Horses: Co-Therapists or not?

A study of the therapeutic effects of horses in treatments of children and adolescents with socio-psychological problems

Master Thesis & Internship (30 ECTS)

Social and Organisational Psychology, Leiden University

Prinses Máxima Manege, Den Dolder

23 July 2013

Student: Elsbeth Tramper

Abstract

The present study provides evidence that a three-session Equine Assisted Intervention (EAI) results in significant improvements for twenty-three children and adolescents facing social-psychological problems. The study explicitly combines Equine Assisted Interventions with positive psychology. Participants made significant improvements from pre-test to post-test in the positive psychology constructs of well-being, strengths and difficulties. The strengths increased and the difficulties decreased. Furthermore, idiographic measurements showed development from baseline in 78% of the cases, of which 44% fully attained the objective or even more.

Keywords: Equine Assisted Interventions, Horses, Positive Psychology, Well-Being, Strengths

Dutch Abstract

Drieëntwintig kinderen en jongeren met psychosociale problemen participeerden in een onderzoek naar de effectiviteit van de inzet van paarden in therapieën en coaching. In de studie is expliciet het verband gelegd tussen positieve psychologie en de inzet van paarden. De studie toont aan dat de inzet van paarden in interventies resulteert in een significante toename van de volgende positieve psychologische constructen: welzijn en het gebruik van sterktes. Bovendien zijn per deelnemer individuele doelen bepaald. In 78% van de gevallen is ontwikkeling geconstateerd, waarvan 44% de doelen geheel of boven verwachting heeft behaald.

Trefwoorden: Paarden en therapie, Positieve Psychologie, Welzijn, Sterktes

Drietact - Lange Nieuwstraat 101b - Utrecht - 06-52630859 - elsbeth@drietact.nl - kvk 59537493 – btw NL2076207714B01

Introduction

In 2010 my horse, which I had owned for more than twelve years, suddenly began to behave differently. After years of being my loyal, friendly and trustworthy companion, he transformed into an anxious and stressed animal who only needed the smallest incentive to get scared and run off, leaving me, his rider and master, biting the dust. In one word, he was uncontrollable. After a couple of weeks, I decided to invite a horse behaviour specialist to examine him. And what she said really amazed me: She described my horse's issue and I immediately recognized myself! In fact, she did not talk about my horse, but about me. This period of my life had been particularly difficult and apparently, my horse sensed this and my feelings were reflected in the behaviour of my horse. Could this be true? And if so, why had I never noticed this special sense of horses before?

Horses evoke some form of emotion in humans (Frewin & Gardiner, 2005). For centuries, horses and humans have had a strong relationship. This relationship is not limited to the use of horses as a workmate. Jung suggested that horses embody one of the archetypes. Horses represent strength and nobility with their flaring nostrils, flowing mane and tail and flying hooves drumming the ground (Taylor, 2001). According to Jung (2000), the appearance of the horse can be connected to our instincts and parts of our unconsciousness. It evokes intensity, passion and strong warm feelings, instead of cool, conscious thoughts.

Horse-Human encounters provide opportunities for learning. It is through mutual trust and respect that a horse and a human can engage in a productive relationship (Frewin & Gardiner, 2005). The horse has certain characteristics that are of special use: natural leadership, the ability to mirror behaviour, strength and a strongly developed sense for intentions. Consequently, horses are increasingly involved as an instrument in different kinds of coaching and therapy.

There are many ways to describe the interaction between humans and horses for coaching or therapeutic goals. The common name is Equine Assisted Activities (EAA). Equine Assisted Therapy (EAT) is more targeted: it is defined by the Delta Society (Lentini & Knox, 2009) as a "goal-directed intervention in which a horse that meets specific criteria is an integral part of the treatment process". In literature, one can also find: Equine Facilitated Psychotherapy (EFP), Equine-assisted psychotherapy (EAP), Equine-assisted learning (EAL) which all target people with mental health disorders. Hippo therapy and equi-coaching are typically more focused on psychological well-being, i.e. people in general who do not have a

Drietact - Lange Nieuwstraat 101b - Utrecht - 06-52630859 - elsbeth@drietact.nl - kvk 59537493 – btw NL2076207714B01

disorder. The current research will use the name Equine Assisted Intervention (EAI), because whether it is called coaching or therapy, the horse assisted intervention aims for a certain outcome (treatment for a disorder or coaching on a personal question).

The basic idea of a horse as an instrument in EAI is the following conceptual model: a triangle of client, animal and therapist in which the therapist observes the behaviour of the animal and client. The behaviour of the animal is interpreted by the therapist. The effects of the client's behaviour on the animal are reflected to the client, and the client is encouraged to reflect on one's own behaviour and affect (Brooks, 2006).

In EAI, specialists use different approaches to work with horses. Some specialists work with un-mounted horses and address assignments such as herding and leading. Some use mounted horses and address assignments such as vaulting or traditional riding. Others focus on care of the animal (husbandry). Some work in groups, others work individually. Many specialists use various combinations of these techniques (Lentini & Knox, 2009).

As the styles differ, the target groups also differ widely. From children with learning and behavioural problems, to adults who want to be coached, adults with a history of abuse, people placed in residential programs, at risk adolescents, children with Autism Spectrum Disorder (ASD), adolescents with eating disorders, juvenile offenders and so on.

Why horses?

Despite different techniques and different target groups there is a common agreement why horses are ideal in treatment: First of all a horse is a prey, contrary to other animals often used in therapies, like dogs and dolphins. For horses, the difference between life and death is determined by their excellent capability to sense intentions and energy of others. A predator approaching because he wants to drink from the same well has a different intention compared to a predator that approaches because he wants to eat. Furthermore, horses communicate with body language and energy, telling one another whether danger is imminent or not. A horse lacking the ability to pick up intentions and energy would soon be captured by a predator.

A horse pays attention to tiny details, which sometimes go unnoticed by humans (Lentini & Knox,

Drietact - Lange Nieuwstraat 101b - Utrecht - 06-52630859 - elsbeth@drietact.nl - kvk 59537493 – btw NL2076207714B01

2009).When human and a horse meet, the horse will respond to the intention and the energy of the human. In her review of the use of horses in coaching, Andersen (2009) describes that both Strozzi (2004) and Kohanov (2003) state that horses react to people being authentic. Authentic refers to the extent to which one is true to the self (Avolio & Gardner, 2005). If persons do not appear authentic, horses are not interested in them or can react aggressively on different levels. The opposite is the case if there is congruence between what the person says and feels inside. The horse will react positively and will be more inclined to make contact, draw nearer to the person and will often also be willing to follow the person.

