1.50[b]	.15
Negative cognitive errors						
Fortune-telling	.22	.19	.12	.23	1.09[b]	.29
Over-generalizing	.32	.34	.57	.71	−1.02[b]	.32
Selective abstraction	.52	.49	.70	.43	−.90[b]	.38
Personalization	.11	.23	.21	.56	−.55[b]	.59

Note. n.a., not applicable; [a] Wilcoxon's U; [b] *t*-tests; all CE scores are weighted relative frequencies per 1000 words. Number BPD, number of BPD criteria assessed using the SCID II procedure.
*$p < .05$; ** $p < .01$.

outcome (measured using the OQ-45) in the early phase of treatment (see above). For the sub-sample used in the present study we found a significant difference favoring MOTR with regard to symptom reduction over the course of the 10-session treatment ($F(1, 18) = 4.47$; $p = .05$; $d = .91$), when comparing residual gains of the OQ-45 (total score) between both groups (MOTR vs. comparison).

Change in Cognitive Errors Over the Course of 10-Session Treatment

For our first hypothesis (both conditions together), it can be said that the frequency of cognitive errors, assessed on the process level, diminished over the course of the 10-session treatment ($t(1, 19) = 2.22$; $p = .05$; $d = .66$), especially negatively valenced errors ($t(1, 19) = 2.82$; $p = .04$; $d = .84$; see Table II). More

Table II. Cognitive Errors at intake and at later session of the 10-session treatment ($N = 20$)

	Intake		Late			
Cognitive errors	*M*	*SD*	*M*	*SD*	*t*	*ES*
Cognitive errors	2.19	1.35	1.22	.64	3.07*	.92
Positive	.53	.61	.43	.43	.64	.19
Negative	1.66	1.35	.79	.58	2.82*	.84
Positive cognitive errors						
Fortune-telling	.00	.00	.00	.00	n.a.	n.a.
Over-generalizing	.02	.07	.09	.17	−1.65	.54
Selective abstraction	.49	.61	.33	.34	1.17	.32
Personalization	.02	.07	.01	.05	1.05	.16
Negative cognitive errors						
Fortune-telling	.17	.21	.05	.11	2.91*	.72
Over-generalizing	.72	.64	.23	.24	3.35*	1.01
Selective abstraction	.61	.46	.43	.36	1.27	.44
Personalization	.16	.42	.08	.21	1.40	.24

Note. n.a., not applicable; ES, Cohen's *d*. Bonferroni's correction applied (.05/10).
* $p < .05/10$.

Table III. Change in Cognitive Errors, partialling out initial frequency levels, as a function of group

	Comp ($N=10$)		MOTR ($N=10$)			
Cognitive errors	*M*	*SD*	*M*	*SD*	*t*	*ES*
Cognitive errors	−.52	1.05	−.81	1.63	.47	.21
Positive	−.10	.43	−.09	.89	−.05	.01
Negative	−.42	1.17	−.72	1.56	.49	.22
Positive cognitive errors						
Fortune-telling	0.00	0.00	0.00	0.00	n.a.	n.a.
Over-generalizing	.09	.13	.04	.21	.72	.29
Selective abstraction	−.18	.32	−.13	.77	−.19	.08
Personalization	−.02	.07	.00	.00	−1.06	.40
Negative cognitive errors						
Fortune-telling	−.17	.18	−.08	.19	−1.10	.01
Over-generalizing	−.10	.42	−.87	.62	3.24*	1.45
Selective abstraction	−.10	.68	−.27	.66	.58	.25
Personalization	−.05	.23	−.10	.26	.49	.20

Note. n.a., not applicable; ES, Cohen's *d*. All CE scores represent change scores; negative scores represent decrease of the frequency of CE. All CE scores are weighted relative frequencies per 1000 words per session. Bonferroni's correction applied (.05/10).
* $p < .05/10$.

specifically, there were two categories of cognitive errors which decreased over the course of treatment: the negatively valenced fortune-telling, also called catastrophizing ($t(1, 19) = 2.91$; $p = .04$; $d = .72$) and the negatively valenced over-generalizing ($t(1, 19) = 3.35$; $p = .03$; $d = 1.01$). All other categories remained unchanged, with small to medium effect sizes.

