



**MSc in Clinical Psychology  
Department of Psychology**

**Effects of Equine Facilitated Therapy  
on At-Risk Youth in Treatment**

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## Foreword

Submitted in partial fulfillment of the requirements of the MSc clinical psychology degree, Reykjavik University, this thesis is presented in the style of an article for submission to a peer-reviewed journal. The research behind this thesis is a collection of work over four semesters. In the first semester, a draft of the research proposal was written, and the literature of Equine Therapies reviewed. It also involved writing a research proposal to the National Bioethics Committee of Iceland as well as making a collaborative agreement with co-researchers and the Government Agency for Child Protection. The first draft of the method section was written in the second semester. The conduct of the study and data collection were carried out during the second and the third semester. At last, the final draft of this thesis was written during the third and the fourth semester.

The research topic is a special passion of mine and has a long run-up. The idea came about because of my background in horsemanship and my experience as a riding instructor. During my teenage years, I spent a lot of time in the stables. In my memory, this was a place that filled me with joy, but at the same time and place I could turn to if I felt bad. Later, when I was working as a riding instructor, the parents of children who suffered from variety of psychological problems described how the companionship with horses impacted their children in a positive way. It piqued my interest in using horses as a therapeutic tool when I watched a primary school teacher give her students with behavioral and learning difficulties the opportunity to practice horsemanship during school hours. Not knowing that horses had been used for this purpose, I searched the Internet and found that Equine Facilitated Therapy was widely known abroad. In 2012, when starting my undergraduate psychology degree, it was my dream to find ways to combine equestrian with psychology. The opportunity came along in 2017 when I met my dear

friend Anna Kristín Newton, a clinical psychologist and a practitioner of horsemanship, and told her about my interests in researching Equine Therapy. She liked the idea, encouraged me to carry out the research and agreed to be my mentor for the project. Anna Kristín brought me into contact with Funi Sigurðsson, a head psychologist at a treatment center for at-risk youth. It was a pleasant surprise when he informed me that when he was growing up his parents ran treatment center for young people in the country side and used horses as part of their treatment work. Funi believed in the project and agreed upon cooperation. Þorlákur Karlsson, associate professor at Reykjavik University, was my second mentor on the project, and gave me specific guidance on the methodology.

I am sincerely grateful to Anna Kristín, Þorlákur and Funi for their genuine interest and important contribution to the project. Also, for the youths participating in the study. Getting to know them outside the office was an important experience as a student in clinical psychology. It taught me the importance of strengthening the therapeutic relationship and building trust on a different basis outside the office. Special thanks to Grétar and the staff at the treatment center who assisted in collecting behavioral measurements. I would like to thank Þorbjörg Sigurðardóttir, the owner of the horse Fóstri, for welcoming us to the stable and offering her unique horse. With Fóstri's good temper and willingness, he played an important role in igniting the youth's interest in horsemanship and completing the project to the end. And last, but not least, I want to thank my family. I thank my father for my interest in equestrian and my mother's support during my 5-year studies of becoming a psychologist. My beloved, Jón Ágúst, for his support, advice and assistance and our recently born daughter Sigríður Sif for escorting me all the way through this research journey.

### Abstract

Equine facilitated therapy (EFT) is a relatively novel complementary approach that has shown promising effectiveness for a variety of psychological and behavioral problems. The aim of the current pilot study was to assess whether EFT positively affects emotional, social and behavioral functioning of at-risk youth in treatment and identify if and how it contributes to behavioral change and emotional growth. Furthermore, to evaluate the feasibility of implementing EFT as part of a residential treatment program for at-risk youths in Iceland. Three youths received EFT in combination with standard treatment (ST) and were compared to three youths receiving ST only. The study used a mixed methodological approach combining single subject design and qualitative methods. Self-report measurements (Beck Youth Inventories – Second Edition (BYI-II); shortened versions of the BYI-II (BYI-II 20) and the social skills subscales of the Social Skills Rating System (SSRS) student form), behavioral measurements and individual semi-structured interviews were used to evaluate the effects of treatment, treatment progress, and feasibility. There were indications that EFT had a positive effect on emotional problems beyond ST. However, EFT did not appear to have an effect on social skills or problem behavior beyond ST. Results from qualitative interviews supported the therapeutic value of using horses to enhance therapy. Even though the results were not conclusive, there were indicators that EFT in combination with ST can be beneficial for at-risk youth. However, further research is needed to verify the effectiveness of EFT.

*Keywords:* at-risk youth, residential treatment, human-animal bond, equine facilitated therapy

### Effects of Equine Facilitated Therapy on At-Risk Youth in Treatment

Animal Assisted Therapy (AAT) is a relatively new approach that incorporates animals in the therapeutic setting to promote emotional and psychological well-being (Chandler, 2012; Kruger & Serpell, 2010; Parshall, 2003). Different kinds of trained animals have been utilized in this endeavor, such as cats, dogs, birds, rabbits, dolphins, and horses (Parshall, 2003). AAT is used as a complementary treatment in combination with evidence-based practice and has been implemented for various clinical problems, such as autistic spectrum disorders, mood disorders, anxiety, trauma, and substance use disorders (Lefkowitz, Paharia, Prout, Debiak, & Bleiberg, 2005; Parshall, 2003).

Equine Facilitated Therapy (EFT) is a subgroup of AAT that employs horses in the therapeutic context (Brandt, 2013). EFT is based on humanistic-existential approach that values direct experience as the most significant progress towards change (Bivens, Leinart, Klontz, & Klontz, 2007; Mahrer, 1983; Trotter, 2012). EFT is a goal directed intervention where horses can serve as a catalyst between a client and a certified mental health professional (Chandler, 2012). The rationale is working with horses through activities that require certain skills application by the client(s) which can be generalized to real life situations (“Equine assisted growth and learning association, inc,” 2018). The horse’s unique features promote the client’s intuitive understanding of their own feelings and behaviors and allows interpretation of “here and now” problems (Bachi et al., 2012; Lentini & Knox, 2009; Trotter, 2012). Treatment goals typically involve developing social skills, coping resources and problem-solving strategies that promote mental and social growth (Bachi, Terkel, & Teichman, 2012; Lefkowitz et al., 2005). Some studies have shown that utilizing animals in therapy may be a beneficial way to meet the needs of resistant clients and increase treatment adherence for clients who lack motivation to attend

therapy, for instance in adolescents (Kendall, Maujen, Pepping, Downes, Lakhani, Byrne & Macfarlane, 2015; Levinson, 1962). In this regard, it may be beneficial to use horses as a therapeutic aid to facilitate therapy for at-risk youth (Brandt, 2013). At risk-youths are often referred to as adolescents vulnerable to social and/or academic failure because of severe problem behavior, developmental and academic difficulties or trouble with social adjustment (Trotter, Chandler, Goodwin-Bond, & Casey, 2008). Many of them have had negative experiences with adults and often lack trust which can become an obstacle when building the therapeutic relationship (Ewing, MacDonald, Taylor & Bowers, 2007; Trotter et al., 2008; Tyler, 1994).

