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Equine-Facilitated Psychotherapy With Children and Adolescents: An Update and Literature Review

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During the past several years, there has been a large increase in the number of studies of equine-facilitated psychotherapy (EFP) with children and adolescents. However, due to the diversity of methods, samples, and publication types represented in the literature, it may be difficult for EFP practitioners to synthesize the existing research into useful guidelines and treatment recommendations for patients. This article summarizes and tabulates investigation findings by methods, theoretical underpinnings, and treatment populations. This review of 47 recent publications suggests that EFP is a useful modality with children and adolescents. In the large majority of reviewed papers, benefits were found for a variety of presenting problems and disorders. The most often studied populations were “at-risk” youth and children with an Autism Spectrum Disorder diagnosis. Recommendations for counselors and directions of future EFP research are made.

KEYWORDS *adolescents, animal-assisted therapies, at-risk youth, autism, children, creativity in counseling, equine*

The use of equine-facilitated psychotherapy (EFP) in the United States has been expanding over the past three decades, and over the past several years, a number of new studies, books, and other literature have been produced describing and evaluating this method of treatment. Despite this progress, there remains little consensus in the field regarding best practices, and EFP has not been established as evidence-based treatment for any disorder of childhood or adolescence.

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BACKGROUND

There is a growing body of research evidence that presents a reasonably convincing argument in support of EFP in children and youths. A best evidence statement based on a literature review of research on equine-facilitated learning (EFL; Cincinnati Children's Hospital Medical Center, 2011) recommended the use of EFL to address mental health issues and self-esteem in children and youths. Lentini and Knox (2009) published a review of the existing literature on EFP with children and adolescents through 2007. The review indicated that "therapy-wise" patients, at-risk youths, and children with histories of neglect, abuse, and eating disorders may benefit from EFP but noted a need for more robust research. Given these findings, it is possible that EFP provides a treatment opportunity for children and youths who would not choose, or who would not benefit from, traditional evidence-based therapies, which are typically conducted on a one-to-one basis, in an office, and with a therapist. Furthermore, equine and other animal-assisted therapies may contribute to the field in that they have potential to improve engagement and retention among rural and difficult to reach groups. Citing significant difficulties in sustaining youths' positive participation in traditional programs, Waite and Bourke (2013) demonstrated that horses provide a unique opportunity to engage some youths in treatment. Given the broad array of cultural backgrounds represented by the population of children and youths in need of treatment, it seems unlikely that all of them will be amenable to traditional, one-to-one, office-based psychotherapy.

Furthermore, issues related to access to mental health care indicate that a broader array of approaches is greatly needed. In fact, only 20–30% of the children and youths who need it receive specialized mental health care (Kataoka, Zhang, & Wells, 2002). Leaders in the field have raised concerns about the cultural and ecological responsiveness of existing evidence-based therapies (Kataoka et al., 2002). Reducing the persistent burden of mental illness will require identification and empirical investigation into creative solutions. To meet the needs of the diverse population of children and youths who need treatment, multiple models of treatment delivery of treatment are clearly needed (Kazdin, 2011; Kazdin & Blase, 2011). In truth, treatments such as stimulant medication for attention-deficit/hyperactivity disorder (ADHD) and eye movement desensitization reprocessing for post-traumatic stress disorder (PTSD) may never have been identified and accepted if not for researchers' and healthcare professionals' willingness to consider unconventional or creative solutions (Lange, Reichl, Lange, Tucha, & Tucha, 2010; Shapiro, 1999). Benda (2014) said in his editorial on using animals in therapy in *Journal of Complementary and Alternative Medicine*, "I am going to firmly prod all you clinicians to not worry about the need for endless confirmatory studies . . . your patients have nothing to lose. Except, perhaps, a lot of suffering" (p. 1).

Definitions

To effectively pursue sound empirical investigation and clear delineation of EFP as a treatment, clear, operational definitions and common terminology will be necessary. However, there continue to be many names used for interactions involving youths and horses with the goal of benefit for the child or adolescent. A few of the terms used are: EFP, equine-assisted therapy (EAT), and equine-assisted learning (EAL). For simplicity, in this article, EFP will be used because it describes the non-recreational interaction of children and horses with the goal of benefiting the child in social, emotional, cognitive, or behavioral ways.

Specifics of Intervention

At this time, there is limited consensus on appropriate methodology for EFP interventions. Some of the techniques are manualized and reproducible. Some of the activities used are mounted. These may involve sitting on the horse with or without saddle, changing position on the horse, lying on the horse's back at standstill, balancing and stretching exercises on the horse, riding or sitting with closed eyes, riding or sitting backwards on the horse, steering the horse through or over obstacles, noticing the horse's steps and movements while mounted, body awareness exercises, relaxation/meditation exercises, trail rides, or vaulting—balancing positions and changes on the horse's back while the horse moves in a circle (Fine, 2010; Pelletier-Milet, 2012). Some interventions are non-mounted. Non-mounted activities may involve observing horses in pasture, catching a horse, putting a halter on and leading a horse, grooming, bathing, painting a horse, observing and commenting on a horse's behavior in response to client behavior, games or challenges while leading the horse (walking over poles, tarps, or around cones), introducing the horse to novel objects, putting equipment on the horse (bridle, saddle, etc.), talking to the horse with or without counselor overhearing, doing yoga or balance/stretching exercises near the horse or with the horse for support, using a horse to carry a message, driving activities (making the horse move forward), and lunging (making the horse go in a circle and change paces/direction) (Knapp, 2013; Kohanov, 2007; Parelli, 1993).