Secondly, horses live in a herd and are therefore highly social animals. A herd prescribes a certain hierarchy. There is one male leader, who protects the herd from any kind of danger. The dominant female leads the herd to food and water. If two strange horses encounter each other, some time will be spent on finding out who is fit to be the leader (which sometimes involves fighting). If a horse and a human meet, the horse will also find out whether this person fit to lead the horse or not, because the horse needs to know whether the human will protect him in case of danger. This process will take place every now and then, and like in a herd, the hierarchy may change. As in the example from the introduction: my own horse didn't feel safe with me anymore, he decided that I was not a good leader and in any case of potential danger he took his own leadership and fled, rather than accepting my commands. Now that I changed my behaviour towards him he does stay with me. Horses will only accept authentic leadership. Authentic leadership positively influences self-awareness and self-regulated positive behaviour on the part of both leaders and followers (Avolio & Gardner, 2005). For instance, in the study of Avolio & Gardner (2005), there was a boy who behaved very sturdily, but this was actually a way to handle his own uncertainty. The horse immediately felt his behaviour (shouting) was not aligned with his energy (being scared) and responded to this.

Thirdly, a horse has no prejudices or expectations. They don't care what you look like, whether you have rich friends or have a high position in an important company. High qualifications do not impact the response of the horse (Vidrine, Owen- Smith & Faulkner, 2002). The horse responds to your current intent and behaviour, and does so without criticism or assumption (Frewin & Gardiner, 2005). Because the horse responds to current behaviour, this makes him a good teacher. In normal human social interactions, once one made a huge social mistake, this will be remembered and will affect the behaviour

of others towards the individual. With horses one can make the same mistake time after time, but as soon as one will do it right, the horse will be prepared to begin a relationship.

Fourthly, horses are much bigger and stronger than humans. Their size demands respect and can be intimidating. This creates an opportunity to overcome fear (Frewin & Gardiner, 2005). Confidence and self-esteem are greatly increased through the accomplishment of a horse-oriented task (McCormick & McCormick, 1997).

Past research

An extensive body of research is directed to the effectiveness of the use of horses in therapeutic programs . Different ways of involvement of the horse have been researched, as well as clients with all kinds of different problems. Dijkstra (2010) found that EAT resulted in the attainment of objectives in 75% of the cases at youth ranging from age seven to twelve with educating problems. Klontz, Bivens, Leinart & Klontz (2007) reported reductions in psychological distress and enhancement in psychological well-being after receiving eight sessions of EAT. However, the study by Klontz et al. (2007) lacked a control group. Ewing, MacDonald, Taylor & Bowers (2007) found that EAT (eighteen sessions) did not result in quantitative improvements but resulted in qualitative improvements on locus of control, empathy, self perception, depression and loneliness in youth with severe emotional disorders. Bachi, Terkel & Teichman (2011) researched the influence of EFP on at risk adolescents, measuring self-image, self-control, trust and general life satisfaction. The treatment group received 32 individual sessions of EFP. The results were moderate. Trust, self control and life satisfaction did increase, but not significantly. Mac Donald (2007) found that six EFT sessions did result in less aggressive juvenile offenders. Bowers & Mac Donald (2001) found decreased feelings of depression in at-risk adolescents after seven EAT sessions. Bass et al. (2009) found that autistic children exposed to therapeutic horseback riding exhibited greater sensory seeking, sensory sensitivity, social motivation, and less inattention, distractibility and sedentary behaviours compared to the control group. Nelson, Axtell, Derby, Moug, Berrera & McLaughlin (2011) studied the effect of horseback riding on three children, all diagnosed with ASD (qualitative research). All tree children showed a decrease in aberrant behaviour, like crying,

screaming, whining, hitting, and avoiding therapists by hiding. Furthermore, all children showed an improvement in social behaviour like imitation of verbal responses and spontaneous verbal phrases.

Current research

The current research will be executed at the request of the Prinses Máxima Manage (PMM). PMM is an equestrian therapeutic center which offers (therapeutic) horseback-riding and therapeutic horse accompaniment for people, both with and without disabilities. The mission of the PMM is to offer equestrian activities to stimulate improved well-being (physically and mentally) and social opportunities, including the integration of people with and without disabilities. Furthermore, joy and the focus on possibilities rather than constraints play an important role in the objectives of PMM.

The core aim of the current research is to assess the effectiveness of EAI, independent of the kind of treatment (e.g. riding vs. non-riding). Furthermore, the current research will not focus on one population, but will include different participants with a variety of disorders or problems. Demonstrating that EAI is an effective way of therapy is important for PMM, because if EAI proves to be an effective way of therapy, grants and health insurers may be more inclined to allocate resources and therefore an increased amount of people can benefit from EAI.

The section on prior research shows that there is a substantial body of research. However, none of the prior studies explain why they focus on certain (psychological) constructs, such as depression, locus of control, distress etcetera, nor do the researchers explain their decision for certain measuring instruments. The current research will therefore make its decision for certain constructs and measuring instruments more transparent.

Horses and positive psychology

Horses react on positive behaviour of humans with their own positive behaviour. When humans show confidence, trust and are willing to connect with the horse, the horse is more inclined to follow, show interest and accept human leadership. In other words, horses will reward positive behaviour. The horse thus stimulates the human to show positive behaviour. Horses do not care about social status, whether you are disabled, handicapped, have a psychological disorder or how many times you have behaved in a negative manner. They respond only to current behaviour. Horses react immediately,

without any politically correct behaviour. When the human acts hesitant, unsure or there is no congruence between body and mind, horses will immediately react. Reactions can include: walking away, seizing the role of leader or showing lack of interest. The behaviour of the horse gives direct insight in, and therefore an opportunity for improvement of the human behaviour. In fact, horses stimulate positive development and therefore they perfectly fit into the field of positive psychology (PP).

PP is an umbrella term for the study of positive emotions, positive character traits and positive institutions. PP is about valued subjective experiences, such as well-being, contentment and satisfaction (in the past); hope and optimism (for the future); and flow and happiness (in the present) (Seligman & Csikszentmihalyi, 2000). The mission of positive psychology is to understand and foster the factors that allow individuals, communities, and societies to flourish (Seligman & Csikszentmihalyi, 2000). PP focuses on the amplification of strengths rather than the repair of weaknesses. Notice that PP principles are aligned with the objectives of PMM: stimulation of progression in well-being and social opportunities, focus on possibilities and the positive emotion: joy.

Well-being plays a major role in PP. The concept of well-being refers to optimal psychological functioning and experience (Ryan & Deci, 2001). This does not imply perfect functioning; it is subjective and a relative, rather than an absolute concept. Increasingly, well-being has been regarded not only as the absence of mental disorder but also as the presence of positive psychological resources, including components of hedonistic, subjective well-being (e.g., positive affect, life satisfaction, happiness), as well as components of eudaimonic, psychological well-being (e.g., self-acceptance, positive relations, autonomy, purpose in life; Ryan & Deci, 2001). A promising approach to increase well-being is through positive psychology intervention (PPI). PPI includes treatment methods or intentional activities that aim to cultivate positive feelings, behaviours or cognitions (Sin & Lyubomirsky, 2009). In their meta-analyses of 51 PPIs , Sin & Lyubomirsky (2009) found that PPI does indeed significantly enhance well-being and decrease depressive symptoms.