Unlike other domesticated animals, horses are both prey and herd animals which make them particularly helpful animals to use in therapeutic settings. They are extremely sensitive to threat cues in the natural surroundings and they rely on leadership from others (Roberts, 2001; Roberts & Abernethy, 2002). These intrinsic qualities have led to the analogy of the horse as a large biofeedback machine and a mirror because they can provide important information about the client's mental state and how they present themselves in social interactions ("Equine-facilitated psychotherapy," 2018; Fine, 2010). If the client can regulate his emotions and body language, the behavior of the horse will also change. This enhances self-awareness and thus congruence and understanding of the link between feelings and actions may be practiced through activities with the horse (Zugich, Klontz & Leinart, 2002).

Physical contact with horses can feel intimidating and through teaching the client to gain control of a strong and powerful horse, in a positive way, can feel empowering, enhance self-confidence and reduce negative feelings (Gibbons, Cunningham, Paiz, Poelker & Chajón, 2017; Trotter, 2012). Moreover, as horses are social animals and have specific position within their

herd, they are excellent metaphors for relationships, social roles and challenging life situations (Bachi et al., 2012).

Alternative treatments such as EFT that employ horses can be an effective approach to meet the needs of youths who don't respond to traditional talk therapy (Ewing et al., 2007; Trotter et al., 2008; Tyler, 1994). In a way, horses can serve as co-therapists and make it easier to build rapport with an insecure child (Ewing et al., 2007). The outdoor environment can have a relaxing effect and be perceived as non-threatening (Bachi, 2000). Tyler (1994) believes that work with horses paves the way through defensive barriers and challenges negative behavioral and relationship patterns through adopting new perspectives and insights. After having developed a relationship with the horse, adolescents have reported that the connection made them feel secure which helped them becoming more involved with staff and peers and made it easier to talk about their problems (Yorke, Adams & Coady, 2008).

Typically, EFT treatment begins with an assessment, treatment goals are set, and the format of sessions are discussed (Rothe, Vega, Torres, Soler & Molina, 2005). The initial sessions of EFT involve introducing the client(s) to the stable and the therapy horse(s). The first sessions typically involve basic exercises that allow clients to observe the herd dynamics and the horse's behavior, learn safe handling techniques and build confidence towards the horse(s). Typical tasks on this stage can involve feeding, tacking, grooming and stable chores (Schultz, Remick-Barlow & Robbins, 2006). Leading and more challenging equine activities that require clear verbal and nonverbal communication are introduced as the client's confidence increases (Rothe et al., 2005).

Bachi et al. (2012) examined the effects of EFT on self-image, self-control, trust, and general life satisfaction of at-risk youth in a residential treatment in Israel. Based on case

management referral, fourteen participants were selected in the treatment group receiving a weekly EFT session over a seven months period. The control group consisted of fifteen participants, receiving various psychotherapy ( $n = 6$ ) or no therapy other than living at the treatment center ( $n = 9$ ). No significant differences were found between groups on any of the self-report measurements administered pre- and post-intervention. However, there was an interesting trend in the data indicating promising treatment effects in all four research parameters within the treatment group. Bachi et al. (2012) suggested that future research used a mixed method approach by combining quantitative and qualitative methods to monitor the therapeutic process, including the developmental sequence and occurrence of positive change.

Frederick, Ivey Hatz and Lanning (2015) examined the effects of a five week EFT on hope and depression levels for students evaluated as at-risk youth in Texas. A total of 26 participants were randomly assigned to an EFT group in combination with the service provided regularly ( $n = 14$ ) and a control group ( $n = 12$ ) receiving treatment as usual. Statistical analysis of repeated measurements collected pre- and post- intervention, along with four time-point measurements during the treatment process demonstrated significant positive changes in both research parameters in the EFT group but none in the control group. This discrepancy between groups suggests that EFT can have a positive impact on at-risk youths' attitudes and their outlook to life.

Trotter et al. (2008) compared 12 weeks of EFT to classroom-based counselling for at-risk youth to improve behavioral and psycho-social functioning. There were 126 participants in the EFT group and 38 participants in the control group. Self-report indicated significant improvements in five subscales of the Behavior Assessment System for Children (BASC) for the EFT group compared to improvements in four subscales in the control-group. Parent-report

indicated significant improvements in 12 subscales compared to only one subscale in the control-group. Although both EFT and the classroom-based counselling were concluded as effective interventions, the EFT had positive effects above and beyond the ST.

Horses have been used in Iceland for therapeutic purposes in treatment residences for at-risk youth (Kristjánsdóttir, 2002). However, this is the first time it is done systematically along with a measure of effectiveness. Effort was made to perform a clinical quality research using a mixed methodological approach combining quantitative and qualitative methods as emphasized by Bachi et al. (2012) as most research on EFT has been primarily anecdotal or qualitative in nature (Lentini & Knox, 2015). The aim of the current study was to assess whether EFT affects emotional, social and behavioral functioning of at-risk youth in treatment in a positive way by looking at quantitative measurements. By analysing qualitative interviews, the secondary aim was to explore therapeutic factors that contribute to behavioral change and emotional growth as well as the the feasibility of implementing EFT as part of a residential treatment program in Iceland.

The research question is as follows: Does EFT in combination with ST promote therapeutic factors that can reduce problem behavior and have a positive effect on emotional problems and social skills of at-risk youth in treatment. The hypothesis tested in this study was that the emotional problems, lack of social skills and problem behavior of the participants in EFT would improve relative to the control group.

