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Equine-assisted psychotherapy: a mental health promotion/intervention modality for children who have experienced intra-family violence

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Abstract
Equine-assisted psychotherapy (EAP) is a specialized form of psychotherapy using the horse as a therapeutic tool. This modality is designed to address self-esteem and personal confidence, communication and interpersonal effectiveness, trust, boundaries and limit-setting, and group cohesion. Substantial numbers of children witness family violence. There is evidence that violence between parents has adverse effects on the children in the family. These children are at greater risk of behavioural problems and mental health disorders, including anxiety, anger, depression and suicidal ideations, withdrawal, low self-esteem, and attention deficit hyperactivity disorder. The purpose of the present pilot study was to test the efficacy of EAP in a cross-sectional group of children referred to a psychotherapist for various childhood behavioural and mental health issues over an 18-month period (June 2003–January 2005). Sixty-three children received a mean number of 19 EAP sessions. Scores on the Children's Global Assessment of Functioning (GAF) Scale were determined pre- and post-treatment. The mean (± standard deviation, SD) pretreatment score was 54.1 (SD 3.2) and post treatment mean score was 61.7 ± 5.0 ($t = 9.06$, d.f. = 96, $P < 0.001$). All children showed improvement in GAF scores, and there was a statistically significant correlation between the percentage improvement in the GAF scores and the number of sessions given ($r = 0.73$, $P = 0.001$). Univariate analysis showed that the greatest improvement in the GAF scores occurred in the youngest of the subjects. Children in the group who had a history of physical abuse and neglect had a statistically significant greater percentage improvement in GAF scores after treatment than those who did not have a history of abuse and neglect. This study has demonstrated a quick response to EAP, especially in younger children, but it remains to be determined what kind of long-term effects this type of intervention may provide.

Keywords: children, equine, intra-family violence, mental health, psychotherapy

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Introduction

Substantial numbers of children witness family violence (Wolak & Finklehor 1998). The prevalence is actually unknown, but studies have suggested that 11–20% of children have a childhood incidence of witnessing family violence (Straus & Smith 1990, Henning *et al*. 1996). There is evidence that family violence between parents has adverse effects on the children in the family (Fergusson & Horwood 1998, Kitzmann *et al*. 2003, DeSocio & Hootman 2004, Schwartz 2005). Research has shown that these children are at greater risks for behavioural problems, including aggression, cruelty to animals, truancy and delinquency (Graham-Berman 1996, McCloskey *et al*. 1996), and mental health disorders, including anxiety, anger, depression and suicidal

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ideations, withdrawal, low self-esteem, attention deficit hyperactivity disorder (ADHD) (Graham-Bermann 1996, Thompson *et al*. 2005). Research has suggested that family violence witnessed by children affects the developmental representations of relationships (Grych 2000, Levendosky *et al*. 2003). Consequently, these representations may shape children's perceptions and behaviour in later life. Therefore, a therapy based in relationship-building may provide children with experiences that enhance trust, communication and guidance to healthier relationships.

Equine-assisted therapy (EAP) is a specialized form of psychotherapy using the horse as a therapeutic tool. Horses have several characteristics that are similar to humans in their behavioural responses and social structures, thus providing a mirror for the client to gain insight in a unique and non-threatening environment. The horse is a large, powerful animal that commands respect and elicits fear. Overcoming these obstacles and building a relationship promotes confidence, relationship skills and problem-solving skills. Equine-assisted therapy is designed to address self-esteem and personal confidence, communication and interpersonal effectiveness, trust, boundaries and limit-setting, and group cohesion (Kersten & Thomas 2000).

For children, EAP has all the benefits of play therapy as well as experiential learning. This type of therapy provides opportunities for the child to identify and understand personal emotions, develop empathy, develop a sense of responsibility, learn to problem-solve, and to succeed in new undertakings (Kersten & Thomas 2000).

The purpose of this exploratory study was to test the efficacy of EAP in a cross-sectional group of children referred to a psychotherapist for various childhood behavioural and mental health issues.

Subjects and methods

Over an 18-month period (June 2003–January 2005), children were referred to a psychotherapist for treatment of various conditions. Referrals were made from local therapists, paediatricians and school counsellors, specifically for EAP. Each child and parent was interviewed by the therapist to determine the suitability for EAP. Children who had an aversion to horses would have been excluded, but none of those referred for EAP met that exclusion criteria. This time frame incorporated the beginning of a new treatment protocol utilizing EAP by the therapist. The sample size was one of convenience in that it included all children referred to the therapist during that 18-month period (unselected consecutive sampling). At the end of the 18 months, treatment protocols were changed. Therefore, this sample includes all children treated with EAP by the therapist within the 18-month period. The psychotherapist is a licensed independent social worker. Each study participant and legal guardian was given the opportunity to sign an informed consent permitting treatment and evaluation. Permission was given by the participant and legal guardian that the findings from the treatment and evaluation could be released to the therapist and any third-party payers. The Institutional Review Board of New Mexico State University, Las Cruces, NM, USA, gave permission to analyse the data collected in the study.

