EASTPP

Integrated Equine-Assisted Short Term Psychodynamic Psychotherapy (EASTPP) equals regular STPP and outperforms in overcoming core problems of patients with personality problems: interpersonal sensitivity and self esteem

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ABSTRACT

Introduction: Patients with personality pathology need interventions which include opportunities for intersubjective relations to emerge on both verbal and nonverbal levels [1]. The aim of this study is to investigate if equine-assisted psychotherapy integrated in Short Term Psychodynamic Psychotherapy [2, 3] facilitates these nonverbal components and intersubjective relations compared to regular Short Term Psychodynamic Psychotherapy (STPP)

Keywords:
animal-assisted psychotherapy, equine-assisted psychotherapy, attachment, experiential, nonverbal, personality problems

Methods: An experimental mixed method with pre-and post-measurement explanatory sequential design was employed. In 71 in-patients with personality problems general dysfunction, depression, affect- and self-regulation were measured using SCL90, PANAS, BDI, PSES, IOV. All patients entered a multi-modal inpatient group psychotherapy. After 8 or 12 weeks the experimental group (n = 51) engaged in animal-assisted psychotherapy module (EASTPP) with horses, while the treatment as usual (TAU) group continued face-to-face group treatment. Semi-structured interviews were collected at a 3-months-follow-up (n = 16).

Results: Both conditions showed significant improvements. Moreover, the experimental condition outperformed TAU significantly on interpersonal sensitivity, self-efficacy and self-esteem. Additionally, the semi-structured interviews revealed increases in self-control, assertiveness and insight.

Conclusion: Integrated Equine- Assisted Short Term Psychodynamic Psychotherapy (EASTPP) seems feasible and effective in a patient group with personality problems especially in overcoming interpersonal sensitivity, self-efficacy and self-esteem.

INTRODUCTION

Maladaptive personality functioning refers to a broad range of difficulties (common to all personality disorders (PD)) that include deficits in self- and interpersonal functioning [4, 5]. There is increasing evidence that maladaptive personality functioning constitutes a risk factor for psychosocial adjustment including psychopathology, recurring symptoms and impaired work performance [6, 7]. In line with this notion, improving personality functioning has been identified as an important goal in a variety of psychotherapies [8, 9]. Psychotherapy has proven to be an effective treatment for various psychological symptoms (such as anxiety, depression, personality problems), and has shown significant improvements in patients [10-13] and is considered as the preferred treatment option for personality problems [12, 14]. Treating maladaptive personality functioning is a challenging enterprise. Research has furthered the insight and understanding of psychotherapy in general but also showed its limitations: recurrence of symptoms on the long run, no change and even deterioration after treatment [15-18]. One possible explanation could be the insufficient alignment between patient and the (more cognitively oriented and protocol-based) therapy method when applied to adults with attachment disorders originating in early development (mainly in the pre-verbal stage) [19, 20]. Moreover, not only are individuals with low personality functioning less likely to seek psychological help compared to individuals with other problems such as depression or schizophrenia [21] but the drop-out rate from treatment is also much higher [22].

Indications of between-treatment differences in response to personality disorder supports the assumption that therapies work by different underlying mechanisms, thus emphasizing the need for further research around treatment-specific change mechanisms [10]. In current specialized treatment the emphasis is often on disorders, while the attention to recovery, well-being, resilience for these patients are of vital importance as well [23, 24]. For them, negative experiences, surviving instead of living coupled with an early psychiatric illness, are often the ones that have determined their lives to a large extent expressing itself in psychological distress (anxiety-and mood problems), negative affect experience and self-esteem issues. The severity is determined by the cumulation of potential traumatizing events, the severity of the affective neglect or the quality of the early attachment relationship in the developmental years, and severity of personality pathology. Consequences related to (chronic) early traumatization, neglect and suboptimal attachment relationships often go together [25]. Often in this early (pre-verbal) developmental phases language has yet to be evolved or is evolving with the consequence that the trauma influences all the basic human developmental stages.

Emotional- and relational development

It is within positive and secure interaction with caretakers that young, non-traumatized children begin to acquire skills to sustain, modulate, and integrate relatively discrete behavioural states as well as different action systems. These systems include energy regulation, exploration, sociability, attachment and care taking, play, and reproduction. These action systems are a major basis of personality and must be integrated into a coherent and cohesive system during the development of the child [26-28].

The above is consistent with findings of other researchers in the field of attachment theory, although different accents are highlighted in the different theoretical approaches within psychotherapy. Key ingredients are ranging from more body-sensory focus to more cognitive focus such as internal work models and mentalization, but all theorists embrace the view that early, reciprocal interaction and emotional engagements with caregivers are crucial to the development of a secure stable self [29].

Thus, (affective) experiences with others, a secure attachment or an opportunity to mentalize on the relation that is developed within the therapy setting is likely to

facilitate productive therapy because these experiences could alter brain structures by leading to either the maintenance and strengthening of existing synapses, or by the experience-driven creation of new synaptic connections [30-32].

In order to produce lasting effects, psychotherapy, especially for patients with severe ruptures in their development should arrive at restructuring neural networks, particularly in the subcortical-limbic system which is responsible for unconscious emotional motivations and dispositions. 'Insight' or 'appeal' reach only corticohippocampal structures, which correspond to conscious memory and cognition, but have only very limited effects on the motivational system [33-35]. Therefore suggest 'a right brain' receptive focus of the clinician: the "right-brain-to-right-brain' communication lies at the core of the psychotherapeutic change process in an attachment-based clinical approach, because it is considered that right brain increases "implicit relational knowledge" stored in the nonverbal domain. The left hemisphere is supposed to be more involved in the foreground-analytic (conscious) processing of information, whereas the right hemisphere is more involved in the

background-holistic (subconscious) processing of information [35]. Therefore, one should consider to offer experiences in psychotherapy that target the hierarchical (bottom-up) vertical (left-right) brainstructure [36]. In other words, when we consider the biology of our brains interacting with the creation of the mind and that the brainstructure is hierarchical (bottom-up) and vertical (left-right), then one should consider to offer experiences in therapy which uphold this structure.