Effects of Motive-Oriented Therapeutic Relationship on Change in Cognitive Errors

For our second hypothesis, when comparing the MOTR with the comparison condition, one significant effect was found: MOTR produced a higher decrease in the use of negatively valenced over-generalizing ($t(1, 18) = 3.24$; $p = .03$; $d = 1.45$; see Table III). For all the other categories, there was no between-group difference. In order to illustrate the results, we cite several excerpts from the present study which were rated as negative over-generalizing, according to the manual by Drapeau and colleagues (2008). For example, a female patient said "I've always been a disatisfied person," which was rated as negative labeling (as part of the over-generalizing CE cluster). Another female patient said that "Everybody makes negative comments on others," rated as negative over-generalizing. Both individuals made sweeping negative conclusions as regards the self or the others which went beyond the description of a situation.

Links Between Cognitive Change and Symptom Change

For our third hypothesis, Pearson's correlations revealed significant correlations between cognitive change and symptom change (all positive correlations meaning that greater decrease in cognitive errors is associated with decrease in symptoms, and vice versa): Symptom change (change on total score on OQ-45) was related to change in total CE ($r = .44$, $p = .05$; $r_{partial} = .38$, $p = .08$, when controlled for total symptom level at intake), to change in negative CEs ($r = .46$, $p = .04$; $r_{partial} = .38$, $p = .08$) and to change in negative over-generalizing ($r = .49$, $p = .03$, $r_{partial} = .38$, $p = .08$). Because Kramer, Berger and colleagues (2011) found a specific effect of MOTR on the decrease in the OQ's interpersonal problems sub-scale, we tested this sub-scale in this study as well. Change on sub-score interpersonal problems (on OQ-45) was related to change in total CEs ($r = .55$, $p = .01$; $r_{partial} = .52$, $p = .02$, when controlled for interpersonal problems at intake), to change in negative CEs ($r = .58$, $p = .01$; $r_{partial} = .55$, $p = .01$), and to change in negative over-generalizing ($r = .49$, $p = .03$; $r_{partial} = .44$, $p = .05$), selective abstraction ($r = .52$, $p = .02$; $r_{partial} = .52$, $p = .02$) and personalizing ($r = .49$, $p = .03$; $r_{partial} = .45$, $p = .05$). No other change in cognitive errors was correlated with symptom change.

Discussion

This exploratory study aimed to determine whether a Motive-Oriented Therapeutic Relationship (MOTR), based on Plan Analysis, produced an additional decrease in biased thinking over the course of a 10-session psychodynamic-psychiatric treatment for patients with Borderline Personality Disorder. This first hypothesis was confirmed: Both overall cognitive errors and some specific categories of negative cognitive errors, in particular fortune-telling and

over-generalizing, decreased, with large effect sizes. Links with outcome, which tend to be maintained when we control for symptom severity at intake, speak to the importance of these observations. No significant effect was found for positive cognitive errors. This result is in line with previous studies on cognitive errors, showing that negatively valenced errors change more rapidly compared to the positively valenced errors (Kendall & Hollon, 1981; Schwartz, 1986). It is also noteworthy that a psychodynamically oriented treatment produces change on cognitive variables. Somewhat comparable results were reported by Connolly Gibbons and colleagues (2009) in a questionnaire-based study of the cognitive variable *view of self* ($N = 411$) which predicted outcome in both psychodynamic and cognitive psychotherapies. The decrease in negative cognitions over the course of psychodynamically oriented treatments suggests a possible overall mechanism of change in psychotherapy.