The therapist has incorporated into her practice an EAP programme. The programme is implemented using guidelines provided by the Equine Assisted Growth and Learning Association (EAGALA). The EAGALA is a non-profit organization founded to address the need for resources, education, and professionalism in the field of EAP. This organization supports the field through education, creation of professional standards, research and networking. A major goal of the organization is to promote the efficacy of EAP as an effective approach in a variety of mental health and human development needs.

Equine-assisted psychotherapy is a short-term, collaborative effort between a therapist and a horse professional. The primary goal of EAP is to generate positive engagement with clients utilizing an experiential- and animal-based treatment modality. An equine specialist and a therapist work together to plan safe treatment sessions. The modality is closely related to Gestalt therapy in that a basic tool of the therapy is the use of body language. Equine-assisted psychotherapy is an experiential approach to psychotherapy based on the use of metaphors. A basic goal of EAP is to encourage client insight through horse examples. Horses have a variety of characteristics that are similar to humans, and they respond to non-verbal behaviour of the human interacting with them. Individuals are often unaware of their behaviour until they can understand it through the way in which the horse reflects it back to them. Work with the horse supports and encourages the identification and expression of feelings. Interventions or activities are planned around the concept of the horse's reflective behaviour. Interventions are tailored to each individual and their needs as assessed by the psychotherapist, and the child and/or parent. Some examples follow.

Grooming the horse is learned and practiced. The child becomes acutely aware that the horse will only lift their hoof for inspection if the horse chooses to do so. The child is unable to force the horse to do this. Children sometimes perceive resistance or an unwillingness by the horse to lift its hoof, which may lead the child to have feelings of fear, inadequacy, and/or anger

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and frustration. At this time, the opportunity for the therapist to help the child process these feelings is immediate and powerful. This is done by calling attention to the child's feelings and encouraging them to talk about them. The child soon learns that the horse is more likely to respond when she or he is less fearful and/or angry.

The outdoor setting invites an awareness of one's physical being and stimulates the senses. Special attention to awareness of one's body is essential for safety, which is used as a demonstration of how it is in the rest of the world. When children are unable to understand their place in the world, they may often feel themselves to be insignificant or invisible. By instructing them about how to approach the horse (e.g. remaining in their line of vision and approaching the horse until the animal can see who is coming), the child experiences their place in relation to others within their environment. While providing for the child's safety, the therapist helps the child to see how they fit into the world.

Children are able to make connections with the horse, which facilitates vulnerability. They may be in a large enclosure with the horse, and be instructed to encourage the horse to move using their tone of voice and body language. This allows the child to move from powerlessness to seeking support to feelings of success.

The children and parents are interviewed before therapy sessions begin. Sometimes parents are involved in the therapy, sometimes other siblings are included as well. Family participation is encouraged. Data collection at intake involves demographic information, physical health history, medication history, mental health history, mental examination, and *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition (DSM-IV) diagnosis. The Children's Global Assessment of Functioning (GAF) score is determined by the treatment team before treatment starts and at 3-month intervals until treatment is concluded.

The following general diagnostic categories of the DSM-IV are used for data analysis: mood disorders, post-traumatic stress disorder (PTSD), adjustment disorders, ADHD, disruptive behaviour disorders, and other.

Assessment of treatment was done using the GAF scale. This is a 100-point rating scale measuring psychological, social and school functioning for children aged 6–17 years. It was adapted from the Adult Global Assessment Scale, and is considered a valid and reliable instrument for rating a child's general level of functioning in a health–illness continuum. This instrument was introduced in 1987 with the DSM-III-R and modified in the DSM-IV of 1994. A score of 100 indicates maximum functioning. Reliability has been found to be variable from fair to substantial (Cronbach's alpha = 0.62–0.82), depending upon raters, training and diagnostic groups in 33 published papers using the scale (Schorre & Vandvik 2004).

Interparental violence is defined as violence between the child's parents. Child abuse/neglect is defined as physical child abuse and/or child neglect requiring the child's removal from the family home by protective childrens' agencies. Sexual abuse is defined as any physical abuse of a sexual nature to a child (e.g. sexual contact, sexual intercourse or anal penetration). The three categories of interparental violence, physical child abuse/neglect and sexual abuse are not always exclusive, in that children experiencing interparental violence may also experience physical child abuse/neglect and/or sexual abuse. For some analyses, children who experience physical abuse/neglect and sexual abuse are combined into one category referred to as 'overall child abuse'. Intra-family violence is defined as any combination of interparental violence and overall child abuse.