EAI is an example of a PPI. Horses evoke positive behaviour, by rewarding positive behaviour. Moreover, handling a big animal like a horse in itself may evoke positive effects on an individual. A horse that follows a child or the touching and hugging of a big, warm, hairy animal evokes several kinds of

positive emotions like joy and pride, and positive cognitions like an increased self-esteem and life satisfaction (Bachi et al., 2011).

Until now, no research has been directed to the combination of Equine Assisted Interventions and Positive Psychology. The current research will combine the two and therefore contribute to the development of both PP and EAI.

Hypotheses

Well-being is a major construct in both PP and the mission of PMM. As mentioned above, EAI is a form of PPI. PPI does significantly enhance well-being. Therefore hypothesis one is:
H1: Participants who join EAI will show a significantly increased well-being (compared to the participants who do not join EAI)

A second major construct from both PP and PMM is the focus on strengths and (social) opportunities rather than weaknesses and constraints. Linley & Harrington (2006) define strength as a natural capacity for behaving, thinking or feeling in a way that allows optimal functioning and performance. A distinction can be made between possessing and using strengths (Wood, Linley, Maltby, Kashdan & Hurling, 2011). For example, consider a person who is highly creative but never uses this strength, versus a creative person who has the opportunity and intention to be creative, and who uses this talent in lots of different situations to achieve his goal. According to Wood et al. (2011) having strengths is related to well-being but unblocking the disuse of strengths is most beneficial. An intervention which encouraged people to find one new platform to use their strengths led to greater improvement of well-being, which remained over a six month assessment period, relative to the transient benefits of a control condition (Seligman, Steen, Park, & Peterson, 2005).

One of the EAI interventions at PMM is named: "Regain your strength" (in Dutch: "In je Kracht"). This program names it explicitly, but also other programs of PMM are intended to unblock disuse of one's strengths. Therefore, the second hypothesis is:
H2: Participants who join EAI will show a significantly increased use of their strengths (compared to the participants who do not join EAI)

Participants differed in age, background and (diagnosed) problems. The present study adapted to individual differences by also introducing an idiographic approach. In addition to "general measurements" which will be distributed among all participants, an adjusted measurement for each individual participant was developed. This measurement contains individually adjusted objectives, norms and measurements. The adjusted measurement enables measures on individual progress. The third hypothesis is:

H3: Participants who join EAI will attain the individual objective, which is formulated by the therapist and the participant, prior to the EAI

Method

Participants

Children and adolescents (*N = 23,* ten female) with a average age of ten (*M = 10, SD =* 3.34*)* participated in the study. Participants differed in kinds of (diagnosed) problems, but they had one aspect in common: socio-psychological problems. Some had been diagnosed with emotional-social behavioural problems, like performance anxiety or problems in indicating their own boundaries. Other participants were diagnosed with attachment problems and a significant number of participants -eleven- could be linked to an Autism Spectrum Disorder (ASD). The classic features of autism include lack of social awareness and communication, deficits in sensory integration, and an inability to initiate directed attention (Bass, Duchowny & Llabre, 2009). Some participants had physical difficulties as well. Because the relative difference in the psychological problems of the participants, it was decided to solely focus on socio-psychological aspects. Some participants (*N = 7,30.4%)* received, in addition to EAI, other types of therapy, not provided by PMM.

Design

Field experiment. The initial design of this study was a Solomon design: A treatment condition group and a control condition group which would both complete a pre-test and post-test. The treatment condition group would receive EAI and the control condition group would not. Unfortunately, the challenges of the Solomon design were also apparent in this study. It was very difficult, or rather impossible, to obtain participants for the control condition group. Numerous activities to recruit

participants for the control condition group were all unsuccessful. These activities ranged from sending newsletters to parents via schools, posting messages on targeted internet pages, requesting parents of the children who were included in the treatment condition group for other children who might participate, and asking supervisors at various residential institutions to participate. All in vain.

Participants in the treatment condition group were recruited via residential institutions, an information day at PMM during the national autism week, and via schools and care institutions. Due to the design of the study and the absence of a control group, there was no random assignment. Some participants (*N = 2)* were already clients of PMM. Every participant attained at least 3 EAI sessions (*M =* 3.91*, SD =* 2.33*)* of one hour each. All sessions were for one individual at a time. Sessions were given by therapists and coaches, all certified as therapeutic riding instructor or for equi-coach. Some of them are also certified as social worker.

Due to the differences in background of the participants, both quantitative and qualitative measures were executed. The independent variable is the EAI, the dependent variable is well-being, use of strengths and the attainment of individual objectives.

Procedure

Quantitative research: In order to evaluate the influence of EAI, a set of questionnaires was distributed among the participants before the start of EAI (pre-test). The participants who were already clients of PMM received the questionnaires in the beginning of April. Dependent on the age of the respective participants, the set of questionnaires were completed by the participants themselves (if they were eleven years old or older and were able to successfully complete the set of questionnaires). In addition, the sets of questionnaires were distributed among their parents or supervisors. The treatment condition group participated in at least three sessions of EAI. Each individual participated in sessions with un-mounted (non-riding) horses or mounted horses. The un-mounted EAI sessions comprised assignments such as: leading the horse via a certain path without using a rope, other means of contact, getting in touch with the horse and indicating boundaries. The mounted EAI sessions comprised assignments such as: caring for the horse like brushing, saddling up and several riding assignments, like: movements on the horseback, steering the horse along a certain path using feet or rein and causing the horse to obey its rider. After the last session of EAI, participants, parents and/or supervisors were asked

to complete the post-test. The post-test included the same set of questionnaires as the pre-test, and also some evaluative questions.

Qualitative research: AB research design. An AB design (Kennedy, 2005, page 124) is a two-phase design composed of a baseline phase ("A") with no changes, and an intervention phase ("B"). After the intervention, one will evaluate whether changes occurred. Before the start of EAI, participants, parents and therapists agreed on individual objectives. Indicators and norms were described, in order to specify the objective. Participants (if they were eleven or older) and the parents or supervisors scored whether the objectives were attained, after the last EAI session. Scores were given for each participant independently.

Measures

Well-being. Well-being was measured by the short, eighteen items version of Ryff's Scales of Psychological Well-Being (SPWB, Ryff & Keyes, 1995). The SPWB is a multidimensional model of well-being. According to McDowell (2009): “Ryff's scales of well-being represent the leading attempt to cover a broader definition of well-being than that implied by positive affect or life satisfaction alone”. Included are six distinct components of positive psychological functioning. In combination, these dimensions encompass a breadth of wellness that includes positive evaluations of oneself and one's past life (Self-Acceptance), a sense of continued growth and development as a person (Personal Growth), the belief that one's life is purposeful and meaningful (Purpose in Life), the possession of quality relations with others (Positive Relations With Others), the capacity to manage effectively one's life and surrounding world (Environmental Mastery), and a sense of self-determination (Autonomy).