The importance of embodied interactions for development

Moreover, Fotopoulou and Tsakaris argue from an interdisciplinary (psychoanalytical, philosophical and neuroscientific) view that embodied interactions contribute directly to the building of mental models of the infant's physiological states, given the need to maintain such states within a given dynamic range despite internal or external perturbations. Such experiences of close bodily interactions "sculpt" the mentalization process, with awareness of mental distinctions between "subject-object," "self-other" and even "pleasure-unpleasure." [29]. Thus, the unconscious emotional, non-verbal, pre-verbal layers of development are supposed to be reached conducting psychotherapy through touch, warmth, closeness, being held and movement. Yet touch between therapist and patient brings with it serious ethical implications. It is on this aspect in Animal-assisted interventions with its focus on embodied interactions between patient and animal could serve major contributions for patients with early traumatization and personality problems

Equine-assisted Short-Term Psychodynamic Psychotherapy (ESTPP)

EASTP combines a nature-based setting, including dogs and horses, with a team of therapists to form a short-term psychodynamic psychotherapy [2].

EASTPP incorporates similarly to Ouss-Ryngaert and Golse [37] suggested integrative clinical model from a neuropsychoanalytic view in which one clinician could engage with the patient and another holds the technical clinical awareness, suggesting the one clinician 'processing' the right brain (attuned, empathic, emotional communication), while the other is processing the left brain (cognition). Therefore, in EASTPP a team of psychotherapists (both licensed therapists), trained (by, amongst others, animal-behavioral experts) specifically for their role in EASTPP, provide situations for corrective emotional experiences with animals in general and dogs and horses in particular.

Equine-assisted psychotherapy (EAP) can be considered as a subfield of Animal-Assisted Psychotherapy (AAP), in which the integration of animals into the psychotherapy setting expands classic principles of psychotherapy and facilitates the achievement of the goals of psychotherapy, including but not limited to overcoming interpersonal sensitivity and problematic self-esteem and self-efficacy [38-42].

Bachi and Kovács [41, 43] describe the connection between central features of equine-assisted psychotherapy and several of the primary concepts of attachment-based psychotherapy, including secure base and haven of safety through the provision of a holding environment, affect mirroring, mentalization and reflective functioning, non-verbal communication, and body and motor experience in the human-horse connection. For example, because of the size and strength of a horse, he is able to carry people and so the horse can be used as a metaphor in therapy for creating a holding environment in which the individual is carried and cared for. Vital for the horse's survival, horses focus on reflective interaction between himself and the other, relying on his senses [44]. Therefore, horses are more likely to engage in a relationship with a person if he is authentic in his behaviour, than when there is a discrepancy between feeling and thinking on the one hand and action on the other [45]. Merkies et al. [46] give tentative conclusions in this direction by the fact that

horses react differently to physiological and psychological stress in humans.

The patient is invited to focus on (non)verbal components of communication and develop opportunities for an intersubjective relationship with the horse: to explore how the horse (the other) feels, tune into the affective state of the horse, try to understand the horse and deal with the instantaneous feedback the horse has given (as the horse does this as well : reciprocal relationship development). This is not an easy task for the patient, especially when mentalization and reflective functioning are impaired, as is often the case in PD patients.

Aspects of interspecies (non)verbal interaction and intersubjective relationship building

There is a potential for the formation of true interspecies relationships between human and animal because of similarities in brain structure, physiological mechanisms (e.g. stress systems, oxytocin system) and behavioral systems like caregiving and attachment (Panksepp, 2011; Julius, Beetz, Kotrschal, Turner & Uvnas-Moberg, 2013). The sensory qualities of the animal express this affective connection in a bodily way which might help the affect regulation and function as practice target for patients. This affective connection between animal and patient creates a projective identification as a body-to-body communication, or as in Wallins' words, a somatic countertransference [1]. Especially dogs and horses are considered to be capable in recognizing human facial expressions providing for an extra characteristic to form an interspecies relation [47]. Physical interaction (as in being carried, touching and being touched) is an integrated part of the interaction of humans with animals and vice versa. When from a neurobiological point of view suggested focus on sensory experiences to reach fundamental neurodevelopmental areas in psychotherapy [48], animal-assisted psychotherapy could provide for these experiences. Next to the use of animals, this notion is stressed in EASTPP through its integrative clinical model deploying a team of therapists [2].

In EASTPP exercises with animals (especially with the horses – alongside as well as on the horse) consist of guided tasks in observation, (physical) contact, leadership, congruence, body posture, 'letting go', relaxation, concentration, setting boundaries, dealing with fear and longing, balance and taking control, taking care of oneself and the animal. These experiences in the patient's here-and-now are metaphorically related to the patients' daily life.

This study

Although research into the field of animal-assisted psychotherapy is growing, it is still considered to be in its infancy [41, 42, 49-51]. Prior research suggests that equine-assisted interventions hold much promise, but that conclusions about the effectiveness must still be considered preliminary due to various methodological limitations [50].