Data analysis

Statistical analysis involved the reporting of frequencies and percentages, the chi-square test, unpaired and paired *t*-tests, Pearson's correlation coefficient, and analysis of variance.

Results

Sixty-three children who had been referred to the therapist for EAP were included in the present study. There were 37 (59%) males and 26 (41%) females. The ages of the children ranged from 4 to 16 years. The males were significantly older than the females (mean ± SD = 11.5 ± 2.6 years versus 10.1 ± 3.3 years, respectively; $t = 1.96$, d.f. = 61, $P = 0.05$). There were 32 (51%) children whose ethnicity/race was identified as non-Hispanic white, 29 (46%) who were Hispanic white and two (3%) who were black.

There were 36 (57%) children with a mood disturbance diagnosis, 10 (16%) with ADHD, five (8%) with PTSD, three (5%) with adjustment disorder, three (5%) with disruptive disorder and three (5%) with other disorders. Three children attended only one session and a diagnosis was not made. Group numbers were too small for chi-square analyses for all diagnoses. However, when those diagnosed with mood disorder were analysed by gender, it was found that there was no statistically significant difference between males and females ($\chi^2 = 3.01$, d.f. = 1, $P = 0.08$), but females tended to be diagnosed more often with mood disorder [73.9% (17/23) versus 51.4% (19/37)]. When mood disorders were analysed by ethnicity, no statistically significant differences were found for Hispanic versus non-Hispanic whites ($\chi^2 = 0.017$, d.f. = 1).

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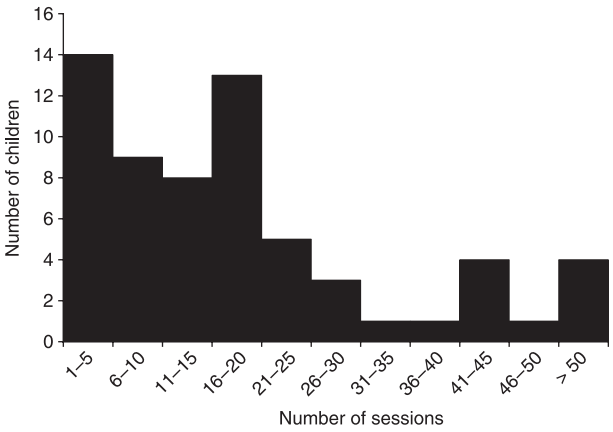


Figure 1 Distribution of the number of children by the number of completed equine-assisted psychotherapy sessions.

Twenty-five (40%) children had a history of interparental violence in the home, 17 (27%) had a history of abuse and/or neglect, 12 (20%) had a history of sexual abuse, and 20 (32%) had at least one parent with a history of substance abuse. Furthermore, children with a history of sexual abuse were significantly more likely to have had a parent with a substance abuse problem [75% (9/12) versus 22% (11/51); $\chi^2 = 12.8$, d.f. = 1, $P < 0.001$]. In addition, those children who were identified as having a history of physical or sexual abuse, or neglect were significantly more likely to have witnessed interparental violence in the home [65% (15/23) versus 25% (10/40); $\chi^2 = 9.87$, d.f. = 1, $P = 0.002$].

The 63 children received from one to 116 sessions of EAP, with a mean (± SD) of 19.0 ± 19.6 sessions. Forty-nine (78%) children finished six or more sessions (Figure 1), and those failing to complete at least six sessions were excluded from further analysis. The GAF scores were determined both pretreatment and at the conclusion of the treatment. The mean (± SD) pre- and post-treatment scores were 54.1 ± 3.2 and 61.7 ± 5.0 (paired $t = 9.06$, d.f. = 96, $P < 0.001$). All children showed an improvement in GAF scores, and there was a statistically significant correlation between the percentage improvement of the GAF scores and the number of sessions given ($r = 0.73$, $P < 0.001$) (Figure 2). Females had a significantly greater improvement in GAF scores than males (15.0% versus 10.3%; $t = 2.46$, d.f. = 47, $P = 0.02$). The ages of the children were categorized into three groups: < 8 years old, 8–12 years old and > 12 years old. When children were divided into age categories, univariate analysis showed that the greatest improvement in the GAF scores occurred in the youngest of the subjects ($F = 4.9$, d.f. = 2, 46, $P = 0.01$) (Table 1). There was no statistically significant difference in the pre- and post-treatment GAF scores, or the percentage improvement in these scores between Hispanic and non-Hispanic white children.