EFP activities may be similar to those in a recreational equitation lesson. However, the practitioner acts with the goal of therapeutic intervention, rather than learning a sport. He/she may ask motivating or introspective questions, encourage positive associations and play activities, comment on client/animal behavior in situ, give challenges and aid in problem solving concrete solutions, encourage the use of metaphor and storytelling, aid in skill acquisition, support role playing and use of anthropomorphism, model and teach authentic and clear communication including accurate

interpretation of body language, support developing empathy and care for animals and humans, use in-situ cognitive and behavioral restructuring techniques, or implement and support meta-cognitive activities (Beebe, 2008; Kirby, 2010; Trotter, 2012).

Theories Underlying Intervention

Trotter (2012) stated that while equine-assisted counseling can be incorporated into one's own theoretical background, it has four main counseling underpinnings. These are brief therapy, Gestalt therapy, reality therapy, and Adlerian therapy. Brief therapy focuses on action vs. insight and presumes change based on action. In this approach, client strengths are emphasized. Gestalt therapy assumes meaning and understanding come from an immediate analysis of current experience. In Gestalt therapy, awareness of the "here-and-now" is purported to promote change (Kirby, 2010). In reality therapy, the counselor actively promotes awareness and positive choices, and the therapy has an education-oriented focus. Adlerian therapy focuses on helping individuals move from feelings of inferiority towards significance (Trotter, 2012). Kendall, Maujean, Pepping, and Wright (2014) reviewed 30 articles and found three main theoretical hypotheses for the psychological benefits of equine interaction: non-equine related, due to synergy, and specific to the equine.

Indications for Intervention

Important details about who benefits from EFP and subpopulations of patients who might be especially helped by EFP are not yet well understood. Although still speculative, the literature to date suggests that severely intellectually disabled and/or violent children may not benefit (Ewing, MacDonald, Taylor, & Bowers, 2007). Further, due to the expense of EFP, it likely will be recommended only when less costly sources have been already investigated. It is possible that EFP may be attractive to persons not motivated to interact in talk therapy, and some clients may be more adherent to EFP than traditional therapy (Trotter, 2012; Waite & Bourke, 2013).

Description of Intervention Certifying Bodies & Educational Backgrounds

At this time, there are several organizations which certify practitioners in equine/human interaction. Some of the most prominent are Professional Association of Therapeutic Horsemanship International (PATH Intl.—historically North American Riding for the Handicapped Association, NARHA), equine-assisted psychotherapy and equine-assisted learning

(EAGALA,), the OK Corral, and Epona for equine-facilitated experiential learning (EFEL), trauma-focused equine-assisted psychotherapy (TF-EAP), human-equine alliances for learning (HEAL), Gestalt equine therapy (GET), the HorseCourse, and The Equine Experiential Education Association (E3A). Each has a different method of certification and theoretical background. For example, while EAGALA recommends only non-mounted interaction, PATH Intl. allows both mounted and non-mounted activities. EFEL approaches the field from a learning perspective and emphasizes the equine as a partner, E3A is a path for leadership training, and the HorseCourse is a model for engaging the incarcerated.

The Certification Board for Equine Interaction Professionals (CBEIP) is a non-profit group that has a goal of establishing a widely accepted professional credentialing process for people who conduct equine-assisted learning or therapy. The Equine Guided Education Association (EGEA) formed in 2003 with the mission of providing a membership community and standards of competency for the field. It also provides a method of certification.

There are some universities that have begun offering programs with a degree in equine-assisted therapies. For example, Carroll College in Montana offers an undergraduate degree in anthrozoology (human-animal bond program) and Prescott College in Arizona offers a master's degree in counseling and education with concentration in equine-assisted mental health and learning. The University of Denver is developing an academic certification in Human Animal Connection. At this point, there is no educational requirement or license needed to conduct EFP. Educational background of EFP practitioners ranges from no formal higher education degree to doctorate level. Most of the 191 EFP practitioners surveyed in one study (Gergely, 2012) had a master's level of education (50%) and a smaller percentage (~8%) had a doctorate degree. Though not typical, some physicians utilize equine-assisted learning/therapy (Hamilton, 2011; Kane, 2007; Saul, 2013).

PURPOSE

Despite the growing use of EFP with children and adolescents, there has not been a thorough review of the literature specific to children and youths with and without mental health diagnoses that summarizes the extant research and addresses the efficacy of EFP. The present article attempts to gather all relevant recent white (i.e. peer-reviewed journals) and grey (variable quality) literature on the various forms of EFP and synthesize it in order to better describe what is being done and to determine best practices of EFP and other equine-related activities addressing social, emotional, cognitive, or behavioral functioning in children and adolescents both with and without mental health diagnoses.