Based on the theoretical considerations outlined above, the aims of this study are twofold:

1) to examine whether EASTPP is an effective treatment option for personality problems,

2) to discern the effective factors of EASTPP for patients with personality problems.

Since working with horses and dogs needs a 'fit' with patients, (e.g., not being allergic, not too afraid of animals,) it would have been unethical to randomize. We hypothesize that EASTPP is as effective as regular STPP (TAU) in treating PD patients. Since EASTPP is offering more experiences with nonverbal components and interspecies intersubjective relationship building, we hypothesize more improvement on interpersonal oriented affective states i.e., hostility, interpersonal sensitivity, as well as more improvement involving interpersonal oriented self-/other schemata i.e., self-efficacy and self-esteem when compared to TAU patients.

In order to develop more understanding of the mechanism and meaning of the intervention additionally we examined effective factors experienced by the patient through qualitative research by means of interviews.

METHODS

Method Study population and design

Data were collected at Zaans Medical Center (ZMC), The Netherlands, a clinical psychotherapy center specialized in treatment of personality disorders. As part of standard procedure during intake, patients receive a standard assessment battery including but not limited to the Dutch version of the Structured Interview for DSM-IV Personality (SIDP-IV) [52] by trained psychiatrists of clinical psychologists.

For inclusion in the study all subjects (N= 71) participated in the multi-modal inpatient group therapy including verbal psychotherapy (Short Term Psychodynamic Psychotherapy) and STPP-informed modules of

expressive therapies, such as art therapy, psychodrama and psychomotor-therapy. Two conditions were formed from the 71 patients: The TAU group (n = 20) received a psycho-therapy regime as described above, while the experimental group (n = 51) received EASTPP : the inclusion of a STPP informed equine-assisted therapy module [2]. Therapy dosage remained equal between the two conditions.

Inclusion criteria for the total group were DSM classifications on personality pathology and comorbidity of anxiety and/or mood disorders. Exclusion criteria for the total groups were basic ego-strength and psychological stability based upon absence of suicidal behaviour, psychosis and substance abuse. Participation in the experimental group was bases on personal interest of the patient, ZMC clinical consensus, and not meeting exclusions criteria (e.g., not being allergic, not too afraid of animals, etc). All subjects provided an informed consent. The study was approved by the Medical Ethics Committee of the Free University Amsterdam (VU) Medical Center, The Netherlands.

Material Quantitative measurements

To measure overall psychological distress the Symptom Checklist 90 (SCL90) is used. The SCL90 is a self-report inventory that consists of 90 items, each item of the questionnaire is rated by the patient on a five-point Likert scale scale of distress from 1 (none) to 5 (extreme) and covers eight dimensions: anxiety, agoraphobia, sleeping problems, inadequacy of thinking and acting, depression, somatic symptoms, hostility and interpersonal sensitivity. Example item: "*The feeling that something awful is going to happen to you*"; It is a measure of current psychological symptom status with a time reference of the past seven days including today. The SCL90 is a useful tool to measure progress during and after treatment, and has shown to have a good validity and reliability [53]. In addition, Cronbach's alpha levels have been found on the subscales ranging between .73 to .97 [54, 55].

Severity of depression is measured with Beck Depression Inventory (BDI). The BDI is a self-report inventory that consists of 21 items, each item of the questionnaire is rated by the patient on a four-point scale which ranges from 0 (symptom not present) to 3 (symptom very intense), example: (0) *I don't feel disappointed in myself,* (1) *I am disappointed in myself,* (2) *I am disgusted with myself,* (3) *I hate myself.* Each answer is scored on a scale value of 0-3. Measures of 0–13 indicates that a person is not depressed, 14–19 indicates mild-moderate depression, 20–28 indicates moderate-severe depression and 29-63 indicates severe depression. The BDI demonstrates high internal consistency and good validity with alpha coefficients of .86 and .81 for psychiatric and non-psychiatric populations respectively [55, 56].

To measure the experienced positive and negative affective states the *Positive and Negative Affect Scale* (PANAS) is used, a self-report questionnaire that consists of two 10-item scales to measure both positive and negative affect. Each item is rated on a Likert scale of 1 (not at all) to 5 (very much) with a scoring range from 10 to 50 per scale. The questionnaire consists of two subscales: negative affect and positive affect. The negative affect scale consists of ten negative affects, like irritable and afraid, the positive affect scale consists of ten positive affects, like attentive and active. Validity and reliability are good and an average Cronbach's alpha of 0.88 for the positive affect items and 0.87 for the negative affect items have been found [55, 57].

To measure self-efficacy the *Physical Self Efficacy Scale* (PSES) is used. The PSES consists of statements of trust in his/her abilities, like the ability to relax in times of distress. Scores on the 12-item self-report questionnaire range from 1 to 5 (1=very insecure, 2=somewhat insecure,3=not insecure, 4= somewhat secure, 5=very secure), with total score range from 12 to 60. Ryckman, Thornton & Cantrell [58] found good validity and reliability with Chronbach's alpha of .81.

To measure self-esteem the Dutch self-report inventory *Inventarisatielijst Omgaan met Anderen* (IOV, Inventory of Interpersonal Situations) is used. The IOV consists of 35 interpersonal situations, which are responses in social situations rated with 5-point Likert scales. Subjects first indicate how much 'anxiety/discomfort' they would experience (social anxiety) in these situations and then how 'frequent' they would perform the behaviour described (social skills) with a scoring range from 70 to 350. Good reliability and validity of the IOV were found in several adult psychiatric and non-psychiatric samples with Cronbach's alpha levels ranging between .91 and .96 [59].