## **Method**

### **Participants**

A total of six youths participated in the study. All of them were starting standard treatment (ST) at a residential treatment center for at-risk youths. The gender ratio was two boys

against one girl in both the EFT group (EFT combined with ST) and a comparison group receiving ST only. Their age was between 14 and 16 years old ( $M_{\text{age}} = 15$  years). The youths were classified as having medium to high-risk problem behavior and struggled with various and complex behavioral and emotional problems as well as substance abuse. All of them had academic difficulties and social adjustment problems. Participants were excluded if they had a history of animal abuse, risk of escape and/or very high-risk problem behavior. Two treatment providers participated as commentators in a post-treatment interview. In the result section the six participants are referred to as P1-P6 and treatment providers as TP's.

### **Measures**

This research used a mixed methodological approach combining single subject research design and qualitative methods to assess the effects of EFT. To evaluate the treatment progress, self-report questionnaires and behavioral measurements were collected. Individual interviews were carried out to gain in-depth knowledge about the experience of participants and treatment providers of EFT as well as evaluating the feasibility of implementing it as part of the treatment process.

#### **Quantitative measurements.**

*Beck Youth Inventories – Second Edition (BYI-II;* Beck, Beck, Jolly & Steer, 2005) assess emotional problems of youths aged 7-18 years. The instrument consists of five subscales (20 items each) that evaluate self-concept, depression, anxiety, disturbing behavior, and anger, on a 4-point scale (values ranging from one to four, representing “never” to “always”, where 1 indicates no problem and 4 indicates severe problem). Subscales are expressed as t-scores ( $M = 50$ ,  $SD = 10$ ). The BYI-II has good reliability ( $\alpha = .88-.94$ ) and validity (Beck et al., 2005). The Icelandic version of BYI-II was validated in a sample of 293 students in elementary school in

Reykjavik and psychometric properties considered acceptable (Skarphéðinsson, Ólason, Sigursteinsson & Haraldsdóttir, 2005).

Twelve shortened versions of the BYI-II were created from the original BYI-II to evaluate the treatment progress throughout the EFT intervention period (*BYI-II 20*). Each version varied and consisted of 20 items with 4 items chosen from each of the five subscales of the BYI-II. The variation between sets were meant to increase the likelihood of honest responses as people tend to answer questions that are administered repeatedly the same way (Barlow, Nock & Hersen, 2009). The psychometric properties are unknown for the modified questionnaires used in the repeated measurements.

*Social Skills Rating System (SSRS; Gresham & Elliott, 1990)* is a multi-rater assessment scale (student, teacher, parent) that evaluates social skills, inappropriate behavior, and academic achievement of youths aged 3-18 years. The total number of items vary between age levels and are rated on a 3-5-point scale (Gresham & Elliott, 2008).

In the current study, the social skills subscales (four scales with 10 items on each) of the SSRS student form were used to evaluate all the youth's cooperation, self-confidence, empathy, and self-control, on a 3-point scale ranging from 0 (never) to 2 (very often) (Gresham, Elliott, Vance, & Cook, 2011). Subscales are expressed as raw scores, where high score indicate above average social skills and low scores indicate below average social skills. The instrument has been validated in the U.S. on 4000 children aged 3-18 years in three different age groups (Gresham & Elliot, 1990; Gresham et al., 2011). Internal consistency of the total social skills score on the student version is good ( $\alpha = .83$ ) and reliability for the different subscale's ranges from .67 to .69. The psychometric properties are unknown for the Icelandic version of the instrument.

*Repeated behavioral measurements* were performed by treatment staff approximately two times a week for all the participants. Common problem behaviors that at-risk youth often display and were considered to interfere with positive social interaction were monitored and recorded. There were thirty target behaviors, including questions regarding anti-social behavior (17 items that assess the incidence of lying, thefts, threats, etc.), inactivity/care (7 items that assess the quality of sleep habits, personal hygiene and eating habits, etc.) and lack of social skills (6 items that assess the position of the youth in the group, courtesy and helpfulness, etc.) evaluated on a 5-point ordinal scale with the value ranging from 1 (“never”) to 5 (“always”) representing no problem behavior to severe problem behavior, respectively. This is a checklist created by the treatment center and used to assess the level of at-risk youth’s problem behavior.

### **Qualitative measurements.**

*Individual semi-structured interviews* were held with participants in the EFT group. The purpose was to gain in-depth knowledge about whether participation in the EFT influenced the youth's emotional problems, social skills, or behavior. The interview posed questions regarding emotions, self-confidence and self-efficacy, own experience, communication, insight about self and others, and trust. Other questions concerned the main advantages/disadvantages of partaking in the EFT. The treatment providers were also interviewed and their experience and satisfaction with the EFT explored as means to evaluate the therapeutic value and the feasibility of implementing the treatment option as part of the service provided at the treatment center.

### **Intervention**

The EFT consisted of twelve treatment sessions which ran approximately twice a week, 60-90 minutes each time at Fákur Horse Club. The EFT was based on horse facilitated exercises and discussions. ”The EPIC Training for At-Risk Youth: 12-Week Treatment Manual” was used

to guide therapy exercises (Trotter, 2008). The organization of the EFT was as follows. Week 1: a) “initiate unique experience” and b) “building a sense of community”. Week 2: c) “building self-esteem” and “developing leadership” and d) “our influence on others”. Week 3: e) “discovering solutions” and f) “nurturing healthy attachment”. Week 4: g) “insight about self and others” and h) “social skills and communication”. Week 5: i) “assertiveness and accountability” and j) “trust and leadership”. Week 6: k) “discovering new solutions and personal growth” and l) “pride and accomplishments” (Trotter, 2008). A M.Sc. student in clinical psychology who is also a qualified riding instructor performed the EFT, under supervision of a clinical psychologist at the treatment center.

### **Procedure**

The research and data collection ran from December 2018 until middle of April 2019. Participants and the youth’s parents gave their informed consent after reading and signing an introduction letter. Participants were allocated a research number to mask their identity. No payments or incentives were provided for participation in the study.

Because of the relatively small number of youths in treatment at any given time participants were selected with convenience sampling and divided evenly in two groups; an experimental group receiving EFT in combination with ST (EFT group) and a comparison group receiving ST only (ST group). Efforts were made to pair participants in terms of age and gender.

The BYI-II inventory and the SSRS student form were rated by each youth at baseline and post-treatment as customary in administration procedures. Instructions on how to answer the questionnaires were given in a private room and explanations offered if the youth did not understand questions/wording. Because of the participant's developmental or academic difficulties, the questionnaires were read aloud. It took approximately 60 minutes to complete the

questionnaires each time. The BYI-II 20 and staff's behavioral measurements were administered, twice a week during the treatment period, for participants in both groups. It took approximately five minutes to complete each questionnaire. In depth interviews were carried out post-treatment and took approximately 15-30 minutes for each respondent.