METHODS

The search engines PubMed Central, MedLine, PubMed, PsychINFO, PsycARTICLES, ERIC EBSCOhost, EBSCO Animals, E-journals Portal, Topic Search, Alt Health Watch, Education Research Complete, and Google Scholar were used. The search terms were: “equine therapy,” “equine assisted therapy,” “equine facilitated therapy,” “equine assisted psychotherapy,” “equine assisted activities,” “equine assisted learning,” and “therapeutic riding.” The search was limited to articles focused on children, adolescents, and youths published in English from 2008–2014. Because EFP is a recently developed therapy, the decision was made to include some grey literature in order to ensure the most thorough possible review. Articles that were focused solely on physical benefits, intellectual disability, or cerebral palsy were not included in the review. Also, research utilizing animals other than horses was deselected.

RESULTS

Articles were classified according to whether the study was predominantly quantitative or qualitative (though some studies had features of both). Forty-eight studies were found, but one dissertation was not reviewed due to authors' request that it not be accessible. The final review included a total of 47 publications. The duration of most EFP treatments reviewed ranged from six weeks to two years. Although there was a great deal of variability between studies, the modal intervention was one 60-minute session per week for 12 weeks. A wide variety of treatment populations have been included in research examining EFP as a modality for children and youths.

Quantitative Review

Thirty-four quantitative studies were reviewed. These studies represent research on a total of 672 treatment participants. With the few exceptions noted following, the overall quantitative review of 672 subjects in 34 studies found EFP to be mildly to moderately beneficial for a wide variety of clinical symptoms in children and adolescents. See [Table 1](#) for comparisons. Two studies with pre/post measures did not find significant effects. Jenkins and DiGennaro Reed (2013), with seven participants, showed no significant effects of the intervention (therapeutic riding; THR) on cognitive and behavioral measures and suggested that THR could be used as an adjunct. Bachi, Terkel, and Teichman (2012) did not find significant effects but mentioned positive trends which might show significance with a larger sample. Two studies (Drinkhouse, Birmingham, Fillman, & Jedlicka, 2012; Yorke et al. (2013); did

TABLE 1 Quantitative data

Publication Type and (SD)*	N/Population	Intervention/Described Method	Timing	Result
At-Risk Bachi et al., (2012) (PPRJ)** (3)	14 resident at-risk adolescents (Control agriculture/leisure only of 15)	Individual EFP: Mounted & non-mounted (e.g., grooming, canter-trot transitions, lying on horse's back).	Weekly (50 min) sessions over 7 months	No significant differences but clear trends of positive change in self-image, self-control, trust, & general life satisfaction.
Burgon (2011) PPRJ (2)	7 at-risk young people (aged 11–21)	Equine-assisted learning & therapy (EAL/EAT): Mounted & non-mounted.	6 weeks to 2 years weekly (mode 3 months)	Interviews showed improvements in confidence and self-esteem, mastery and self-efficacy, empathy, & openness to new opportunities.
Chaplin, (2010) PPRJ (2)	3 at-risk males w/ADHD, substance use, & anger issues	EFL (equine-facilitated learning): Train and care for ponies.	6 weekly sessions (90 min each)	Quantitative data provided weak support for conclusion that EFL provided basis for social/emotional development
Dell et al. (2011) PPRJ (2)	15 Inuit youth aged 12–17 (male and female) in a residential program	Equine-assisted learning program w/attention to cultural significance to the First Nations People w/goals of increasing self-esteem & modifying behavior. Non-mounted: Being around and in contact with a horse to facilitate experiential learning and address emotional and behavioral issues.	12 weeks (1 hour per week)	Concluded from interviews that youths' healing was aided by themes of spiritual exchange, complementary communication, & authentic occurrence

Drinkhouse et al. (2012) PPRJ (2)	4 at-risk youth	EAGALA—Horse and human heart rates were recorded during equine-assisted therapy sessions. Non-mounted (Activities provide solution-focused, experiential form of therapy. Game playing to allow client to participate in experiential therapy)	12 Sessions	Results indicate that each change in the heart rates appeared to be the result of external stimuli.
Ecken (2012) Dissertation (2)	6 adolescents aged 12–15 w/behavioral, social issues or interest	Equine-assisted therapy Non-mounted : EAGALA program	8 weeks	Increases in happiness and decreases in anxiety scores and depressive complaints/symptoms.
Hyvönen (2011) Dissertation (1)	1 Finnish adolescent girl referred from child welfare	EAA—Equine-assisted activities. Mounted & Non-mounted : included barn chores (cleaning stalls and tack/equipment), grooming, riding, driving	3 Weeks (once per week)—2 hours each time	Increase in adolescent's "empowerment" from interview questions
Maujean et al. (2013) PPRJ (2)	16 disengaged youths (11 males & 5 females who had failed previous treatment)	"HorsePlay" based on PNH (Parelli Natural Horsemanship) approach. Non-mounted : Seven games requiring consistency, clear nonverbal communication, observation, assertion	10 weekly sessions	Structured interviews showed increased enjoyment, psychological & social benefits, engagement, transferable skills, & mechanisms of change

(Continued)

TABLE 1 (Continued)