Qualitative measurements

To explore the mechanisms and the meaning of the intervention a semi-structured interview (appendix 1) was conducted. Preceding the semi-structured interview, a set of cards was presented to the participants with a description of the various elements of EASTPP: exercises, individual focus, therapist, horses, nature, location and other animals. These elements were assessed a priori by master students through a stakeholders (expert) meeting. To asses which element was most helpful, participants were asked to rank the cards in importance. The ranking

was executed blind from the interviews. After the ranking, the semi-structured interview with open questions on the factors was executed. Interviews were conducted by two master students clinical psychology both interns at ZMC, trained in interview techniques, supervised by their university and both present during the interview. The interviews took approximately one hour, one interviewer asked the questions the other transcribed. Intensive reflection and discussion aimed to reach consensus between the two master students resulted into the final analyses of different themes.

Statistical analyses

An experimental mixed-method with pre- and post-/follow-up measurement explanatory sequential design was employed. Data was collected at two or three times, depending on the condition. For both conditions the pre-measurement was administered within one week before entering therapy, for the experimental condition a post-measurement was administered within one week after completion of the equine-assisted module, and for both conditions a follow-up measurement was administered three months after completion.

For the quantitative measures SPSS version 20.0 (IBM Corporation, USA) was used and differences of $p < .05$ were considered statistically significant. To assess comparability between the experimental-(EASTPP) and TAU- (regular STPP) condition a Mann-Whitney-U-test and Chi-square-test will be used. In order to answer the first research question (whether EASTPP condition improves on overall psychological distress, experience of affect, self-efficacy and self-esteem and whether EASTPP condition improves vs. TAU), depending on whether assumptions about the normality distribution of the sample and equal variance were met, respectively t-tests or Mann-Whitney-U test and Wilcoxon test were executed to state mean differences on two occasions.

To analyse the results of the interviews regarding 13 qualitative analyses were performed. The qualitative analysis is a (thematic) content analysis based on an interpretative (descriptive) phenomenology to study the experiences of the patients undergoing EASTPP through interviews. We use a deductive approach by which the qualitative analysis is an enhancing component of the study in which the actual experience of the patient is focused on. The focus is on the following factors: exercises, individual focus, psychotherapist, horses, nature, location and animals.

The total sample (see table 1) included N = 71; M age 26.4; SD 9.2; 37% males. The experimental condition consisted of n = 51 (cluster B: 8%; cluster C: 22%, and NOS: 71%; age-range 17-56 years (M = 25.3; sd = 8.2). The TAU condition consisted of n=20 (cluster B:15%; cluster C: 10% and NOS: 75%; age-range 19-53 years (M = 29.4; sd =11.1).

RESULTS

The Mann-Whitney-U-test revealed no significant difference between the EASTPP and TAU condition according to age ($z = 1.10$, $p = .27$). The Chi-square-test revealed no association between sex and condition (X^2 (1, $n = 71$) $= .53$, $p = .46$), and no association between personality pathology and condition (X^2 (4, $n = 71$) $= 6.15$, $p = .18$) was found.

Several statistical procedures were performed on the quantitative data. We hypothesized that EASTPP is as effective as regular STPP (TAU) in treating patients suffering from personality problems. And we hypothesized more improvement on interpersonal oriented affective states i.e., interpersonal sensitivity, as well as more improvement involving interpersonal oriented self-/other schemata i.e., self-efficacy and self-esteem for the ESSTPP patients when compared to TAU patients.

Table 2 depicts the results using Mann-Whitney-U-test for all measures between 'pre- post'- comparison for EASTPP, 'pre-follow-up'-comparison measurement for the EASTPP and the TAU conditions, and for 'pre-follow up' difference scores between EASTPP and TAU condition.

For the EASTPP group all dependent variables proved significantly changed at 'pre- post'- comparison. These improvements lasted at 'pre-follow-up'-comparison for the EASTPP group. For the TAU group several significant improvements were found too at 'pre-follow-up'-comparison, but not for anxiety, hostility, somatization, interpersonal sensitisation, positive-/ negative affective states, self-efficacy and self-esteem.

When comparing 'pre-follow-up' difference scores between EASTPP and TAU, a Mann-Whitney-U-test showed a significantly larger decrease of interpersonal sensitivity on the interpersonal sensitivity subscale of the SCL90 than for the TAU condition ($z = 2.14$, $p = .032$). Bonferonni adjusted p value also reveals a significant difference ($p' = .004$). Patients who underwent EASTPP experience less self-deprecation, self-doubt and marked discomfort during interpersonal interactions when compared to patients in the TAU group .

The results as depicted in table 3 when using T-tests showed a similar picture. For EASTPP at 'pre-post' and at 'pre-follow-up' self-esteem and self-efficacy scales also

had a significant increase. For TAU at 'pre-follow-up' the increase proved not significant. When comparing 'pre-follow up' difference scores between EASTPP and TAU, a significant increase on self-esteem and self-efficacy was found for the EASTPP condition when compared to the TAU condition (*t =2.28(67), p =.026; t =2.29 (49), p =.005*) (see Table 3). Holm-Bonferonni [60] adjusted *p* values also indicates significant differences (resp.: *p' = .026, p' = .01).*

The results of the *qualitative* part of the study are presented in Table 4. Table 4 shows the ranking of the helpful aspects according to the patients. It underlines the importance of the experiential nonverbal nature of the intervention for the participants in which the setting and animals offer opportunities and facilitate to open up to the therapist (intersubjective relation). After the ranking, the semi-structured interview (appendix 1) with open questions on the factors was executed.