To investigate whether EFT had benefits beyond ST three participants were selected for comparison. The comparative measurements were the same as for the experimental group, except that in depth individual interviews were not performed. This research received full approval from the Icelandic National Bioethics Committee (clinical study registration number: VSN-18-140).

### **Design and Data Analysis**

**Quantitative.** To assess the effects of EFT on emotional, social and behavioral problems, a single-subject design with multiple baseline across participants was used. Participants served as their own comparison and the treatment progress was evaluated with visual analysis using graphs. To test treatment benefits above and beyond ST only, data from comparison group were also collected and evaluated. Pre- and post-measurements were interpreted through comparison of values in a table.

**Qualitative.** Thematic analysis was used to analyse the interviews. With a deductive approach the key therapeutic factors were found and the feasibility of implementing EFT evaluated. Thematic patterns were created in six phases; familiarating with the data, initial data coding, searching for themes, reviewing themes, defining and naming themes, and presenting the results in a table (Braun & Clarke, 2006).

## Results

### Quantitative Results

Table 1 shows that before the EFT was implemented, all participants (P1-P6) experienced average to extremely elevated levels of emotional problems in all subscales of the BYI-II. In general, the scores decreased for two (P1 and P2) out of three participants in the EFT group. This reduction was evident on all subscales except self-concept for P2, which stayed extremely elevated. Emotional problems remained similar for P3. For P4 in ST group, there was only a slight reduction in two out of five subscales scores. P6 in ST group did, however, experience reduced emotional problems on all subscales. It should be noted that the score of P5 were not conclusive in this comparison because the staff failed to collect post test data.

Figure 1 shows that baseline measurements, BYI-II 20, indicated that all participants experienced low or moderate emotional problems (range 1.8-3.0). The implementation of EFT did not affect their scores. Similar results were observed for the group receiving ST only.

Table 2 shows that before EFT was implemented the participants score on the SSRS subscales indicated average or below average social skills. In general, participants in EFT group had lower social skills compared to participants in ST at baseline. For EFT group, the total scores of social skills (the sum of all four subcomponents for each participant) improved for one (P1) out of three participants. In fact, there was a slight decrease in total social skills scores for P2 and P3. For ST group the total scores of P4 and P6 improved. It should be noted that the score of P5 was not conclusive.

Figure 2 shows that baseline measurements indicated that all participants experienced low or moderate frequency of problem behavior (range 1.2-2.8). No clear changes were observed

throughout the treatment period. This indicates that neither EFT nor ST appeared to affect problem behavior.

### **Qualitative Results**

As listed in Table 3, six themes were identified from the feedback of EFT participants that gave insight into various elements that might be of therapeutic value. The youths had to overcome their insecurities regarding how to handle horses. They learned to become aware of how their emotions, behaviors and body language could affect the horse. Moreover, they related to the horse, not only emotionally but also found similarities in their own behavioral patterns, as for instance the fleeing nature of the horse when facing a threat. The EFT environment seemed to have a positive effect on their emotions, attitudes and self-concept. Most often, the youths found it desirable to attend the stables, felt good when they arrived and were happy during and after the EFT session. As shown in Table 3, P1 and P3 were satisfied with the therapy. P2 stood out with a rather negative attitude towards the EFT despite finishing the therapy. However, all of the participants, recommended EFT for youth in treatment. P3 said “I would like to see others get a chance to attend a course like this, I would recommend it”. Moreover, treatment providers (TP’s) at the treatment center stated: “We would like to find ways to keep the program ongoing as part of the institutional treatment work”.

Table 1

*Pre- and Post-Measurements of BYI-II Evaluating Emotional Problems in At-Risk Youth Receiving EFT and ST*

BYI-II Outcome measure	EFT Group				ST Group			
	P1 <i>t-score</i>	P2 <i>t-score</i>	P3 <i>t-score</i>	<i>M</i>	P4 <i>t-score</i>	P5 <i>t-score</i>	P6 <i>t-score</i>	<i>M</i>
Self-concept								
Pre	69	74	52	65	65	69	74	69
Post	66	75	54	65	69	*	69	69
Anxiety								
Pre	58	61	53	57	63	74	56	64
Post	49	32	51	44	61	*	54	58
Depression								
Pre	82	82	49	71	58	76	77	70
Post	63	35	54	51	61	*	55	58
Disruptive behavior								
Pre	61	72	46	60	53	70	59	61
Post	55	41	50	49	54	*	50	52
Anger								
Pre	67	91	57	72	53	54	49	52
Post	52	71	52	58	52	*	41	47

*Note.* BYI-II = Becks Youth Inventory-Second Edition. Colors in the table represent the severity of the emotional problems an individual is experiencing: **Average** (t = 55 or less), **Mildly elevated** (t = 55-59), **Moderately elevated** (t = 60-69) and **Extremely elevated** (t = 70+). *M* = Mean t-score. \* = data not available as staff failed to collect data. P1-P6 = participant 1-6.