Publication Type and (SD)*	N/Population	Intervention/Described Method	Timing	Result
Meek (2012) Online Publication (3)	28 males (aged 18–22) in Young Offender Institution	Goal to attain Parelli Step 1 certification. Non-mounted	7 Sessions 2–2.5 hours each	Adjudications reduced by 74%
Trotter et al. (2008) PPRJ (3)	126 at-risk students (classroom control of 38)	Equine-assisted counselling Non-mounted with activities designed by EAGALA	12 weeks (2 hours per week)	Treatment groups showed statistically significant improvements in 17 behavior areas.
Autism Spectrum Disorder (ASD) Bass et al. (2009) PPRJ (4)	19 children with ASD (With 15 waitlist control)	Therapeutic riding. Mounted. (horseback riding treatment to improve mobility while developing therapeutic bond between the patient and horse)	12 weeks	Greater sensory seeking, sensory sensitivity, social motivation, and less inattention, distractibility, and sedentary behavior
Chen et al. (2014) PPRJ (3)	2 children with ASD (matched with 2 control)	Interaction with horses. Grooming and other.	Baseline condition vs. Interaction condition	Children in experimental group showed right frontal dominance on EEG during intervention. This may be correlated with calmness.
García-Gómez et al. (2014) PPRJ (3)	8 children aged 7–14 with ASD in Spain (+ control group and test retest design)	Therapeutic horse riding program—PATH basis	24 sessions of 45 min each	Significant differences in quality of life indicators and lower levels of aggressiveness
Gabriels et al. (2012) PPRJ (3)	26 participants aged 6–16 with ASD (additional 16 waitlisted)	Therapeutic Horseback Riding (THR) Mounted & Non-mounted. (including grooming and taking care of equipment).	10 sessions (1x per week) lasting 1 hour each	Significant improvements in self-regulation behaviors compared to pre-test.

Jenkins and DiGennaro Reed (2013) PPRJ (2)	7 children (6 male and 1 female) with ASD age 6–14	Therapeutic horseback riding (THR). Goals of therapy include improving balance, posture, gross and fine motor skills, & communication. Mounted & Non-mounted. THR is a type of AAT that teaches horsemanship skills such as holding horse's reins appropriately, controlling horse with voice commands, & other basic riding skills.	9 weeks of 1x per week: 60 min session	THR did not produce clinically significant effects on participant affect. Conclusion that THR could be used as a reinforcer within a treatment package.
Kern et al. (2011) PPRJ (3)	22 (6 females & 18 males) between the ages 3–12 w/ASD	Equine assisted activities. Mounted & Non-mounted: 146 step intervention for children w/ASD. Each lesson included horse management as part of curriculum. Goal to facilitate relationships.	3–6 months of 1x per week 1 hour session	A reduction in the severity of autism symptoms. Significant improvement in mood and tone at 3 and 6 months of treatment
Lanning et al. (2014) PPRJ (3)	10 children aged 4–15 with ASD (control of 8 in non-equine intervention)	Equine assisted activities (Control group did Social Circles)	9 weeks	Significant improvements in experimental group in physical, social, and emotional functioning as noted by parents. 2 of 4 children showed improvements. More severely autistic children did not show improvement.
Memisheviki and Hodzic (2010) PPRJ (2)	4 children (aged 8–10) with ASD	Short-term equine-assisted therapy as complementary therapy modality. Mounted & Non-mounted: grooming, riding, leading	1x per week for 10 weeks (30 min sessions)	

(Continued)

TABLE 1 (Continued)

Publication Type and (SD)*	N/Population	Intervention/Described Method	Timing	Result
Nelson et al. (2011) PPRJ (2)	3 boys with ASD age 2.5–4 years	Therapeutic Horseback riding. Mounted & Non-mounted: Therapist engaged the participant in play activities, which were later applied when they were riding. During the treatment phase, horse was introduced and the horse was prompted to move contingent on behavior.	27–63 sessions (each session only a few minutes long—riding as reinforcer for verbal communication)	Reduction of aberrant behaviors & an increase in social behavior was observed. Decreased avoidant behaviors.
Sánchez et al. (2014) PPRJ (3)	8 children aged 5–15 with ASD in Spain	Horse-assisted therapy	12 weeks	Statistically significant differences in cortisol and progesterone levels post-treatment. Concluded that intervention leads to improvement in social attitudes.
Ward et al. (2013) PPRJ (2)	21 elementary students with ASD	Therapeutic Riding (TR) at a PATH center Mounted & Non-mounted (grooming and riding). Also during orientation interaction with mechanical horse for introduction.	6 weeks of TR, 6-week break, 4 weeks of TR, 6-week break, 8 weeks of TR.	Teacher ratings showed significantly increased social interaction, decreased severity of symptoms. Gains were not maintained during breaks from TR but recovered once TR was reinstated.