When GAF scores were analysed by history of abuse/neglect, sexual abuse or interparental violence, the data did not show any statistically significant differences in pre- and post-treatment scores between those with and without histories of intra-family violence. However, in the group of children who had a history of physical abuse and neglect, there was a statistically significant greater percentage improvement in the GAF scores after treatment than in those who did not have a history of abuse and neglect. Those children who had a history of sexual abuse had similar findings, but these did not reach statistical significance. Table 2 summarizes

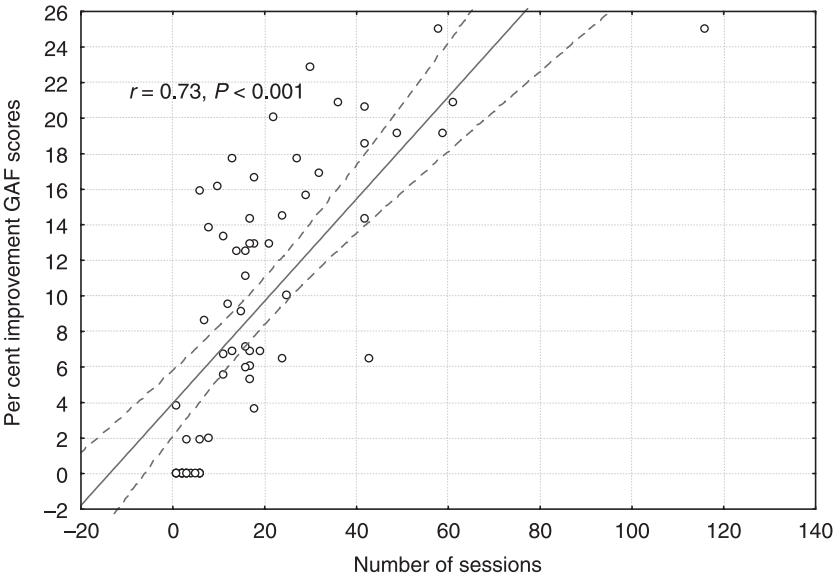


Figure 2 Correlation between the percentage improvement in Children's Global Assessment of Functioning scores and the number of completed sessions.

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Table 1 Children's Global Assessment of Functioning scores by age category: (SD) standard deviation

Age category (years)	Number of children	Mean score (± SD)		Mean percentage improvement (± SD)
		Pretreatment	Post-treatment	
< 8	4	54.5 ± 2.0	68.3 ± 2.4	20.1 ± 1.9
8–12	27	53.6 ± 3.3	61.5 ± 4.7	12.5 ± 6.8
> 12	18	54.6 ± 3.4	60.6 ± 4.8	9.5 ± 5.8

Table 2 Children's Global Assessment of Functioning scores by history of intra-family violence

Type of intra-family violence	Number of children	Pre-treatment			Post-treatment			Percentage improvement		
		Mean (± SD)	*t*-test (d.f. = 47)	*P*-value	Mean (± SD)	*t*-test (d.f. = 47)	*P*-value	Mean (± SD)	*t*-test (d.f. = 47)	*P*-value
Abuse/neglect:										
yes	17	52.8 ± 3.1	1.60	0.1	62.8 ± 2.2	0.96	0.3	15.9 ± 4.0	2.58	0.01
no	32	54.4 ± 3.1			61.3 ± 5.6			10.6 ± 7.0		
Sexual abuse:										
yes	12	53.0 ± 3.3	1.32	0.2	60.9 ± 4.2	0.64	0.5	11.8 ± 7.0	0.44	0.6
no	37	54.4 ± 3.2			62.0 ± 5.2			12.8 ± 6.1		
Interparental violence:										
yes	25	53.5 ± 3.4	1.19	0.2	61.4 ± 5.4	0.42	0.7	10.7 ± 7.0	1.51	0.1
no	24	54.6 ± 3.0			62.0 ± 4.4			13.6 ± 6.1		

these data. Similar findings were found in children with at least one parent with a substance abuse problem. Percentage improvement of GAF scores tended to be greater in those children with parents who had a substance abuse problem when compared with children whose parents did not (mean ± SD = 14.3 ± 5.7 versus 10.8 ± 7.0; $t = 1.81$, d.f. = 47, $P = 0.08$).