The short SPWB consist of eighteen items. Items were both positively and negatively phrased. Items take the form of statements (“I am not afraid to voice my opinions even when they are in opposition to the opinions of most people” and “I like to explore new things”). Responses are given at a 6-point scale ranging from “disagree strongly” to “agree strongly”. The original questionnaire is developed for participants aged 25 and older. The questionnaire was translated into Dutch and transferred into one questionnaire that can be used for completion by parents/supervisors and another questionnaire that is suitable for self-completion by children from the age of eleven. The SPWB was similar in the pre- and posttest.

Strengths. The increased use of strengths was measured by the Strengths and Difficulties Questionnaire (SDQ, Goodman, 1997). This questionnaire was used because it is one of the few which also contains strengths. The Values In Action Inventory of strengths for Youth was one of the other considered questionnaires which focuses on strength, but due to its complexity and length (189 items), this questionnaire was not involved.

The SDQ is a brief behavioural screening questionnaire for children ranging from the age of three to sixteen years old. The SDQ includes a version for completion by parents/supervisors and a version for self-completion (Goodman, Meltzer, & Bailey, 1998), which is suitable for children aged around eleven to sixteen, depending on their level of understanding and literacy. The parent version and children self-completion are almost identical: they include about 25 attributes, some positively and others negatively phrased. The 25 items are divided between five scales of five items each, generating scores for: Conduct Problems, Inattention Hyperactivity, Emotional Symptoms, Peer problems and Pro-social Behaviour. The SDQ comes with three scale response categories (not true, somewhat true, and certainly true). Questions are for example directed to: “Considerate of other people's feelings", "Generally obedient", "Usually does what adults request", "Easily distracted", "Concentration wanders”.

The translation of the English SDQ was retrieved from SDQinfo.com. The follow-up version of the SDQ was involved in the post-test. The follow-up versions of the SDQ include not only the 25 basic items, but also additional follow-up statements for use after an intervention. Some follow up statements were not applicable for the purpose of the study and were erased. One statement was added. In total, the three follow up statements were: “The difficulties of the child, since the start of the EAI, have become”, “The strengths of the child, since the start of the EAI, have become” (both on an five-point scale ranging from much worse to much better), and “The intervention helped in other ways, e.g. making the problems more bearable” (on a four point scale ranging from "not at all" to "a lot").

Idiographic measurements. Idiographic measurements were measured by the Goal Attainment Scaling (GAS, Kiresuk & Sherman, 1968, Van Yperen & van der Steege, 2006). GAS is a method of scoring the extent to which participants’ individual goals are achieved in the course of intervention. Objectives were individually identified to suit each participant, and the levels were individually set around their

current and expected levels of performance. An important feature of GAS is the establishment of criteria for a 'successful' outcome for that individual. The criteria followed the SMART principle, that is, they were specific, measurable, attainable, realistic and timely. These criteria were agreed with the child and family or supervisors before the intervention started. As a result, everyone had a realistic expectation of what was likely to be achieved, and agreed that this would be worth striving for. Each objective was rated on the extended version of the GAS scaling, described by Turner-Strokes (2008): a six point scale, with the degree of attainment captured for each goal area. The GAS scores of the child, parent and the therapist were compared to each other. In case of non-consensus between therapists and parents/children, the scores of the parents were leading, because not all children were able to rate their own attainment of objectives. In some cases, two objectives were identified per child.

Results

Preliminary analyses

No participants were excluded from the analyses of the study. All parents or supervisors completed the pre-test and post-test set of questionnaires and the GAS. Four adolescents completed the set of questionnaires by themselves. The self-completions were not involved in the analyses, due to the relatively small numbers. Negative keyed statements of the Ryff and SDQ items were scaled reversed. Eighteen well-being items in the pre-test were averaged in the Ryff pre-test scale (α = *.71*). Also the eighteen well-being items in the post-test were averaged in the Ryff post-test scale (α = .79). The 25 SDQ pre-test items were averaged in the SDQ pre-test scale (α = .81). The 25 SDQ post-test items were averaged in the SDQ post-test scale (α = .88). So, all scales have a sufficient reliability.

For the analyses of the results of the GAS, the six point scale was transferred into the GAS described by Van Yperen & Van der Steege (2006). One addition was made: if the achievement was more than the expected outcome, the scores were expressed as value three (see Table 1 for the transformation). For some of the participants (*N* = 9), two objectives were defined. In the analyses and the presentation of percentages, each objective counted as one, consistent with the method of analyses described by Van Yperen & Van der Steege (2006). Although the objectives differed per child, there were some objectives frequently shared, i.e. self-confidence, relaxation, communication and perseverance.

Drietact - Lange Nieuwstraat 101b - Utrecht - 06-52630859 - elsbeth@drietact.nl - kvk 59537493 – btw NL2076207714B01

Extended GAS	GAS van Yperen
Worse than expected -1	Worse than expected -1
No change 0	No change 0
Partially achieved +1/2	Partially achieved +1
Achieved as expected +1	Achieved as expected +2
A little better than expected +2	A little better than expected +3
A lot better then expected +3	A lot better then expected +3

Table 1: Transformation of the extended GAS into the Gas of van Yperen

Hypothesis testing

Hypothesis one. Hypothesis one, the significant increase of well-being due to EAI, was examined by analysing the scores on the Ryff pre-test and post-test. A paired samples T-Test, shown in Table 2, showed a significant two tailed result: t (22) = -2.81, $p < .05$. r = .51. This means that, on average, the well-being of the participants significantly increased between the pre-test (M = 3.16, SD = .58, SE = .12) and the post-test (M = 3.46, SD = .63, SE = .13) as shown in Figure 1. The findings are consistent with the hypothesis, that well-being of the participants who received EAI will significantly increase. The effect size (r = .51) is large and therefore represents a substantive finding.

		Paired Differences					
		Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
Pair 1	Well-being pre – Well-being post	-,307	,524	,109	-2,81	22	,010

Table 2 Paired samples T-Test of the significant difference in well-being: pre-test and post-test