Neurotypic Populations Hauge et al. (2014) Study I PPRJ (4)	49 Norwegian adolescents (aged 12–15) without behavioral problems	At farm-based stables: included work with the horses and riding Mounted and Non-mounted At farm-based stables: included work with the horses and riding Mounted and Non-mounted	1 × per week for 4 months	Significant increase in perceived social support compared with the control group A lower level of perceived social support prior to the intervention predicted an increase in mastering skills Moderate positive effect on social competence.
Hauge et al. (2014) Study II PPRJ (4)	41 Norwegian adolescents (12–15 yo) without behavioral problems	Equine-facilitated learning program: PATH to Success by PATH, Intl. Mounted and Non-mounted : Observing horse behavior, moving horses w/direct or indirect pressure, horse massage, “teaching” learned skills	1 × per week for 4 months	
Pendry & Roeter (2013) PPRJ (2)	64 physically and mentally able children in fifth–eighth grade.		11 week 1 × per week (90-min sessions)	
Pendry et al. (2014) PPRJ (4)	44 physically and mentally able children in fifth–eighth grade. (Randomized control of 49)	Equine-facilitated learning (EFL)—PATH to Success; goals to enhance child social competence & reduce stress	11 week 1 × per week (90-min sessions)	Children in experimental group had lower afternoon cortisol and lower total cortisol concentration per waking hour when compared to control, suggesting EFL may have a protective influence against the development of psychopathology

(Continued)

TABLE 1 (Continued)

Publication Type and (SD)*	N/Population	Intervention/Described Method	Timing	Result
Sexual Abuse/ PTSD Kemp et al. (2014) PPRJ (2)	30 (six boys and nine girls [age 8–11] and 15 adolescent girls [12–17]) referred as victims of child sexual abuse	EFT “Trails of Discovery” program based on EAGALA principles Non-mounted (Basic horsemanship skills, backing horse, asking horse to yield, desensitizing horse. Also activities to create metaphor) Equine-facilitated therapy Mounted and Non-mounted	Weekly (90 min) sessions for 9–10 weeks	Significant reductions in symptoms of depression, anxiety, undesirable behaviors, and trauma
Signal et al. (2013) PPRJ (2)	30 (15 children and 15 adolescents) who had experienced childhood sexual abuse	Equine-facilitated therapy Mounted and Non-mounted	10 weeks 1 × per week (90-min sessions)	EFT resulted in improvement of depressive symptoms. Treatment effects noted to be greater than with Trauma-Focused Cognitive Behavioral Therapy
McCullough (2011) Dissertation (2)	11 youth aged 10–18 with PTSD	Equine-facilitated psychotherapy [EFP] model included awareness of mind, body, emotion, and spirit. This approach encouraged clients to use metaphor to mirror life circumstances.	8 sessions 1.5–2 hours long each	Significant positive results on standardized measure of PTSD in children and the strength of the human-animal bonding.
Yorke et al., (2013) PPRJ (2)	4 children with post-traumatic stress syndrome (aged 8–10)	Equine-assisted therapy Mounted and Non-mounted —Riding and Grooming	12 days (6 consecutive)	This study hypothesized that cortisol would correlate between each child–horse pair. The data suggest a need for further research.

Other Bauducco (2012) Dissertation (2)	17 suicidal girls	EAP as complementary therapy Mounted and Non-mounted: Emphasis to body relaxation coordination, awareness, & control.	7–16 sessions over one year	Significant improvement in awareness and coordination, and small change in warm emotion and relaxation
Cuypers et al. (2011) PPRJ (2)	5 children aged 10–11 with ADHD	Therapeutic horseback riding	8 weeks long	Positive effects on social role behavior & quality of life.
Holmes et al. (2012) PPRJ (3)	11 teens with emotional difficulties (Control w/ model horses)	Mounted and Non-mounted: care, grooming, riding, vaulting, and trail rides EAA (equine-assisted activity without a trained therapist) at a racehorse rehab center. Non-mounted (safety behavior with horses, grooming, foot care, fitting halters, & rugs.)	2x per week for 1 hour each session 4 consecutive, 3-hour long sessions	Significant reduction in trait anxiety
Stebbins (2012) Dissertation (3)	10 youth aged 9–15 w/emotional disturbance	Equine-assisted activities in NARHA/PATH Center Mounted and Non-mounted: 50% time each session riding. Equine-facilitated therapy	10 weeks	Statistically significant reductions in externalizing problems scores
Strom and Wilson (2009) Presentation (1)	6 bereaved children aged 4–12	Mounted and Non-mounted	1 day	Children were “enthusiastic” about intervention

*Study Descriptors (SD): 1 = narrative or theoretical data; 2 = some subjective data/interviews and/or N < 10 and/or no control group; 3 = some standard measure, control groups, N > 10, 4 = randomized controlled design, standardized outcome measures, N > 10.

***Published peer reviewed journal.

not have pre/post measures of participants but rather measured physiological correlations of cortisol and heart rate between human/horse pairs. One study (Signal, Taylor, Botros, Prentice, & Lazarus, 2013) found a large effect size and was supportive of this modality as a treatment for a variety of disorders. The studies by Bass, Duchowny, and Llabre (2009), Hauge, Kvallem, Berget, Enders-Slegers, and Braastad (2014), and Pendry, Carr, Smith, and Roeter (2014) were notable for being randomized and controlled with $n > 10$ and the use of standardized or physiologic outcome measures.

AT-RISK

Nine studies with pre and post measures (treatment $n = 220$; Bachi et al., 2012; Burgon, 2011; Chaplin, 2010; Dell et al., 2011; Ecken, 2012; Hyvönen, 2011; Maujean, Kendall, Lillan, Sharp, & Pringle, 2013; Meek, 2012; Trotter, Chandler, Goodwin-Bond, & Casey, 2008) involved samples of “at-risk,” “juvenile offenders,” “residential treatment,” or “disengaged” youth. These studies showed that interventions such as non-mounted care, mounted activities, or Parelli training for a range of six weeks to two years (mode of 12 weeks) resulted in mild to moderate improvements in self-esteem, social development, self-control, transferrable skills, reduced adjudications, and reduced maladaptive behavior.