The interviews (appendix 2) revealed increase in mentalization, patients reporting themselves to be more aware of their emotions and feeling and more skilled in expressing them. Patients reported the non-verbal experiences with the horse as meaningful and helpful in the interaction with the therapist, who they experienced as not aloof and as equal. In addition, all patients mentioned an increase in vitality, mood and stronger-felt connection with others. The experience of being on the back of a horse, which is warm, breathing, rocking and carrying, was often associated by the participants with the concept of "mother", who is supportive and mindful for all that one experiences. Some patients then described feelings of deep sadness about unfulfilled desires for such a mother and pain surrounding abandonment. They felt that the horse was able to endure and contain their sadness and pain, and thus providing consolation for them. The horses served an additional role in therapy as living, reciprocal sensitive creatures. Patients reported less shame and mistrust in their presence and through interactions with them. Animals were experienced as nonjudgmentally and unconditionally accepting, helping patients to be more receptive of themselves are their goals.

DISCUSSION

This study aimed to examine whether an animal-assisted therapy with horses integrated with Short Term Psychodynamic Psychotherapy (STPP) (Equine-assisted Short Term Psychodynamic Psychotherapy; EASTPP) is an effective treatment option for personality problems. Next, if EASTPP has additional benefits as compared to STPP (in this study TAU), and third and from a patient's perspective, to discern some effective factors of EASTPP when treating patients with personality problems.

We hypothesized that EASTPP is as effective as regular STPP (TAU) in treating PD patients. Since EASTPP is offering more experiences with nonverbal components and interspecies intersubjective relationship building, we hypothesized more improvement on interpersonal oriented affective states i.e., hostility, interpersonal sensitivity, as well as more improvement involving interpersonal oriented self-/other schemata i.e., self-efficacy and self-esteem when compared to TAU patients.

Quantitative results

The quantitative results show that all 'post' measurements were significantly improved for the EASTPP condition. And both conditions showed significant improvements on several variables at 'follow-up' measurement, except for anxiety, hostility, somatization, interpersonal sensitivity, positive-/negative affective states, self-efficacy and self-esteem scores where only significant improvement for the EASTPP condition was found. When difference scores between ESTPP and TAU at 'follow-up' measurement were compared for all variables, only higher improvement scores for interpersonal sensitivity, self-efficacy and self-esteem held true in favour of the EASTPP condition.

These results are in line with previous studies that showed that STPP is effective for patients with personality problems [14]. The finding of effectiveness in both treatments when two or more psychotherapies are compared is consistent with the larger body of effectiveness research (e.g. [11, 61-63] stressed in this sense the notion that the completion of a treatment by the patient predicts effectiveness regardless of the applied method. In our study principles of Short Term Psychodynamic Psychotherapy (STPP) were executed in a multi-modal inpatient group therapy including nonverbal psychotherapy modules of expressive therapies, such as art therapy, psychodrama and psychomotor-therapy along the lines of STPP. This study therefore contributes to the literature by showing that a multi-modal form of Short Term Psychodynamic Psychotherapy proved feasible and effective.

Additional benefits of EASTPP

In this study Equine-Assisted Short Term Psychodynamic Psychotherapy (EASTPP) proved to have *additional benefits* as compared to STPP. Additional benefits were found in a significant decrease of dysfunctional interpersonal sensitivity meaning that patients who underwent EASTPP experience less self-deprecation, less self-doubt and less marked discomfort during interpersonal interactions. These results contribute to the literature as interpersonal sensitivity proved difficult to

target in short term psychotherapy and is considered to only be changed in long term therapies. These domains of functioning are considered key factors of personality problems and an important focus in psychodynamic therapy [8].

Additional benefits were also found in an increase of self-esteem and self-efficacy. These results contribute to the literature and are in line with Fjeldstad, Hogeland and Lorentzen [64] who found equal effectiveness in interpersonal problems for short and long-term psychotherapies. The findings of increased self-esteem and self-efficacy are in contrast with other studies on horse-assisted activities who did not find effect on self-efficacy and self-esteem [65, 66]. Here a predominantly age-group of adolescents were studied, differences could be attributed on one hand to methodological limitations and on the other hand to their used EAP method which was more behavorial oriented instead of the EASTPP's psychodynamic focus in this study. Study findings are in line with [67] who reported an increase in self-image for adolescents participating in EAP as well as in their control group, without significant difference between the groups. In contrast, our study found a significant difference scores between condition.

Taken together, the additional EASTPP benefits i.e. decrease of dysfunctional interpersonal sensitivity and an increase of self-esteem and self-efficacy can be interpreted as the repair in trust in others and the improvement of affect- and self-regulation. Attachment and self-regulation are considered to improve mentalization according to attachment theorists (e.g. [1, 68]. Although the evidence for (psychodynamic) psychotherapies for personality problems are still limited due to the heterogeneity of clinical populations and methods applied, our findings are consistent with findings by Fonagy [11] in a review of the treatment of personality disorders. The development of agency and the integration of feelings and actions in an active and validating manner are considered important aspects for the effectiveness in psychodynamic psychotherapy [8, 69, 70]. EASTPP seems to contribute to that over and above STPP.

Qualitative results of patients' perspectives

When, from a patients' perspective, discerning some effective factors of EASTPP for patients with personality problems, the results from the clinical interviews reveal several components.

Some consider the patient-therapist relation to be the most significant factor for a successful psychotherapy [71]. The connection of the therapist with the animal seemed to help the establishment of the therapeutic alliance with the patient. The patients perceived the therapist as more authentic and perceived to share the same interest and outlook (e.g. the care to the animal), and are therefore more willing to trust the therapist.