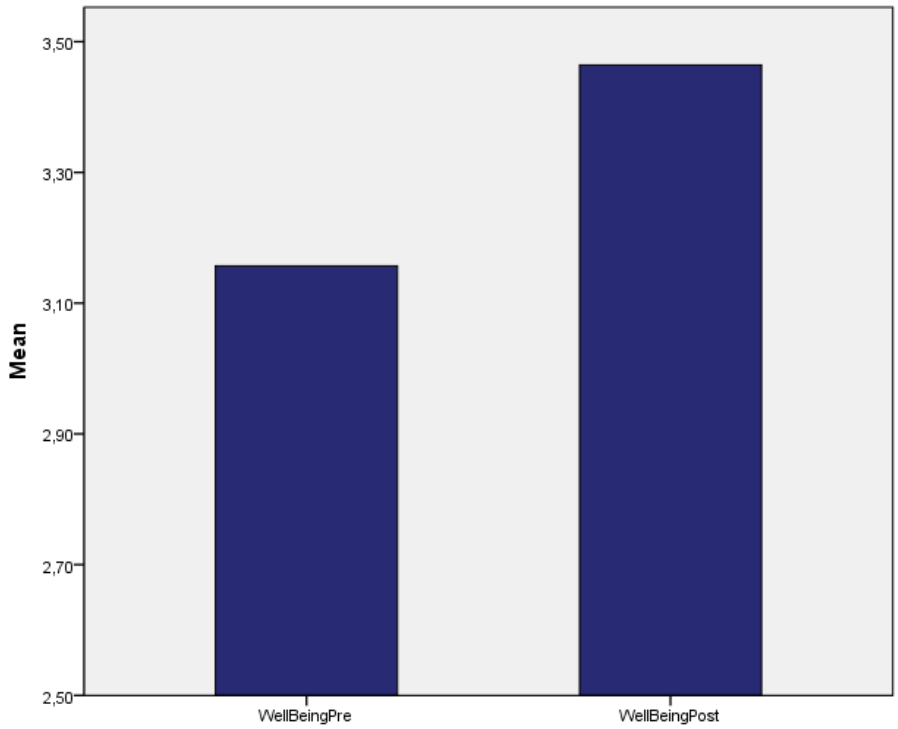

Figure 1: Bar graph of the impact of EAI: significant improvement in well-being between pre-test and post-test ($p < .05$)

Some of the participants (N =7) received other forms of therapy, in addition to EAI outside PMM. In order to analyse if other forms of therapy contribute to an increase of well-being, a repeated measure Anova was executed, with other forms of therapy introduced as a between-subject variable. The analysis of the within contrasts reveals that there is a significant positive difference in well-being $F(1, 21) = 7.67$, $p < .05$ (well-being pre-test: without other therapy $M = 3.29$, $SD = .41$, with other therapy $M = 2.83$, $SD = .79$, well-being post-test: without other therapy $M = 3.56$, $SD = .58$, with other therapy $M = 3.24$, $SD =$

.73). There is no significant interaction effect between time and other kinds of therapy $F(1, 21) = .33$, $p > .05$. Also, the between subject variable 'other therapy' shows no significant effect $F(1, 21) = 2.76$, $p > .05$. This means that participants who received other forms of therapy do not significantly differ from participants who only received EAI. The conclusion is that other forms of therapy did not significantly influence the increase of well-being during the course of this study, over and above the effects of EAI. This analysis adds to the evidence that the measured increase in well-being is in fact a result of the EAI.

Hypothesis two. Hypothesis two is that participants who joined EAI will show a significantly increased use of their strengths. The pre-tests and post-tests of the SDQ were examined. A paired samples T-Test showed a significant two tailed result: t (22) = -2.89, $p < .01$. $r = .52$. This means that, on average, the strengths of the participants increased significantly between the pre-test ($M = 1.99$, $SD = .31$, $SE = .07$) and the post-test ($M = 2.14$, $SD = .37$, $SE = .08$) as shown in Figure 2.

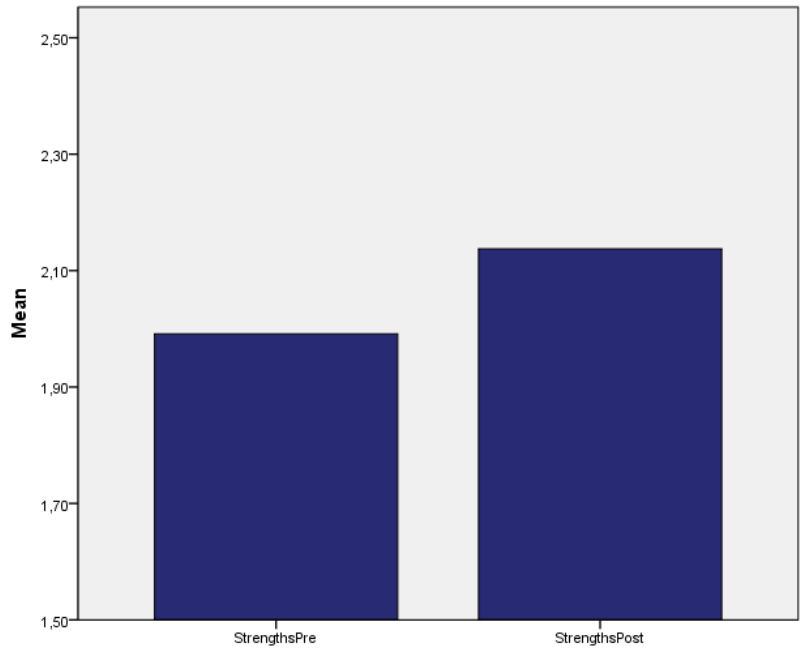

Figure 2: Bar graph of the impact of EAI: significant improvement in strengths between pre-test and post-test ($p < .01$)

Table 3 shows the results of the paired t-test. The results are consistent with the hypothesis: there is a significant increasing of the strengths. The effect size (r = .51) is large and therefore represents a substantive finding.

		Paired Differences					
		Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
Pair 1	Strengths pre – Strengths post	-,146	,242	,050	-2,89	22	,008

Table 3 Paired samples T-Test of the difference in Strengths: pre-test and post-test

A repeated measure Anova with the between-subject variable “other therapy” was also executed for the analysis of strengths. The results of the within contrasts analysis reveal that there is a significant positive difference in strengths $F(1, 21) = 6.00$, $p < .05$ (strengths pre-test: without other therapy M = 1.97, SD = .31, with other therapy M = 2.05, SD = .34, strengths post-test: without other therapy M = 2.13, SD = .39, with other therapy M = 2.17, SD = .36). There was no significant interaction effect between time and other kinds of therapy $F(1, 21) = .17$, $p > .05$. Also, the between subject variable "other therapy" shows no significant effect $F(1, 21) = .18$, $p > .05$. This means that participants who received other forms of therapy during the course of this study did not significantly differ from participants who only received EAI. The conclusion is that other forms of therapy did not significantly influence the measured increasing of strengths, during the course of this study and over and above the effects of EAI. This analysis again adds to the evidence that the increase in strength is a result of the EAI.

The SDQ scale consists out of five subscales, four for difficulties and one for pro-social behaviour. Because the current study focusses on positive psychology, an interesting question is whether the pro-social behaviour did significantly increase by sessions of EAI. To enable an analysis, the subscale pre-test pro-social (α = .78) was constructed out of the average score of the five pre-test items and the subscale post-test pro-social (α = .87) was constructed out of the average score of the five post-test items.

The pre-test and post-test of the subscale pro-social were examined by running a Paired Samples Test. An analysis revealed a non-significant result: t (21) = -1.47, $p>$ .05. r = .30. The difference between the pre-test (M = 2.10, SD = .52, SE = .11) and the post-test (M = 2.21, SD = .58 ,SE = .12) was too small to be significant. Nevertheless, the difference is positive, i.e. the pro-social behaviour did marginally increase.