AUTISM SPECTRUM DISORDER (ASD)

Eleven studies (treatment $n = 130$; Bass et al., 2009; Chen, Crews, Mundt, & Ringenbach, 2014; Gabriels et al., 2012; García-Gómez, Risco, Rubio, Guerrero, & García-Peña, 2014; Jenkins & DiGennaro Reed, 2013; Kern et al., 2011; Lanning, Baier, Ivey-Hatz, Krenek, & Tubbs, 2014; Memishevikj & Hodzic, 2010; Nelson et al., 2011; Sánchez, Castro, Herrera, & Juárez, 2014; Ward, Whalon, Rusnak, Wendell, & Paschall, 2013) involved children with ASD. Six of these identified positive outcomes including increased social interaction, reductions in externalizing problems, decreased avoidant behaviors, improvement in autism symptoms, and improvement in parent-child interactions. Memishevikj and Hodzic (2010) noted that improvements were *not* shown in two children with severely autistic symptoms. Ward et al. (2013) noted that gains were not maintained over breaks in treatment, but improvements returned after the intervention was reintroduced. All interventions with children with ASD included a mounted portion. Treatment length ranged from six weeks to two years (mode of a few months).

OTHER POPULATIONS

Other studies involved samples of children or youths with suicidal ideation, ADHD, anxiety, history of sexual abuse, PTSD, history of bereavement, or

other social and behavioral problems (Bauducco, 2012; Cuypers, De Ridder, & Strandheim, 2011; Holmes, Goodwin, Redhead, & Goymour, 2012; Kemp, Signal, Botros, Taylor, & Prentice, 2014; McCullough, 2011; Signal et al., 2013; Stebbins, 2012; Strom & Wilson, 2009). Outcomes of these studies indicated improvements in “warm emotion,” quality of life, empowerment, reduced anxiety, reduced depression, increased enthusiasm, and increases in happiness. Moreover, Signal et al. (2013) noted a large effect (even larger than seen following trauma-focused cognitive behavioral therapy) on depression outcomes following EFT with patients who had experienced childhood sexual abuse. Hauge et al. (2014), Pendry et al. (2014), and Pendry and Roeter (2013) examined equine-assisted interventions with neurotypic populations. Their results showed positive effects on perceived social support and social competence, respectively.

Qualitative Review

Thirteen qualitative publications were reviewed (see Table 2). A study of a large survey of practitioners (Gergely, 2012) comprised a comprehensive assessment of practitioners’ backgrounds, theoretical approaches, and education, among other variables. The theoretical backgrounds of those who practice EFP were shown to vary widely. Most endorsed experiential therapy and cognitive behavioral therapy, while some utilized aspects of Gestalt therapy. In another article Hildreth (2012) researched the effects of intervention on separated/divorced parents; the outcome for the children is best considered speculative as it was an indirect measure.

Four of the thirteen qualitative publications on EFP were review studies. Anestis, Anestis, Zawilinski, Hopkins, and Lilienfeld (2014) reviewed 14 studies (four of these studies used adult subjects). These studies were compromised, and therefore, clinical significance was called into question. The review concluded that equine-related treatments should not be offered to the public until better-designed studies become available. Cantin and Marshall-Lucette (2011) examined five studies published between 2005 and 2008. This study concluded more evidence was needed but that results suggested some possible benefit of EFP. Another review (Chalmers & Dell, 2011) concerned Inuit youth. It identified a lack of knowledge in published literature of EFP about the cultural worldview and beliefs, which may aid using this intervention with this population. Selby and Smith-Osborne (2013) published a review of 14 studies from 2001 to 2008 of equine-assisted interventions for both children and adults. They concluded that evidence was promising in support of interventions involving equines but found no randomized clinical trials, and therefore, recommended future research utilize rigorous and longitudinal designs with comparison aims to more thoroughly assess interventions.

TABLE 2 Qualitative data

Publication	Type & (SD)*	Population	Intervention & Theory	Rationale	Conclusion
Epston (2011) PPR]** (1)		Various but included children with ADHD, ODD, ASD	Equine-assisted narrative therapy Client must process & reposition themselves against issues. Client's actions—metaphor for life outside of session.	Both working w/horses and changing life situations require clients to identify their feelings, then regulate their feelings	Per therapist report, change is sometimes observed in less time than traditional therapies. Occurs because of opportunity for client to review and practice in real time techniques that aid the presenting problem.
Gustavson-Dufour (2011) Dissertation (1)		Children & adolescents	Adlerian approach to equine-assisted therapy. Children's poor behavior stems from a desire to belong. Four goals in misbehavior: attention, power, revenge, or inadequacy.	Through observing horse behavior, the therapist can identify the specific goal of misbehavior in an adolescent.	Horses responded to behaviors in a way that mirrored the clients' behaviors or matched the alternate approaches suggested in the Adlerian goals structure.
Pugh (2010) Dissertation (2)		High-risk teen girls (Interviews from 3 therapists of population)	HopeFoil Project , pairs rescue foals with high-risk teen girls Reciprocal healing model employed; teen & foal engaged in parallel process of healing.	Horse's role as nonjudgmental other, the horse as mirror to provide reflection on the client's life, the immediacy of feedback	Author suggested from therapist reports that findings supported use of an attachment theory model to understand the teens' early experiences and their subsequent ways of relating in the world.
Schlangenhaf (2013) Presentation (1)		Bereaved children	Equine-assisted bereavement using horses with William Worden's "4 Tasks of Grief."	Alternative approach to therapy with grieving children.	Experiential component of therapy may be beneficial & "re-introduce fun" into the lives of grieving youth.