Other components are the reestablishment of responsibility for change, an increase in self-control, assertiveness, and insight. These personal developments patients reported, were accomplished thanks to the experiential nonverbal components and opportunities for intersubjective relationship building offered by EASTPP. Patients reported that they were able to experience more trust towards the therapists, and that incorporating explanations became easier when compared to prior engagement in regular group therapy. All reported that they gained more insight into themselves as a person, their personal situation, and the consequences of their mental disorder. Dealing with the animals and sharing with them nonverbal physical experiences directs the patient to be in the here-and-now continuously. This finding is in line with the perspective of neuroscience on psychotherapy: it is necessary to work with the here-and-now in a way that calms the patient, because the brain (limbic system) needs calm states to foster left-right brain connections, i.e. the patient should have the possibility to connect his causal explanations to his emotional and sensory experiences in order to find insight and understanding [35, 72, 73]. From patients' perspective EASTPP seems to facilitate to establish that.

Moreover, patients reported the importance of the exercises with the horses for gaining insight and understanding. Thoughts, feelings and fantasies could be projected onto the animals. Important principles of psychodynamic psychotherapy in regard to the attachment theory seem to be facilitated. The non-verbal aspects were related to fundamental attachment concepts for collaboration, reflective dialogue, repair, coherent narratives, emotional communication that involves sensitivity to signals, reflection on the importance of mental states, and the nonverbal attunement of states of mind [73]. The interaction between human and horse can be experienced as a natural process. Patient's own influence, i.e. agency, on the process can be experienced: one may fail but still be able to repair the relationship in a safer manner than conventional talk-therapy due to the perceived non-judgemental animal. This way, working with animals i.e. horses significantly contributes to the psychotherapeutic process. Therefore EASTPP could be a preferred psychotherapy form, especially for those patients with personality problems and insecure attachment styles who experience attachment to humans and / or a therapeutic alliance with psychotherapist as a too fearful enterprise.

Limitations and strengths

This study (quantitative part) is not a randomized controlled trial (RCT), but a naturalistic study. It would have been unethical not to consider if people do or do not like animals to work with. Additionally, a relative high percentage of cluster C patients were part of the EASTPP condition. However, the population in our study can be considered representative of specialist mental health care in the Netherlands [74].

Due to the specific nature of animal-assisted therapies it is almost impossible to blind or withhold information about this kind of treatment to patients. Although, both conditions showed no differences on age, sex and personality pathology, possible other confounding variables have not been taken into account. Motivation for participating in the EASTPP could have influenced scores and might be considered as important confounding variable. Furthermore, the numbers of participants in the EASTPP group and especially the TAU group, as of the group that was interviewed, were relatively small.

Only self-report instruments for the quantitative outcome measures were used; no information was collected on how the therapists viewed changes in their patients and no information was gathered on therapy fidelity and adherence (treatment integrity). Although one could expect high quality of care because of the execution and monitoring of both interventions by a specialized treatment center and experienced professionals.

External validity is considered low in qualitative research, however, our interviews serve and reflect the participating patients' experiences on how EASTPP could have influenced therapy goals and aspects of their personality problems. It is possible that the questions that were asked and the interviewers themselves had an influence on the positive qualitative information that the patients provided. However, the experimental group experienced both the conventional intervention as well as the animal-assisted intervention which provided a more in-depth view through the interviews over the self-report outcomes.

One could argue that in group therapy the group is the designated transference object i.e. mediating factor, while in EASTPP the subsystem of 'animal-therapist' is considered as the mediating factor. It might be that because of this fact the participants of the experimental group experienced difficulties in the alignment between the two interventions, which might have influenced follow-up scores negatively. Alternatively, it is possible that the changes that were observed in EASTPP were just a continuation of the progress that was occurring from the treatment patients already received in the inpatient program, however, in some aspects the EASTPP condition performed better than the TAU condition.

Although it is suggested to focus studies on psychotherapy on studying the active ingredients of treatments (e.g. [11]), it is recommended to also compare EASTPP as a freestanding intervention to TAU in a (quasi) randomized manner for establishing particular benefits over the other (e.g. duration, target population). Circumventing the comorbidity and heterogeneity of personality disorders (Krueger, 2013), the use of questionnaires relevant to the population, such as assessment on attachment, mentalization, working alliance, trust and remoralisation could elicit more helpful information in regard to possible active ingredients.

Clinical implications

The results show that a positive trend is discernible for decreasing anxiety and depression and for an increase of positive affect and trust in others after EASTPP. The significant differences between the two conditions for self-esteem, self-efficacy and interpersonal sensitivity might be explained by the focus of the EFFP treatment on these themes. The experiential characteristic of the nature-based setting and incorporated animals, especially horses and dogs, may provide for necessary active and playful nonverbal and physical experiences in regard to the attachments theory in order to repair earlier adversities. Especially the domains of selfregulatory-, mentalization- and selfdirectory-skills seem to be targeted, skills that are helpful in establishing bonds with others. Animal-assisted therapy could serve as ad-on or EASTPP could serve as integrative approach for the existing treatment modalities in PD patients.

In the context of the importance of motoric and rhythmic movement [75], the effects of movement on and of the body [76] and on affect attunement within interpersonal connection and on healing trauma [36, 77], there should be more in-depth research into the effects of physical interaction between the participants and the animal. Further research should look into how insights into the relation between animal and patient's narrative in EASTPP contribute to the patient's daily life and if the

positive experiences could be maintained over a longer period, especially in connection to mentalization skills.