In the analyses of the follow-up statements of the SDQ, the answers were analysed by frequency statistics and a one sample T-test. The statement of the difficulties: 43.5% judged that the difficulties were the same, 56.5% found that difficulties were (much) better, due to EAI. In the strengths statement 56,5% judged that strengths were the same, 43.5% judged that strengths were (much) better due to EAI. None of the participants judged that difficulties and strengths became worse. The one sample T-test with test value three (score three means: situation the same) revealed that both the average of difficulties t (22) = 4.83, $p<$ .05 and strengths t (22) = 3.87, p < .01 were significant. They are both significantly higher compared to test value three (for means and standard deviations, see Table 4). This indicates that a significant amount of participants judged that difficulties became less difficult and strengths became better.

	N	Mean	Std. Deviation	Std. Error Mean
Difficulties	23	3,65	,647	,135
Strengths	23	3,48	,593	,124
Helped other	23	2,70	,765	,159

Table 4 Means and standard deviations of the SDQ follow-up statements: difficulties and strengths

The last follow-up statement asked if the EAI helped in other ways. 4.3% of the participants (one) judged that the intervention did not help in other ways, 34.8% judged that EAI helped a little, and the majority (60.8%) found that EAI helped sufficiently to a lot. The one-sample T-test with test value two (two means: helped a little) revealed a highly significant difference t (22) = 4.36, p < .001, with means higher than two (see also Table 4). This indicates that the participants on average judged that EAI helped in other ways.

Hypothesis three. For the third hypothesis**,** the attainment of individual objectives, the GAS scores

were examined. Compared to the baseline (right before the start of the EAI), none of the participants showed a backwards development. In 22% of the cases, there was no development. 34% showed development, but not an exact attainment of the objectives. 19% attained the set objective and 25% attained more than the initial objective. In summary: 78% showed development compared to baseline, of which 44% attained the objective fully or more than was expected. The hypothesis is not fully met: there are participants who showed no development on the agreed objectives. However, 78% showed development.

Explorative analyses

A Pearson's correlation analysis was executed for the post-tests of well-being and strengths. The results showed a large and significant positive relationship between well-being and strengths ($r = .71$, $p < .01$). This means that well-being and strengths are strongly related to each other.

Discussion

The present study provides evidence that a three-session Equine Assisted Intervention (EAI) can result in significant improvements for children and adolescents facing social-psychological problems. Participants made significant improvements from pre-test to post-test in measures of well-being, strengths and difficulties. The strengths increased and the difficulties decreased.

It is striking that there is significant improvement, with only a minimum of three sessions. How does EAI contribute to well-being and the use of strengths? In the introduction, I wrote about the alleged connection between horses and positive psychology. There is evidence that positive psychology intervention does significantly enhance well-being (Sin & Lyubomirsky, 2009). The aim of a positive psychology intervention is that it cultivates positive feelings, behaviours, or cognitions.
EAI did indeed cultivate positive feelings, behaviours and cognitions. But it also taught participants to discover strengths they never thought they had. One of the most distinct examples was a 10 year old boy, a residential. Let's call him John. John had been diagnosed with attachment problems and is very shy. During the EAI he had to select a horse, and out of all the available horses, he chose the smallest and cutest one. The assignment consisted of: lead the horse and let the horse follow you, be a leader. John was totally unfamiliar with the phenomenon of someone following him. It took a while before he could even imagine that the horse would follow him. But when he discovered that as long as he showed self-confidence and made a connection with the horse, the horse immediately followed him. At that moment, the boy showed such an expression of pride! The horse was willing to follow the small boy. John learned that he can be a leader and that others are willing to follow him when his beliefs and cognitions are right. And John was not the only one. Children, parents and supervisors reported the following:

> "If you rely on yourself, the horse will do what you want"
>
> "Peter learned to ask things. After a year of EAI he wanted to stop, because he prefers to play with his friends. The fact that he told the therapist himself was a huge accomplishment for Peter"
>
> "I witnessed an increase in his self-confidence"
>
> "I have seen a relaxed child which was able to overcome fears"

Drietact - Lange Nieuwstraat 101b - Utrecht - 06-52630859 - elsbeth@drietact.nl - kvk 59537493 – btw NL2076207714B01

In the attainment of individual constructed objectives, 78% showed improvement from baseline. 44% of the group attained the objective completely or improved more than was expected. In some cases, the agreed objective was not attained, but other improvements were visible. In the post-test, parents and supervisors were able to make some comments on the EAI sessions. Sometimes comments indicated improvements outside the agreed objective. Examples are:

> "He has obviously more balance in his core. Now he is able to cycle on a bicycle with training wheels. Before the EAI sessions he was unable to do so"
>
> "He relies more on his own body, I can see that his balance has improved"
>
> "Questioning whether he wanted to continue EAI made clear that he is really inclined to value the opinion of others over his own opinion. He really liked the EAI but was not sure whether to continue, because horses are for girls. He was afraid of negative comments. This opened an opportunity to talk about own opinions and about doing what he really wanted. We decided to continue for ten more sessions. Now that he sees that his friends respond normally, he is really proud and already showed them his new horse riding gear"

Note that two comments refer to an improvement in the physical area. This study mainly focused on the socio-psychological area, but there were some improvements in the physical area as well for those participants for whom the EAI involved horse riding. Some research in the past already indicated why horse riding contributes to physical improvement. The gentle movements of the horse demand that a rider constantly adjusts his or her weight to stay upright (Gabriels et al. , 2012). To stay upright, ''... involves the rider's use of muscles and joints, leading to increased muscle strength, tone, bilateral control, balance, and a range of motion'' (King, 2007, p. 122).

In the present study, I observed all the participants during EAI. There is one observation I would like to mention. The participants who had been diagnosed with an Autism Spectrum Disorder (ASD) seemed to have a special connection with the horse. It seemed that the two really understand each other, like they speak the same language. My conclusion is that people with an ASD are not unsocial, but rather that they communicate more like horses do. These findings are consistent with the findings of Grandin & Johnson (2005): "people with autism are not unsocial, but rather they relate to other people in ways more similar to the ways that animals do".

Past research suggests that improvements due to EAI are not limited to the specific participants involved in the present study (children with socio-psychological problems). Klontz et al. (2007) reported significant enhancement in well-being and significant reduction of psychological distress in adults (with no diagnosed disorders). Bowers & Mac Donald (2001) found decreased feelings of depression in at-risk adolescents. Both Bass et al. (2009) and Nelson et al. (2011) found an improvement in social behaviour of children diagnosed with ASD. Horses were also effectively involved in programs with prisoners (Mac Donald, 2007). These studies all have in common that EAI enhances improvement, independent of the kind of problems one experiences. Or as Frewin & Gardiner (2005) concluded: "The involvement of horses in therapies can address a variety of mental health and human development needs". Therefore, EAI seems to be a really effective and promising instrument in coaching and therapy.