<p>Smith (2010) Interview in PPRJ (1)</p>	<p>Age groups not specified but included example of adolescent with ADHD</p>	<p>Equine-assisted Gestalt psychotherapy Metacognition & in the moment relationship with the animal. Therapeutic and safe touch. Holding and carrying by horse.</p>	<p>Herd dynamics show authentic communication and metaphor for family dynamics. Horse walk gait is similar to human (mother) walk gait.</p>	<p>Applications for use with clients with communication problems, clients who have experienced unsafe touch, and clients with attachment issues, among others.</p>
<p>Toukonen (2011) Dissertation (2)</p>	<p>19 adolescent girls in therapeutic group.</p>	<p>Interviews of 19 girls in equine-assisted therapies (n = 9) and equitation/recreational only (n = 10) interactions.</p>	<p>Experiencing relationship w/horses provide adolescent with opportunities in nurturance, intimacy, physical affection, mastery.</p>	<p>Themes from interviews were sharing physical affection, being there for each other, being connected, dealing with stress, being good at something.</p>
<p>VanFleet and Faa-Thompson (2010) PPRJ (1)</p>	<p>Children referred for therapy</p>	<p>Animal-assisted play therapy (AAPT), Combining play therapy and animal-assisted therapy may provide benefit to children not easily reachable</p>	<p>Production of oxytocin in humans is stimulated by interactions with animals.</p>	<p>Goals of AAPT are suggested: self-efficacy attachment self-regulation. problem-resolution.</p>

(Continued)

TABLE 2 (Continued)

Publication Type & (SD)*	Population	Intervention & Theory	Rationale	Conclusion
Survey/ Indirect Gengely (2012) Survey (2)	Various	<p>Survey and review of EAP practitioners of EAP: Many approaches are “meta-theoretical” but include some of the following themes: directive and non-directive metaphor, skill acquisition, role-playing, anthropomorphism, experiential therapy, horse as partner.</p>	EAGALA-model EAP can be regarded as CBT in nature as activities are done to promote change in thinking which then effects behavior.	Results of study showed these to be the top 10 theoretical orientations of 191 EAP practitioners (each chose top 3): Experiential (73%) Cognitive Behavioral (55%) Gestalt (26%) Behavioral (24%) Eclectic (20%) Interpersonal (20%) Other (19%) Humanistic (15%) Psychodynamic (14%) Cognitive (13%)
Hildreth (2012) Dissertation (1)	Intervention included parents (and children) dealing with divorce or separation	<p>Equine-assisted psychotherapy in co-parenting education Parents who are cooperative in style are best for child well-being. 50% of separated & divorced parents have parallel/conflicted style.</p>	Current parent education is in the classroom and provides few opportunities for practice.	Using equine-assisted psychotherapy as a co-parenting intervention could provide parents with the opportunity to work towards an ideal situation.
Reviews Anestis et al. (2014) PPRJ	Children & adults w/ various diagnoses	<p>Review of 14 equine-related treatments with humans</p>	Purpose to review emerging body of evidence	Recommended against use of equine-related treatments for mental health issue in the public until further studies are done.

Cantin and Marshall-Lucette (2011) PPRJ	People with mental health & behavioral disorders	Review of 5 (2 child-focused) equine-assisted therapy studies between 2005–2008. Maybe an alternative therapy in populations which are not helped by traditional talk therapy.	Promising results in the use of EAT by changing behaviors and reducing suffering from general mental health problems.	More evidence based research needed but positive results in studies reviewed. Suggestion to include EAT in National Health Services in UK & study intervention w/ larger population.
Chalmers and Dell (2011) PPRJ	First Nations youth in residential treatment of substance use	Review of 13 Western Equine-Assisted Therapy (EAT) Journal articles. Aboriginal culture says that knowledge is ever-present and internal.	Western literature does not acknowledge the existence of “spirit” as part of the EAT intervention.	Knowledge of Aboriginal epistemology and including reference to the metaphysical/spiritual may aid in working w/First Nations Youth.
Selby and Smith-Osborne (2013) PPRJ	Children & adults w/various diagnoses	Review of 14 equine-related treatments with humans	Purpose to review emerging body of evidence	Concluded evidence was promising in support of interventions w/equines, Recommended more RCTs.

*Study Descriptors (SD): 1 = narrative or theoretical data; 2 = some subjective data/interviews and/or N < 10 and/or no control group; 3 = some standard measure, control groups, N > 10, 4 = randomized controlled design, standardized outcome measures, N > 10.