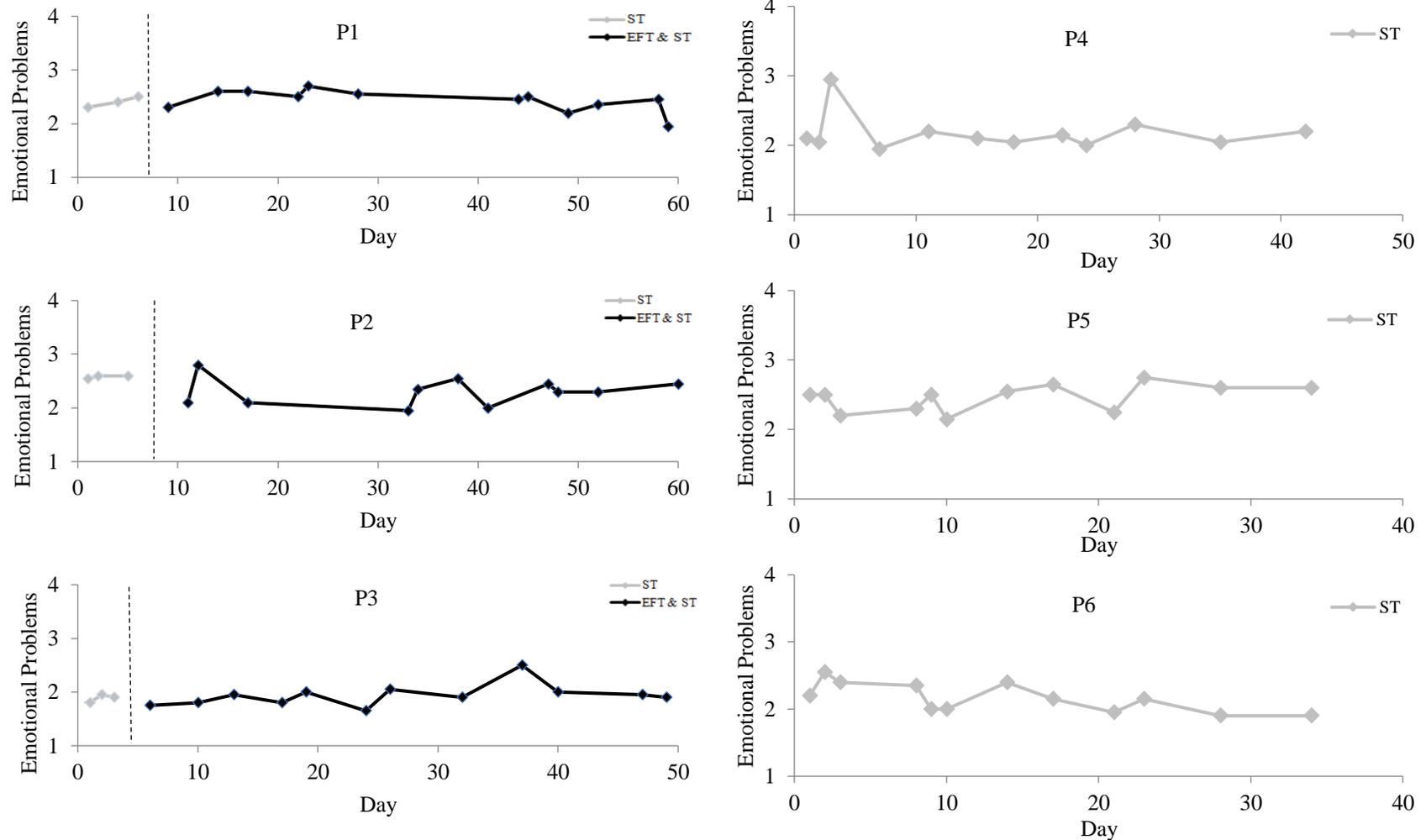


Figure 1. BYI-II 20 = shortened version of Beck Youth Inventory Second Edition. Repeated measurements of emotional problems of participants 1-3 in EFT group (P1-P3) and participants 4-6 in ST group (P4-P6). Five factors were measured with BYI-II 20; self-concept, anxiety, depression, disruptive behavior, and anger. The average score is depicted on the scale of 1 to 4, where 1 indicates no problem and 4 indicates severe problem.

Table 2

*Pre- and Post-Measurements of SSRS Measuring Social Skills in At-Risk Youth Receiving EFT and ST*

SSRS Outcome measure	EFT Group				ST Group			
	P1 <i>Raw score</i>	P2 <i>Raw score</i>	P3 <i>Raw score</i>	<i>M</i>	P4 <i>Raw score</i>	P5 <i>Raw score</i>	P6 <i>Raw score</i>	<i>M</i>
Cooperation								
Pre	5	10	12	9	17	11	10	13
Post	8	5	9	7	17	*	13	15
Self-confidence								
Pre	13	8	13	11	11	15	10	12
Post	10	13	13	12	12	*	8	10
Empathy								
Pre	12	10	16	13	15	20	10	15
Post	11	9	15	12	17	*	12	15
Self-control								
Pre	4	6	7	6	10	10	9	10
Post	9	6	10	8	11	*	9	10

*Note.* SSRS = Social Skills Rating System. Low scores represent poor social skills and high scores good social skills. Social skills are also represented with different colors; **Above average**, **Average** and **Below average**. *M* = Mean score. \* = Data not available. P1-P6 = participant 1-6.