Discussion

There are no credible US prevalence data on children exposed to interparental violence (Fantuzzo & Mohr 1999); however, a Canadian study estimated that 8% of children aged 4–7 years were reported to have witnessed interparental violence in their homes (Moss 2003). In the USA, it is estimated that 3.3–10 million children witness the punching, kicking, stabbing, strangling, or shooting of the child's mother by her intimate partner (Lemmey *et al*. 2001, Zink *et al*. 2004). In the present study, 40% of the children treated with EAP had a history of interparental violence in their home. In a study of 164 children aged 7–19 years attending a sexual abuse clinic, 52% indicated a history of interparental violence in their homes (Kellogg & Menard 2003). Other studies have shown higher incidences of child abuse in interparental violence homes (Lee *et al*. 2004). In the present study, a child who had a history of maltreatment was more likely to have witnessed interparental violence. It is clear from the literature and from this study that intra-family violence places children at considerable risk of mental health problems.

Studies have shown an increase in adjustment disorder in children who have witnessed interparental violence (Fergusson & Horwood 1998). The present study, while not statistically significant, indicated a trend, in that children with a history of witnessing interparental violence and/or having a parent with a substance abuse problem are more likely to have a diagnosis of adjustment disorder. In this study, children with a history of abuse were significantly more likely to be diagnosed with adjustment disorder and PTSD. These findings are similar to others (De Bellis *et al*. 2001).

Studies have shown a significant correlation between parental substance abuse and child sexual abuse (Windle *et al*. 1995, Miller *et al*. 1997). The present authors' findings were congruent in that those who had a history of sexual abuse were significantly more likely to have a substance-abusing parent and to have experienced interparental violence. It is clear that the environment of intra-family violence is a substrate for childhood and adolescent mental disorders (Dube *et al*. 2002). These disorders cluster around dysfunctional relationships that exist in the family.

It is not known when children develop specific psychological problems and the developmental course is also unknown; therefore, mental health prevention

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programmes are difficult to assess. However, it has been suggested that preventative interventions may enhance protective factors that reduce the risk of psychological problems (Durlak & Wells 1997). Children at varying stages of development have dissimilar capacities for resiliency responses to vulnerabilities, necessitating early intervention with children who have experienced family violence (Miller *et al*. 1997). The present study has shown greater improvement in the youngest children. This finding has important implications for mental health promotion. Some studies have shown that younger children have more behavioural problems when witnessing interparental violence than their older counterparts (Lemmey *et al*. 2001). The present study has demonstrated a quick response to EAP, especially in the younger child, and it remains to be determined what kind of long-term effects this type of intervention may provide.

Early intervention is critical in that children with attention problems and disruptive behaviours increase their risk of peer rejection. Peer rejection becomes an additional stressor, and by the age of 12 years, these children may have set more aggressive patterns that may result in more severe mental health problems (Reiss & Price 1996, Bagwell *et al*. 2001, DeSocio & Hootman 2004).

There is scant research describing how individuals with mental health disorders, or any type of psychological problem, benefit from interventions using the horse. McCulloch (2001) described a case study in which therapeutic horseback riding was beneficial in the rehabilitation of a boy with traumatic brain injury. In a study of five adults with long histories of psychiatric disabilities, Bizub *et al*. (2003) reported an augmented sense of self-efficacy and self-esteem after a 10-week session of therapeutic horseback riding. Similar findings were reported by Burgon (2003) in a study of six women with various mental health problems who showed benefit by increasing self-confidence. Another study indicated reduced anger, improved quality of life and improved self-esteem in 16 children with no known physical or psychological problems after a week of therapeutic riding (Kaiser *et al*. 2004). In a study of 81 male children with emotional disturbances in a residential treatment programme, no improvement was seen in depression or anxiety after a programme of therapeutic riding (Greenwald 2001).

The present study has demonstrated a significant improvement in GAF scores in children with various DSM-IV diagnoses after receiving EAP. There is little doubt that there has been positive effect. It is rapid and appears to be more effective in some children than in others. It is not clear how age, gender, and environment affect the results. The fact that all the children had an improvement in their GAF scores needs to be carefully considered. The sample is biased by being self-selected. Those who dropped out of the programme may have been averse to EAP. It is unlikely that all children would benefit. In pre- and post-treatment studies, it is difficult to attribute changes to one single intervention. It is likely that other variables participate in the documented instrumentation change. Using GAF scores as the only outcome measure restricts the understanding of the effects of EAP. Further research is needed to quantify the efficacy of this type of intervention for children.

Conclusions

Equine-assisted psychotherapy appeared to be effective in improving the GAF scores of children who have been diagnosed with adjustment disorder, mood disorders, PTSD, ADHD and disruptive disorders. Young children showed the greatest improvement in GAF scores, and children with a history of intra-family violence and substance abuse tended to show a greater improvement in GAF scores.

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