CONCLUSION

Integrated Equine-Assisted Short Term Psychodynamic Psychotherapy (EASTPP) seems feasible and effective in a patient group with personality problems, and is especially beneficial compared to regular STPP in overcoming interpersonal sensitivity, self-esteem, and self-efficacy. More research is needed on equine-assisted psychotherapy. Replication of EASTPP is needed to establish the specific additional benefits for (different) personality pathology.

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Table 1 *Quantitative and qualitative measurements*

Total ZMC PD patients (n=71)	*T1* *1 week pre measurement*	*T2* *1 week post measurement*	*T3* *3 months follow-up*
Quantitative measurement			
EFPP (*n=51*)	X	X	X
- SCL90			
- PANAS			
- BDI			
- PSES			
- IOV			

TAU (*n=20*)	X	X
- SCL90		
- PANAS		
- BDI		
- PSES		
- IOV		
Qualitative measurement		
EFPP (*n=16*)		
- Semi-structured interview	X	

Table 2 *Scores subscales SCL90, BDI, PANAS*

		Pre	Post	Follow-up	Pre ↔ Post			Pre ↔ follow-up				Pre ↔ follow-up		
		M(sd)n	*M(sd)n*	*M(sd)n*	*z*	*N-ties*	*p*	*z*	*N-ties*	*p*	*n*	*Mean-rank*	*z*	*p*
An	EFPP	23.3(7.5)45	17.8(7.3)45	19.1(7.4)43	4.45	42	.000	3.51	39	.000	43	33.4		
	TAU	23.8(7.93)30		22.6(7.1)31				0.73	28	.465	30	42.2		
	EFPP↔TAU												1.74	.083
Ag	EFPP	12.6(4.5)45	10.9(3.7)45	11.0(4.3)43	3.60	35	.000	3.14	38	.002	43	36.4		
	TAU	13.4(4.9)30		11.8(4.1)31				2.07	25	.039	30	37.9		
	EFPP↔TAU												0.31	.761

Sl	EFPP	6.8(2.9)45	5.5(2.0)45	6.1(3.3)43	3.66	35	.000	2.21	29	.027	43	36.5		
	TAU	7.2(3.9)30		6.4(2.6)31				2.26	23	.024	30	37.7		
	EFPP↔TAU												0.24	.811

EQUINE-ASSISTED FOCAL PSYCHODYNAMIC PSYCHOTHERAPY

In	EFPP	21.8(6.3)45	17.4(5.0)45	18.6(6.8)42	4.28	45	.000	3.61	39	.000	42	33.6		
	TAU	22.0(5.2)30		19.7(5.5)31				2.14	27	.033	30	40.6		
	EFPP↔TAU												1.42	.156
De	EFPP	39.5(11.5)45	30(10.4)45	31.0(10.4)42	4.17	44	.000	4.14	42	.000	42	33.8		
	TAU	45.4(11.3)30		39.5(12.1)31				3.03	28	.002	30	40.3		
	EFPP↔TAU												1.29	.198
So	EFPP	23.1(7.3)45	19.3(7.2)45	19.8(7.3)42	3.57	43	.000	3.18	40	.001	42	34.8		
	TAU	24.3(7.5)30		22.4(7.6)31				1.61	27	.107	30	38.9		
	EFPP↔TAU												.82	.410
Ho	EFPP	10.7(42)45	8.6(2.5)45	9.6(3.5)43	3.49	35	.000	2.14	32	.032	43	37.2		
	TAU	12.1(5.0)30		11.5(4.2)31				1.29	28	.098	30	42.8		
	EFPP↔TAU												0.12	.905
Se	EFPP	41.7(11.6)45	34.4(10.4)45	34.3(10.7)42	3.60	42	.000	4.23	42	.000	42	32.0		
	TAU	44.4(12.7)30		41.3(12.4)31				1.65	28	.098	30	42.8		
	EFPP↔TAU												2.14	.032
BDI	EFPP	21.3(10.9)36	10.9(9.7)39	12.8(10.7)43	3.79	29	.000	3.79	34	.000	35	26.6		
	TAU	24.6(10.1)30		18.5(10.0)22				2.88	18	.004	21	31.6		
	EFPP↔TAU												1.11	.267
Pos	EFPP	24.0(7.7)45	29.3(9.2)44	26.8(7.7)42	3.18	43	.001	2.71	40	.007	42	37.5		
	TAU	23.2(7.5)29		25.6(8.3)30				1.54	26	.124	29	33.8		
	EFPP↔TAU												0.74	.461
Neg	EFPP	22.7(8.2)45	18.2(7.5)44	20.0(8.5)42	3.28	42	.001	2.86	40	.004	42	33.0		
	TAU	22.1(8.8)29		21.1(8.430				0.72	24	.474	29	40.2		
	EFPP↔TAU												1.46	.144

An=anxiety, Ag=agoraphobia, Sl=sleep problems, In=insufficient thoughts, De=depression, So=somatization, Ho=hostility, Se=interpersonal sensitivity, BDI-depression on BDI, Pos=positive affect on PANAS, Neg=negative affect on PANAS, EFPP=Experimental-condition, TAU=Treatment as Usual-condition.