Furthermore, we aimed to determine whether Motive-Oriented Therapeutic Relationship (MOTR) has an additional impact on change in cognitive errors over the course of a psychiatric-psychodynamic treatment for Borderline Personality Disorder. Results partially supported our hypothesis that MOTR decreases the frequency of in-session production of CEs. This hypothesis only held true for negative over-generalizing; no between-group effect was found for the overall scores on cognitive errors. Even if this result was obtained on a sample with limited power, it appears that MOTR probably has an added effect on the decrease in negative over-generalizing in the early phase of treatment for BPD. If this effect is confirmed in larger samples, it may be concluded that individualized, implicit-relational intervention principles focusing on the in-session reassurance of the patient's motives not only produce better outcomes, but also have an impact on cognitive processing of relevant content and as a potential mechanism of change influence indirectly the quality of the therapeutic process, relationship and outcome.

The pervasiveness of the cognitive assumptions characterized with negative over-generalizing, e.g., "I've always been a disatisfied person," may decrease over the course of treatment infused by an individualized corrective relational experience with the therapist. In this example, the therapist using the MOTR principle may understand this patient utterance according to the underlying sequence of Plans: "convince the therapist that you have always been in a difficult situation," or, also, "show to the therapist that you have high expectations," which may, in turn, serve the purpose of "show that you are in an impasse," then serving the purpose of "make sure the therapist fully engages in the therapeutic relationship" and, finally, "avoid losing the other" and "increase control over your life" as motives or psychological needs. Reassuring these motives, in particular as a therapist showing that he/she engages fully in therapy with this patient, should decrease underlying convictions, such as the one cited earlier (i.e., "I've always been a disatisfied person"). On a non-verbal level, this therapist can express genuine interest in the patient, reassuring competence and reassuring presence within the therapeutic contract; on a verbal level, he can convey that the patient has taken an important step when coming to therapy, that he/she is at the right place and that the therapist will do everything possible to help the patient. The fact that only one CE category decreased over the course of the 10-session treatment associated with MOTR—negative overgeneralizing—speaks to a specific effect. Increased frequency of this particular category was related to BPD in earlier studies (Kramer et al., in press); MOTR addresses and changes the core maladaptive cognitive process in this pathology.

There are a number of limitations to the present exploratory process-outcome study. We assessed single cognitive errors, whereas from the perspective of maladaptive heuristics (Dimaggio et al., 2006), changes in patterns of biased cognitive activity are postulated, such as "better safe than sorry." From this perspective, sequential patterns based on the in-session occurrence of the cognitive errors should be taken into account, which would also shed light more profoundly on the exact processes of change, from the patient perspective, associated with the MOTR intervention. Without this information, we do not actually know if the cognitive change observed is due to the presumed implicit-relational corrective experience associated with MOTR or some other (uncontrolled) process. For example, processes in the two conditions may have been affected differentially by the use of medication; even if no main effect was found, we did not control for interaction effects. We fundamentally assumed that change in cognitive-affective structures (with biased thinking as a marker) functioned as a mediator of change in treatments infused by MOTR; we did not test other variables of potential interest for the role of mediator. In addition, sample size was an issue. Related to this, the number of patients per therapist was small and made it unfeasible to take the therapist variable into account. Furthermore, adherence was not rated for the variables related to Gunderson and Link's (2008) manual in both conditions, as our independent variable of interest was MOTR. Finally, in accordance with the study's objectives, we only assessed

10 sessions, thus we may not draw conclusions on how these variables behave after this time-frame.

Nonetheless, because our methodology was based on in-session speech, we observed natural changes in cognitive activity, as they occurred spontaneously. Discourse is potentially influenced by affective components. The present observer-rated approach assumes there are links between in-session cognitive and affective activity in the individual and it does not assume an a priori definition of specific cognitive biases to be maladaptive. Cognitive biases may indeed be understood as adaptive in some specific situations and maladaptive in others, as they are part of complex, multi-stage strategies to make decisions, to regulate emotions, to orient behavior and to adapt to external and internal constraints. We assumed a deficit-definition of cognitive errors and found a decrease in CEs as a result of treatment and a specific adding effect of implicit corrective-relational interventions based on individualized proactive need satisfaction and resource-orientation.

Acknowledgements

This research was financed by the Swiss National Science Foundation SNSF 100014-134562 (Dr. Kramer).

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