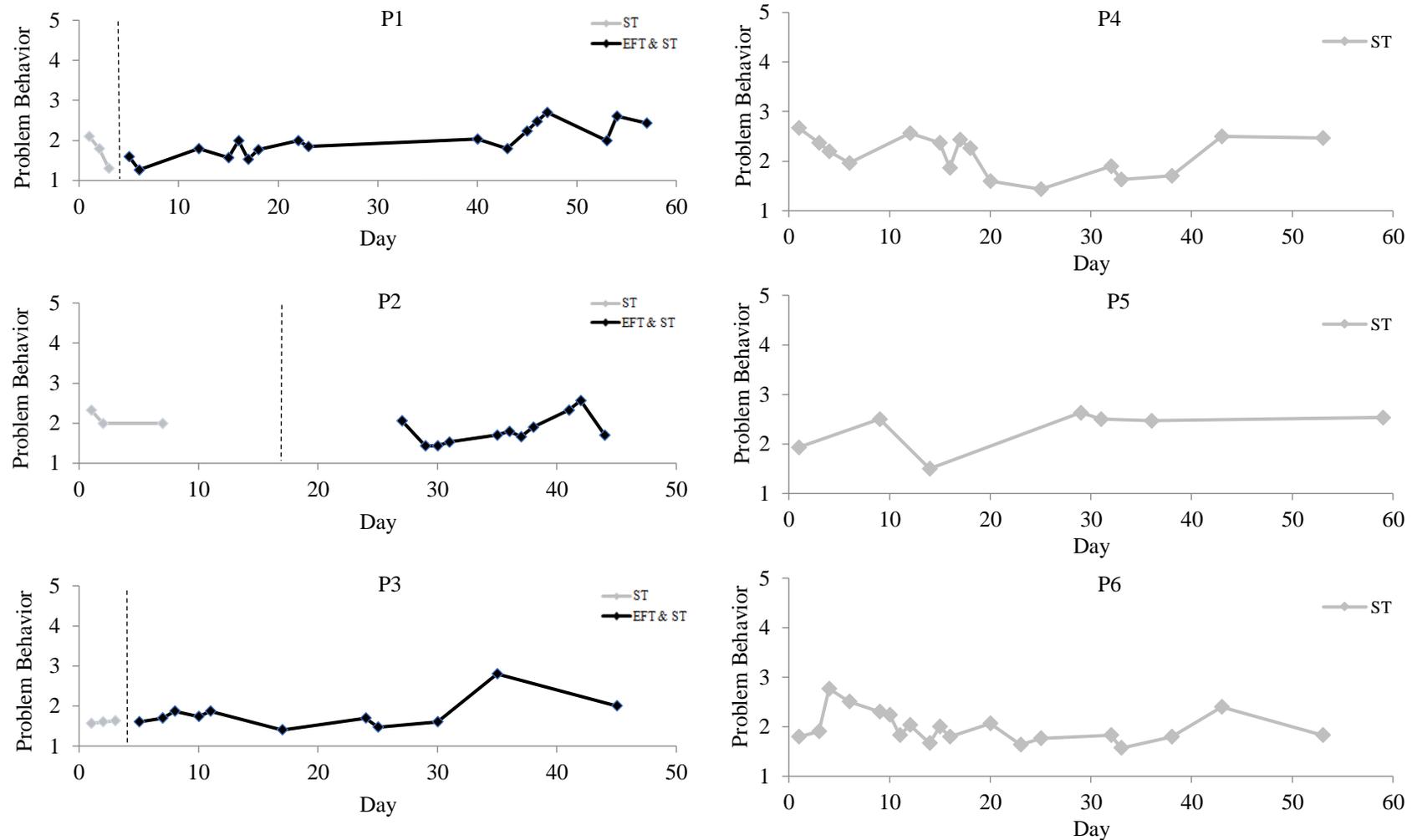


Figure 2. Repeated measurements of problem behavior of participants 1-3 in EFT group (P1-P3) and participants 4-6 in ST group (P4-P6). Three problem behavioral factors were measured with behavioral assessment; anti-social behavior, inactivity/care and lack of social skills. The average score is depicted on the scale of 1 to 5, where 1 indicates no problem and 5 indicates severe problem.

Table 3

*Results from Interviews with the EFT Group and TP's at the Treatment Center Divided into Six Key Therapeutic Factors Drawn from Questions Regarding Benefits, Advantages/Disadvantages, Attitudes, Experience and Treatment Satisfaction towards the EFT*

	Feelings and emotions	Emotion regulation	Social skills	New experience and learning	Horse as a metaphor/mirror/biofeedback machine	Therapeutic relationship
Common description	Wellbeing, success, increased self-confidence towards the horse, empowerment, motivation	Successful communication with the horse, anger management, frustration	Empathy towards others	Exciting, challenging, enjoyable, skill acquisition, not enjoyable, did not learn anything new		Trust
Direct quotes	<p>“Riding a horse made me feel good” (P1).</p> <p>“The youths returned from the stables cheerful and proud” (TP’s).</p> <p>“I felt comfortable around the horses” (P1).</p> <p>“At first I was insecure, but now it has improved substantially” (P3).</p> <p>“They get the information that they are able to achieve and succeed” (TP).</p> <p>“Sometimes I did not feel like going to the stables but as I was there the feeling subsided” (P1).</p> <p>“Once I was at the stables I often felt better and forgot I was irritated” (P3).</p>	<p>“There was an instance where I could not control the horse and I got really frightened in that situation, but I managed to keep calm” (P3).</p> <p>“I was frustrated the whole time but managed to hide it well” (P2).</p> <p>“My emotional state before attending the stables affected how I felt during the sessions and how I succeeded with the horses” (P3).</p> <p>“I realized that my anger came out as impatience towards the horse and the activities at hand” (P3).</p>		<p>“At first I was uncertain about how to approach such a large animal, but once I learned how I should handle horses it improved” (P1).</p> <p>“We can see that the youths learn something new about themselves that strengthens their position and personal strengths” (TP’s).</p> <p>“Through learning new skills in novel situations, the youth learn that it is normal to be afraid and that it is possible to overcome the feeling without going into defence mode or escape from the situation” (TP’s).</p>	<p>“I find it remarkable that people and horses tend to respond equally to threat by fleeing the circumstances” (P1).</p> <p>“I learned that my own tension increased the tension in the horse, so I tried to calm down to gain control” (P3).</p>	<p>“The therapist’s unconventional approach to earn their trust strengthens the therapeutic relationship” (TP’s).</p> <p>“In safe hands in challenging situations, it gives the youth space to be vulnerable without losing their position” (TP’s).</p>

*Note:* P1-P6= participant 1-6; TP’s = treatment providers

### Discussion

The youth's participating in the research reflect a population that, hypothetically, could benefit from EFT (Kendall et al., 2015). Consistent with prior meta-analysis (e.g. Kendall et al., 2015; Lentini & Knox, 2015) evaluating the efficacy of EFT on psychological outcomes, findings from this pilot study gave indications that EFT can be a beneficial way to meet the needs of at-risk youths with emotional, social and behavioral issues. Although not significant, there was a trend in the data suggesting that EFT can have a positive effect on the at-risk youth.

Quantitative data indicated that EFT had a positive effect on emotional problems (P1, P2), beyond ST. Emotional problems remained similar for P3 in the EFT group, who stood out with scores within an average range on most subscales at baseline which might explain the lack of improvement. EFT did not have a positive effect on social skills beyond ST and neither the EFT nor the ST appeared to reduce problem behavior. Although the quantitative results only gave limited support to the hypothesis presented there were discrepancies in the results depending on the method used.

Although effect size cannot be inferred, results from qualitative interviews were in many ways aligned with the literature and theory describing the benefits of EFT and key mechanism of change (e.g. Kendall et al., 2015; Lentini and Knox, 2009; 2015). Overall, the description of the participants supports the therapeutic value of using horses to enhance therapy. They felt that the therapy provided new and positive experience that resulted in skill acquisition and self-knowledge. The TP's stated, "we can see that the youths learn something new about themselves that strengthens their position and personal strengths". Emotional factors mentioned were increased emotional regulation, wellbeing, self-confidence and empowerment. P1 said, "sometimes I did not feel like going to the stables but as I was there the feeling subsided".

Enhanced social skills and empathy towards others were also mentioned. However, P2 had somewhat negative opinion towards some aspects of EFT. He said, “I was frustrated the whole time but managed to hide it well”. His descriptions were not consistent with the TP’s and staff’s experience. It may have affected that he was defiant and angry when the interview took place. The TP’s experience of EFT, as listed in Table 3, echos Tyler's (1994) description on how EFT can help to facilitate trust and the therapeutic relationship.