Table 3 *Scores on Self-efficacy PSES and subscale Self-esteem IOA*

		Pre	Post	Follow-up	Pre ↔ Post			Pre ↔ follow-up			Pre ↔ follow-up		
		M(sd)n	*M(sd)n*	*M(sd)n*	*t*	*Df*	*p*	*t*	*df*	*p*	*t*	*df*	*p*
Sf	EFPP	33.3(7.0)42	38.0(8.2)44	38.1(7.5)41	3.70	40	.001	4.21	38	.000			
	TAU	33.2(6.4)30		34.1(8.2)31				0.67	29	.507			
	EFPP↔TAU										2.28	67	.026
Se	EFPP	10.7(3.5)22	12.0(3.3)22	12.3(3.6)21	2.62	21	.016	3.20	20	.004			
	TAU	11.6(3.2)30		10.8(3.9)31				1.36	29	.184			
	EFPP↔TAU										2.29	49	.005

Sf=Self-efficacy, Se=Self-esteem, EFPP=Experimental-condition, TAU=Treatment as Usual-condition.

Table 4 *M-scores, SD and rank of beneficial aspects of EFPP according to patients*

	M	*SD*	*n*	*rank*
Exercises	4.6	0.7	13	1
Individual focus	3.8	1.2	13	2
Therapist	3.5	1.2	13	3
Horses	3.0	1.5	13	4
Nature	2.6	1.2	13	5
Location	2.4	1.3	13	6
Animals	2.1	1.2	13	7

Rank: 1=most important, 7= least important

Appendix 1 semi-structured interview

1. Did the nature-based setting play an important role?
2. Was it important for you that the setting was based in Spain?
3. How would you consider the exercises with the horses?
4. Was it important that the therapy had an individual character?
5. Did the therapist play an important role?
6. Did the horses play an important role?
7. Did the other animals play an important role?
8. Did the therapist play an important role?
9. How did the presence of the other group members affect you?
10. Was the exercise/activity around the departing phase important for you?
11. Could you tell something about your experiences during your in-patient treatment before the EASTPP?
12. How did you experience the treatment at the ranch?
13. How do you look at the treatment after the ranch?
14. Do you have any recommendations?

Appendix 2

Interview responses, patients perspective on helpful aspects subdivided into Exercises, Individual focus, Therapist, Horses, Nature, Location and Animals.

Exercises: experienced as confronting, but helpful for increasing insight and better understanding of oneself. Participants expressed the difference between the immediate feedback they received in interacting with the horse and the feedback from a therapist who was perceived as being less direct. Several mentioned that they recognized themselves in the horses and felt protected by them.

Patient A.: I learned a lot from the horses about myself. I have learned to be more powerful in my expression and to be more assertive. Also I have learned to take more initiative, instead of being hesitant like I'm used to being. The horse gave me support and solace, a feeling that you are not alone.

Individual focus: Patients expressed that they felt more forced to participate, which increased their motivation actively to change.

Patient H.: I think it was important that the therapy had an individual focus. Normally during grouptherapy I tend to be in the background, but now I was forced to show myself. I just had to do it. Despite the fact that it was difficult I gained more confidence.

Therapist: Patients mentioned they felt an acceptance and honesty. Next to feelings of being helped and safety, they also experienced the psychotherapists as confronting.

Patient F.: The psychotherapist was different, more human and personal than regular therapists. He did his job with passion, as one acts with his hobby. It gave me a feeling that his intentions were sincere.

Horses: Patient D.: The horses reacted very intensely, which was confronting for me, but gave me insight. I learned that what I have

experienced in the past was serious and terrible, and that it was not my fault. It hit me this time, although it had been expressed by therapists numerous times in regular therapy. It was as if the horses knew my story, which they showed me in their behavior.

Nature: Some reported that the nature helped them to let go of confronting aspects during the exercises.

Patient E.: It felt liberating to be away from all the misery. I didn't get overwhelmed by the usual hassle. It made me more relaxed. I also came to the awareness that not many thoughts are that important. There it was back-to-basic; it showed me how to value small things. Back home life goes on. Here I could take some distance to get thoughts into perspective.

Location: Together with the nature-based setting, the fact that they were relatively far from their usual surroundings confronted them, more which made the experience more intense.

Animals: Patients expressed mixed opinions about the presence of the animals in general. Some reported their presence as relaxing and as a source of distraction. For some the dogs had an especially meaningful value. Others didn't find that the dogs had an added value, while the horses did.

Patient B.: The animals served as a positive distraction. They provided structure during the day.

Strangely, the responsibility to take care of the animals gave me confidence.

The patients described their experiences, especially focusing on the activities with the horses as living beings, which provided a surprising repertoire of interactions. The repertoire was determined by the horses' characteristics, the circumstances and what the patient wanted from the activity. A relatively unpredictable situation occurs as a result of 1) naturally-occurring confrontations between patient and horse within the setting, 2) certain behaviors of horse and patient, and 3) the patient's longings, fears, fantasies and problem-solving abilities. Patients reported their experience of standing amongst the herd: the continuous movement and interaction, the confrontation and confusion when the horse does not take notice, approaches, walks away, goes to another or separates from the herd. Thoughts and feelings arose as to why one horse appealed to the patient more than the other: "Does color, height, skinny or fat, the way the horse looks or acts influence my choice?" The patient elaborated on his or her projections onto the horses and the herd with the psychotherapist. For example: "It's not me who is rejected, it is me who rejects the other". Here the patient's repertoire of behavior is mirrored to him through his interaction with the animal.

The constellation of a number of horses, together with playful dogs in a barn, elicited associations concerning interactions with important figures in patient's life. Open questions about the situations and patient's position in reality resembles the Thematic Apperception Test (TAT), but a TAT that lives and changes and in which the patient can intervene.

During the exercises, the psychotherapist only observes and checks his observations with the patient, constantly inquiring about the patient's experience and his/her own interpretation. Patients mentioned to be challenged in exploring different ways of dealing with the situation.