For the measurement of well-being, the eighteen items version of Ryff's Scales of Psychological Well-Being (SPWB) was used. The SPWB, especially the eighteen items version, has often been criticized. Criticism focused primarily on low internal consistency (reliability). The present study shows a good reliability with scores ranging from α = .71 (pre-test) to α = .79 (post-test). In this way, the present study contributes to the development and acceptance of the eighteen items SPWB, which is primarily important for future research in the field of positive psychology.

Explorative analysis showed a strong and positive relationship between post-test measures of well-being and strengths. Apparently, the two positive psychology constructs are strongly related. This finding is consistent with previous research. Most of the strengths are quite strongly related to well-being (Park, Peterson, & Seligman, 2004,). Wood et al. (2011) found that people who reported greater use of their strengths developed greater level of well-being. The present study ads that a decrease of difficulties results in a greater level of well-being as well.

Practical implications

Equine Assisted Intervention seems to be a really effective and promising instrument in coaching and therapy. The present study provides evidence that a three-session (EAI) results in significant improvements for children and adolescents facing social-psychological problems. Other researches have found significant improvements in a variety of mental and physical needs in participants differing from all kinds of (diagnosed) psychological or physical problems. EAI ads value to the traditional system of social

work and care. But it is not enough to focus on the fact that horses add value. The range of treatments and coaching in which EAI is involved varies widely, as well as the target groups. Future research will be needed to explore how EAI is effective for particular target groups. For example: it could be that particular un-mounted EAI sessions are more effective for children with attachment problems, compared to mounted EAI sessions. Other target groups may benefit more from mounted EAI sessions. In order to improve the involvement of horses in coaching en therapies, future research will be required to explore how and for which target group EAI is most effective.

The observation that participants diagnosed with ASD seemed to communicate like the way horses do is worthwhile further research. There had been some research to the effects of the involvement of horses and other animals in therapies. It is known that the presence of animals stimulates social behaviour among ASD participants (Gabriels et al. ,2012, Bass et al. ,2009). Previous research mainly focussed on the effects of the interaction with animals, rather than on the interaction with animals in itself and why ASD participants sometimes seem to favour animal contact over human contact. If it is possible to determine how the basis of the human–animal interaction via EAI is helpful to individuals with ASD, it may have far reaching implications for the quality of life of this population.

Limitations

Although this study provides evidence that EAI is effective, there are some limitations. The first one is the absence of a control condition. Despite a lot of effort, it proved impossible to find participants for the control condition. The absence of a control group renders the results more difficult to interpret. As a result, the findings of this study are less certain. It was possible to exclude any improvements which might have been due to other kinds of therapies. But there is still a chance that the observed changes may have been the result of time in itself, or other factors unrelated to the EAI treatment. On the other hand, the time period of the EAI was relatively short, at most about two months.

The study was set up so that the parents and supervisors completed the questionnaires. Children from the age of eleven who were able to complete the set of questionnaires were asked to complete a self assessment. In the analysis, the self-assessments have been disregarded, due to the small amount of

children who were able to complete the assessment. The fact that only parents and supervisors are involved in the analyses, increases the reliance of the data. But the data is still vulnerable to attempts to portray a greater improvement in functioning than actually occurred. On the other hand, it is common practice to highly value the opinion of parents about their children.

The degree to which the children could generalize EAI to the "real" world differed per child. Some parents reported that their children became more relaxed after EAI, some parents reported that the children could link the EAI to home situations, for instance: "mum, you are not a leader right now, in the way you handle this dispute with my brother". Some parents reported that their children were trying new behaviour at home. One girl of fifteen years old reported that she was better able to study after an EAI session. But there were other voices as well: Some supervisors reported improvement during the session and enthusiasm, but no change in child behaviour at the residential, i.e. after the session. Some parents reported different behaviour, but only at PMM. And they all noted the same: three sessions is rather short to permanently induce different behaviour.

Future research

The present study is the first that explicitly combines equine assisted interventions with positive psychology. The study contributes to insights why EAI can be an effective instrument to help children and adolescents who have socio-psychological problems. The acceptance and popularity of EAI is growing, while health insurers and health institutions are tightening the allowance for "alternative therapies." Therefore, future research is needed to determine how, why, for whom and when EAI is helpful.

To determine why, when, how and for whom EAI is effective, future research should focus on specific target groups having a specific problem, or a specific set of problems. Furthermore, the way horses are involved in treatments should be consistent within the research. This is important, because it can be possible that a particular target group benefits more from a certain type of EAI. The challenge is that there are as many ways to involve EAI as there are names for the intervention. There is equicoaching, equitherapy, equilearning, et cetera. There are mounted and un-mounted interventions with all kind of names. The problem is that there is no common agreement what the differences are and what kind of exercises belong to one form of intervention or to another. Nor do (most of the) therapists work with a specific procedure. In a perfect world, the forms and names of therapies involving horses would be

clearly defined. Luckily, there are some good initiatives and the number of certified educations is growing. But a standardized intervention protocol is still needed. Until such protocol is available, it is important to explain every tiny detail about the way EAI sessions are executed.

The present study focused on psychological problems, but there were some improvements in the physical area as well. Future research to the effects of EAI in physical areas is needed as well. In this future research, particular target groups are required with consistent involvement of EAI, to better understand how, why, for whom and when EAI is effective.

In the present study other therapies did not significantly influence the results over and above the effects of EAI. An interesting question is if and how EAI differs in the outcomes from "traditional coaching and treatment". Future research could explore this by having two comparable groups, wherein one group will receive EAI and the other "traditional therapy". Preferably, the therapy is provided by the same therapist(s).

Furthermore, future research should include a control group, a larger number of EAI sessions, and a follow-up measurement.

In summary: EAI is an effective instrument, but there is much room for improvement. Future research efforts are required, which will all serve the same purpose: Contributing to and improving the quality of life.

Acknowledgements

I would like to acknowledge Foundation Z for funding this study. I would like to thank the families, children and supervisors who participated in this study as well as the different therapists from the Prinses Máxima Manege (PMM): Judith A., Judith de L., Roos, Simone and Petra. A special word to Arieke Willemstein and Annemarie Rozeboom, board members of the PMM and my supervisors, who are the initiators of this study. Thank you for allowing me to take part in such a nice traineeship and master thesis, totally different from "just another day at the office". I have learned so much during this study. But most of all, I have learned about what it is to give meaning to work. A special thanks to Mariette, who arranged and planned all the EAI. Herman, the supervisor of the University of Leiden, who answered

all my questions with a lot of patience. Lucas, who became my husband during the research, for his social support, checking the drafts of my thesis, cooking and housekeeping while I was studying. And Hanna, my sister, for checking the English of my thesis. And last but not least: Odejente: the horse that taught me that there is more to learn from horses than how to ride them.