There were some interesting contradictions in the results suggesting that some features in the study design may need to be adjusted. Firstly, the repeated measurements of emotional problems did not demonstrate clear changes, neither for the EFT group nor ST group. This, in contrary, did not apply to the pre-and post measurements of emotional problems which indicated a positive trend. There is a possibility that the repeated measurements were not sufficiently sensitive or suitable for this group. The same applies to repeated behavioral measurements by staff which were low in frequency and did not demonstrate any clear changes.

Another possible explanation of the poor effect size might be that the current research utilized a control group receiving ST only instead of a waitlist control. While ethically understandable, this limitation was also evident in the research of Trotter et al. (2008) and Bachi et al. (2012). EFT has not been researched as a standalone treatment and therefore it’s effect size may be compromised by ST as discussed by Wilkie, Germain and Theule (2016). It cannot be ruled out that this may prevent the true impact of the EFT to emerge and interpreting its effectiveness above and beyond ST results in a very conservative effect size.

Secondly, the qualitative methods indicated that EFT had a positive effect on the at-risk youths, whereas quantitative methods were not conclusive, as was also the case in Gibbons et al. (2017) study. Moreover, as evidenced in the interviews, there was an interesting difference

between the youth's and TP's experience of EFT. Even though the youth described the EFT in a positive way, they didn't communicate that it influenced their internal state. On the other hand, the TP's reported clear changes in the youth's thoughts and behavior. A part of at-risk youth's problems to begin with is impaired insight and limited ability to express their own feelings which could have distorted the outcome. There is also a possibility that there was not enough understanding among the youth on some of the questions that could have affected the results.

There were other limitations which need to be revised. Although multiple baseline is a strength of the study design, it would increase the generalizability to have more participants. Because of the limited number of youths being treated at a given time point at the treatment center, it was not possible to start baseline assessment at the same time for all participants. Environmental variables could have impacted the results as participants sometimes receive weekend and/or holiday leave from the treatment center, which in some instances has a negative treatment impact as they sometimes return to precarious or unstable situations.

The administration of repeated measurements was incomplete which affected the validity and reliability of the results. Firstly, only part of the behavioral measurements that had been agreed upon were carried out by staff. This was also the case for post-measurements for P5, which consequently reduces the weight of the ST group. In hindsight, these limitations could most likely have been avoided with more intensive management by the researcher.

Secondly, participants answered self-report questionnaires 12 times during the intervention which may have led to practice effects (Barlow et al., 2009). The participants were tired of answering the self-report questionnaire after each treatment session, found the questions too similar and tended to use the "sometimes" response option most often. Frederick et al. (2015) stated that a larger sample and fewer repeated measures may minimize these limitations while

maintaining power.

Finally, it must be pointed out that participants only received EFT two times per week over the treatment period. Considering that at-risk youth's problems often develop over a long period of time and difficult conditions in their immediate surroundings can be a barrier to recovery there is a possibility that longer treatment period may be needed. Longer treatment period would also allow for longer intervals between repeated measurements, which in turn may reduce practice effects.

### **Conclusion**

EFT has gained increased interest as an additional treatment tool to enhance therapy for at-risk youth (Burgon, 2011). However, the theoretical underpinnings do not have a solid foundation as of yet and there is a lack of understanding of how and why human-animal interactions are beneficial (Kruger & Serpell, 2010). This pilot study examined whether EFT in combination with ST promoted therapeutic factors that can reduce problem behavior and have a positive effect on emotional problems and social skills. To the author's knowledge this is the first EFT in Iceland that is applied systematically along with a measure of effectiveness. The researcher attempted to ensure stability among the two groups by pairing participants in terms of age, gender and that they all lived at the treatment center during the treatment period. To test treatment benefits there was a ST group which should give an idea about whether implementing horses in therapy had influence beyond ST only. Even though the results were not conclusive, there were indicators that EFT in combination with ST can be beneficial for at-risk youth dealing with emotional problems. Furthermore, interviews with participants and treatment providers suggest that EFT may provide additional treatment element to enhance therapy for at-risk youth. However, it must be noted that at-risk youths have complex and diverse problems and this study

only lasted for a short period of time and had a small sample size. Therefore, further research is needed to verify the full effectiveness of EFT.

## References

- Bachi, K. (2000). The contribution of therapeutic horseback riding to drug addicts. *Animals & society, 11*, 20–26.
- Bachi, K., Terkel, J., & Teichman, M. (2012). Equine-facilitated psychotherapy for at-risk adolescents: The influence on self-image, self-control and trust. *Clinical Child Psychology and Psychiatry, 17*(2), 298–312. <https://doi.org/10.1177/1359104511404177>
- Barlow, D. H., Nock, M., & Hersen, M. (2009). *Single case experimental designs: Strategies for studying behavior for change* (3rd ed.). Boston: Pearson/Allyn and Bacon.
- Beck, A., Beck, J., Jolly, J., & Steer, R. (2005). Beck Youth Inventories (2nd ed.). San Antonio, TX: Harcourt Assessment.
- Bivens, A., Leinart, D., Klontz, B., & Klontz, T. (2007). The effectiveness of equine assisted experiential therapy: Results of an open clinical trial. *Society & Animals, 15*(3), 257–267. <https://doi.org/10.1163/156853007X217195>
- Brandt, C. (2013). Equine-facilitated psychotherapy as a complementary treatment intervention. *The Practitioner Scholar: Journal of Counseling and Professional Psychology, 2*(1), 23-42.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology, 3*(2), 77-101.
- Burgon, H. L. (2011). ‘Queen of the world’: Experiences of ‘at-risk’ young people participating in equine-assisted learning/therapy. *Journal of Social Work Practice, 25*(02), 165–183. <https://doi.org/10.1080/02650533.2011.561304>

- Cantin, A., & Marshall-Lucette, S. (2011). Examining the literature on the efficacy of equine assisted therapy for people with mental health and behavioural disorders. *Mental health and learning disabilities research and practice*, 8(1), 51.
- Chandler, C. K. (2012). *Animal assisted therapy in counseling*. Routledge.
- Equine assisted growth and learning association, inc. (2018). Retrieved March 14, 2018, from The community network for people interested in equine assisted psychotherapy and learning website: <http://www.eagala.org/>
- Equine-facilitated psychotherapy. (2018). Retrieved April 15, 2018, from PATH INTL. website: <https://www.pathintl.org/resources-education/resources/eaat/60-resources/efpl/201-equine-facilitated-psychotherapy>
- 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 and Youth Care Forum*, 36(1), 59–72. <https://doi.org/10.1007/s10566-006-9031-x>
- Fine, A. H. (Ed.). (2010). *Handbook on animal-assisted therapy: Theoretical foundations and guidelines for practice* (3rd ed.). Amsterdam: Elsevier.
- Frederick, K. E., Ivey Hatz, J., & Lanning, B. (2015). Not just horsing around: The impact of equine-assisted learning on levels of hope and depression in at-risk adolescents. *Community Mental Health Journal*, 51(7), 809–817. <https://doi.org/10.1007/s10597-015-9836-x>
- Gibbons, J. L., Cunningham, C. A., Paiz, L., Poelker, K. E., & Chajón, A. (2017). ‘Now, he will be the leader of the house’: An equine intervention with at-risk Guatemalan youth. *International Journal of Adolescence and Youth*, 22(4), 390–404. <https://doi.org/10.1080/02673843.2016.1202844>

- Gresham, F. M., & Elliott, S. N. (2008). *Social skills improvement system (SSIS)*. Minneapolis, MN: Pearson Assessments.
- Gresham, F. M., & Elliott, S. N. (1990). *Social skills rating system: Manual*. American Guidance Service.
- Gresham, F. M., Elliott, S. N., Vance, M. J., & Cook, C. R. (2011). Comparability of the Social Skills Rating System to the Social Skills Improvement System: Content and psychometric comparisons across elementary and secondary age levels. *School Psychology Quarterly, 26*(1), 27.
- Kendall, E., Maujean, A., Pepping, C. A., Downes, M., Lakhani, A., Byrne, J., & Macfarlane, K. (2015). A systematic review of the efficacy of equine-assisted interventions on psychological outcomes. *European Journal of Psychotherapy & Counselling, 17*(1), 57–79. <https://doi.org/10.1080/13642537.2014.996169>
- Kristjánisdóttir (2002, December). Hestar verkfæri í meðferðarvinnu. *Auðnuspor: Blað meðferðarheimilis að Hvítárþakka*, 16-18.
- Kruger, K. A., & Serpell, J. A. (2010). Animal-assisted interventions in mental health: Definitions and theoretical foundations. In *Handbook on Animal-Assisted Therapy* (pp. 33–48). Academic Press. <https://doi.org/10.1016/B978-0-12-381453-1.10003-0>
- Lefkowitz, C., Paharia, I., Prout, M., Debiak, D., & Bleiberg, J. (2005). Animal-assisted prolonged exposure: A treatment for survivors of sexual assault suffering posttraumatic stress disorder. *Society & Animals, 13*, 275-295
- 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*(1), 51–57. <https://doi.org/10.2174/1876391X00901010051>

- Lentini, J. A., & Knox, M. S. (2015). Equine-facilitated psychotherapy with children and adolescents: An update and literature review. *Journal of Creativity in Mental Health, 10*(3), 278–305. <https://doi.org/10.1080/15401383.2015.1023916>
- Levinson, B. M. (1962). The dog as a “co-therapist.” *Mental Hygiene, 46*, 59–65.
- Mahrer, A. R. (1983). *Experiential psychotherapy: Basic practices*. New York: Brunner/Mazel.
- Parshall, D. P. (2003). Research and reflection: Animal-assisted therapy in mental health settings. *Counseling and Values, 48*(1), 47-56.
- Roberts, M. (2001). *Horse sense for people: Using the gentle wisdom of the join-up technique to enrich our relationships at home and at work* (1st American ed.). New York: Viking.
- Roberts, M., & Abernethy, J. (2002). *From my hands to yours: Lessons from a lifetime of training championship horses*. Solvang, Calif: M. and P. Roberts.
- Rothe, E. Q., Vega, B. J., Torres, R. M., Soler, S. M. C., & Molina, R. M. (2005). From kids and horses: Equine facilitated psychotherapy for children. *International Journal of Clinical and Health Psychology, 5*(2), 373-383.
- Schultz, P. N., Remick-Barlow, G. A., & Robbins, L. (2006). Equine-assisted psychotherapy: A mental health promotion/intervention modality for children who have experienced intra-family violence. *Health & Social Care in the Community, 15*(3), 265–271.  
<https://doi.org/10.1111/j.1365-2524.2006.00684.x>
- Skarphéðinsson, G., Ólason, D., Sigursteinsson, H., & Haraldsdóttir, J. (2005). Forprófun á íslenskri útgáfu Sjálfsmatskvarða Becks fyrir börn og unglinga. *Sálfræðiritið – Tímarit Sálfræðingafélags Íslands, 10.-11.*, 59–70.
- Trotter, K. S. (Ed.). (2012). *Harnessing the power of equine assisted counseling: Adding animal assisted therapy to your practice*. New York: Routledge, Taylor & Francis Group.

Trotter, K. S. (2008). *EPIC-training: Treating at-risk youth and adolescents with equine assisted counseling*. Flower Mound, TX: Equine Partners in Counseling.

Trotter, K. S., Chandler, C. K., Goodwin-Bond, D., & Casey, J. (2008). A comparative study of the efficacy of group equine assisted counseling with at-risk children and adolescents. *Journal of Creativity in Mental Health, 3*(3), 254–284.  
<https://doi.org/10.1080/15401380802356880>

Tyler, J. L. (1994). Equine psychotherapy: Worth more than just a horse laugh. *Women & Therapy, 15*(3–4), 139–146. [https://doi.org/10.1300/J015v15n03\\_11](https://doi.org/10.1300/J015v15n03_11)

Vidrine, M., Owen-Smith, P., & Faulkner, P. (2002). Equine-facilitated group psychotherapy: Applications for therapeutic vaulting. *Issues in Mental Health Nursing, 23*(6), 587–603.  
<https://doi.org/10.1080/01612840290052730>

Wilkie, K. D., Germain, S., & Theule, J. (2016). Evaluating the efficacy of equine therapy among at-risk youth: A meta-analysis. *Anthrozoös, 29*(3), 377-393.

Yorke, J., Adams, C., & Coady, N. (2008). Therapeutic value of equine-human bonding in recovery from trauma. *Anthrozoös, 21*(1), 17–30.  
<https://doi.org/10.2752/089279308X274038>

Zugich, M., Klontz, T., & Leinart, D. (2002). The miracle of equine therapy. *Counselor Magazine, 3*(6), 22–27.