References

Andersen, V. (2009). *Equine Guided Coaching – A Critical Exploration of the Use of Horses in Coaching.* Retrieved from http://isar.dk/wp-content/uploads/2012/02/Final-dissertation-report-excluding-appendix-D.pdf

Avolio, B. J. & Gardner, W. L. (2005) Authentic leadership development: Getting to the root of positive forms of Leadership. *The Leadership Quarterly, 16,* 315 – 338

Bachi, K. , Terkel, J. , & Teichman, M. (2011). Equine-facilitated psychotherapy for at-risk adolescents: The influence on self-image, self-control and trust. *Clinical Child Psychology Psychiatry, 17*, 298-310. doi: 10.1177/1359104511404177

Bass, M. M. , Duchowny , C. A. , Llabre, M. M. (2009) The Effect of Therapeutic Horseback Riding on Social Functioning in Children with Autism. *Journal of Autism and Developmental Disorders, 39,* 1261–1267. doi: 10.1007/s10803-009-0734-3

Bowers, M. J., & MacDonald, P. M. (2001). The effectiveness of equine-facilitated psychotherapy with at-risk adolescents. *Journal of Psychology and the Behavioral Sciences, 15*, 62–76. doi: 10.1007/s10566-006-9031-x

Brooks, S. M. (2006) *Animal-Assisted Psychotherapy and Equine-Facilitated Psychotherapy. Working with Traumatized Youth in Child Welfare.* New York, NY: Guilford Publications

Dijkstra, A. (2010) *Effectonderzoek naar equitherapie bij jongeren in een residentiele hulpverlening.* Master thesis Orthopedagogiek for Rijksuniversiteit Groningen: Groningen

Ewing, C. A. , MacDonald, P. M., Taylor, M. & Bowers, M. J. (2007) Equine-Facilitated Learning for Youths with Severe Emotional Disorders: A Quantitative and Qualitative Study. *Child Youth Care Forum 36*, 59–72. doi:10.1007/s10566-006-9031-x

Frewin, K. ,& Gardiner, B. (2005). New age or old sage. A review of equine assisted Psychotherapy. *The Australian journal of counseling psychology, 6*, 13-17.

Gabriels, R. L. , Agnewa, J. A. , Holt, K. D. ,Shoffner, A. , Zhaoxinga, P. ,Ruzzano, S. , Claytona, G. H. , Mesibov, G. (2012). Pilot study measuring the effects of therapeutic horseback riding on school-age children and adolescents with autism spectrum disorders. *Research in Autism Spectrum Disorders, 6*, 578–588.

Goodman, R. (1997) The Strengths and Difficulties Questionnaire: A Research Note. *Journal of Child Psychology and Psychiatry, 38,* 581-586.

Goodman, R., Meltzer, H., & Bailey V (1998). The Strengths and Difficulties Questionnaire: A pilot study of the validity of the self-report version. *European Child and Adolescent Psychiatry, 7,* 125-130.

Grandin, T., & Johnson, C. (2005). *Animals in translation.* New York, NY: Simon and Schuster.

Jung, C.G. (2000). *De mens en zijn symbolen*. Rotterdam: Lemniscaat.

Kennedy, C. H. (2005) *Single Case Designs for Educational Research*. New Jersey, NJ: Pearson Education

King, N. (2007). Perceived efficacy of therapeutic riding for children with autism. Enhancing human occupation through hippotherapy. *American Occupational Therapy Association, 6 ,* 119–126.

Kiresuk, T. Sherman, R. (1968) Goal attainment scaling: a general method of evaluating comprehensive mental health programmes. *Community Mental Health , 4*, 443–53.

Klontz, B. T. , Bivens, A. , Leinart, D. & Klontz, T. (2007) The Effectiveness of Equine-Assisted Experiential Therapy: Results of an Open Clinical Trial. *Society and Animals, 15,* 257-267. doi:10.1163/156853007X217195

Lentini, J. A. , & Knox, M. (2009). A Qualitative and Quantitative Review of Equine Facilitated Psychotherapy (EFP) with Children and Adolescents. *The Open Complementary Medicine Journal*, *1*, 51-57. doi: 511876-391X/09

Linley, P. A., & Harrington, S. (2006). Playing to your strengths. *Psychologist, 19*, 86–89.

MacDonald, P. M. (2004). The effects of equine-facilitated therapy with at-risk adolescents: A summary of empirical research across multiple centers and programs. *Philadelphia: University of Pennsylvania School of Veterinary Medicine*. Retrieved from: www2.vet.upenn.edu/research/centers/cias/pdf/CIAS_AAI_white_paper.pdf

McCormick, A. R. ,& McCormick, M.D. (1997). *Horse Sense And The Human Heart.* Deerfield Beach, Florida: Health Communications, Inc.

McDowell, I. (2010). Measures of self-perceived well-being. *Journal of psychosomatic research, 69,* 69-79.

Nelson, K., Axtell, J., Derby, M., Moug, R., Berrera, S., & McLaughlin, T. F. (2011). A preliminary analysis of therapeutic horseback riding. *International Journal of Social Sciences and Education, 1*, 644–656.

Park, N. , Peterson, C. , & Seligman, M. E. P. (2004). Strengths of character and well-being. *Journal of Social and Clinical Psychology, 5,* 603-619.

Ryan, R.M., & Deci, E.L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology, 52*, 141–166.

Ryff, C. D. , Keyes, C. L. (1995) The structure of psychological well-being revisited. *Journal of Personality and Social Psychology, 69*, 719–27.

Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist, 55*, 5-14.

Seligman, M. E. P., Steen, T. A., Park, N., & Peterson, C. (2005). Positive psychology progress: Empirical validation of interventions. *American Psychologist, 60*, 410–421.

Sin, N. L. , Lyubomirsky, S. (2009). Enhancing Well-Being and Alleviating Depressive Symptoms With Positive Psychology Interventions: A Practice-Friendly Meta-Analysis. *Journal of clinical psychology*, *65*, 467-487. doi: 10.1002/jclp.20593

Taylor, S. M. (2001) *Equine facilitated psychotherapy: an emerging field*. Masters paper for Saint Michael's College, Colchester: Vermont

Turner-Strokes, L. (2009) Goal attainment scaling (GAS) in rehabilitation: a practical guide. *Clinical Rehabilitation, 23,* 362–370

Vidrine, M. , Owen-Smith, P., & Faulkner, P. (2002) Equine facilitated group psychotherapy: Applications for Therapeutic Vaulting. *Issues in Mental Health Nursing, 23*, 587-603. doi:10.1080/01612840290052730

Wood, A. M. , Linley, P. A. , Maltby, J. , Kashdan, T. B. & Hurling, R. (2011) Using personal and psychological strengths leads to increases in well-being over time: A longitudinal study and the development of the strengths use questionnaire. *Personality and Individual Differences 50,* 15–19.

Yperen, T. van & Steege, M. van der (2006). *Voor het goede doel. Werken met hulpverleningsdoelen in de jeugdzorg*. Utrecht/Amsterdam: Nederlands Jeugdinstituut/Uitgeverij SWP.