**Published peer reviewed journal.

Conceptual and Theoretical Pieces

The remainder of the literature (seven publications) addressed different theories and approaches to equine interventions. Epston (2011) countered the claim that EFP may not be cost effective: It was reported that it may provide results in less time than traditional office-based therapy due to its intense nature and the client's opportunity to practice in real time. Gustavson-Dufour (2011) found that observing the horse's behavior led to insight about the youth and this aided in determining goals in an Adlerian therapy structure. Pugh (2010) suggested that by pairing high-risk girls with rescue foals, they could address the girls' attachment issues in a "reciprocal healing model." Schlangenhaft (2013) suggested equine-assisted bereavement therapy for children to address William Worden's four tasks of grief and to re-introduce fun into the children's lives.

Smith (2010) reported that Gestalt therapy with equines emphasized authentic communication and provided a metaphor for family undercurrents by observing herd dynamics. Also mentioned as important was the opportunity for the client to be carried by the horse whose walk gait is similar to that of a human mother (as also analyzed by Uchiyama, Ohtani, & Ohta, 2011). Toukonen's (2011) interview-based study looked into the nature of the relationship between teens and horses. It found that both recreational horse interactions for a non-clinical sample and equine-assisted therapy with a clinical sample showed social and stress management benefits. VanFleet and Faa-Thompson (2010) suggested that combining play therapy and animal-assisted therapy may reach populations that may not be helped by using these methods independently.

DISCUSSION

In summary, though there has been a veritable explosion of new studies on EFP for children and adolescents in the past several years, several obstacles to the identification and implementation of best practices in EFP remain. Of the published studies from 2008–2014 included in the present review, most utilized waitlist controls, were not randomized, and had subjective outcome measures. Additionally, several had small ($n < 10$) samples and therefore, limited generalizability. However there were four exceptions to note. These studies were randomized and controlled, used standardized measures, had an $n > 10$, and showed positive results (See Table 1). They involved two separate populations, ASD and neurotypic/nonclinical, and indicated positive changes in children and youths involved in EFP treatment. This use of these study designs shows an increase in the rigor of the research. These findings provide important information about an innovative treatment approach that may be useful for counselors working with treatment-resistant

populations or those who are otherwise in need of alternatives for the families they serve.

This is a review of research on EFP involving a total of 672 EFP treatment participants in quantitative studies plus several qualitative studies. The most often represented groups in the studies were at-risk youths and children with ASD. Two qualitative studies did not measure pre/post outcomes in participants, and two qualitative studies did not find significant effects. One review study (Anestis et al., 2014) concluded that the current evidence base did not justify the use of equine-related treatment for mental disorders. This review did not, however, include the most recent experimental studies from 2014, nor did it include studies on nonclinical/neurotypical samples.

More than one study identified positive changes in anxiety, depression, inattention, social skills, self-esteem, emotional development/empathy, and self-regulation. Postulated reasons for these effects included active involvement of participants, physical and visible modeling examples, immediacy of responses, promotion of attachment/bonding and action of oxytocin, holding/carrying possibilities with animal, effective and frequent practice of theory (especially that of communication, boundaries, and social skills), use of metaphor and storytelling for analogy and skill transfer, encouragement and success in new skill acquisition, and the use of a relaxing and motivating therapy environment.

LIMITATIONS

These findings should be considered in light of certain limitations of the current review. First, because of a lack of consensus on appropriate methods, including length of treatment, type of intervention, group versus individual, number and types of facilitators/professionals, the review was not able to capture and report about a highly uniform, standardized intervention. There were not sufficient commonalities among study methods and outcome variables to conduct meta-analyses on EFP outcomes. Also the present review did not include non-English articles, articles focused on adults, articles focused on other animal assisted therapies, or literature published before 2008. Additionally, given the large variety of terms used to describe horse/human interventions, it is possible that some EFP-like interventions were not included.

CONCLUSION

Results of this review provide EFP practitioners a preliminary empirical basis supporting the use of EFP with children and youths. Populations of children

with ASD and at-risk youth were most often studied, therefore practitioners might feel more confident in the effective use of EFP with these groups.

Although these results are promising with regard to the effectiveness of EFP for children and youths, several challenges remain. First, the field would greatly benefit from an inclusive body to come to a consensus on terminology. Second, there is a need for more randomized, controlled studies with large samples using non-subjective outcome measures. As stated in a previous review article (Lentini & Knox, 2009), the use of physiological measures (i.e. biofeedback, neurofeedback, cortisol samples, blood samples, and outcome variables such as heart rate variability [HRV], skin conductance level, brain wave activity, and/or neurotransmitter uptake) to examine pre/post differences resulting from EFP may provide more objective evidence of postulated outcomes.

This literature review is different from previous reviews as it gathers recent clinical research on EFP with children into tables for comparison and contrast. This may help the counselor quickly locate which therapies might benefit the client and why. The counselor may also efficiently compare the quality of the studies and methods/lengths of treatments in order to find the best fit for their client. An effort has been made to present to the counselor a complete picture of all available relevant literature with an extensive list of references to delve more deeply into individual modalities that could be beneficial for the patient.

Once more rigorous studies using well-specified methods and addressing like outcomes become available, future reviews should use meta-analyses to better document the outcomes of EFP. Until a more definitive evidence-base is established, the field may stagnate. If further research establishes benefits from EFP, studies will then be needed to determine which subgroups of populations are best served with EFP and which types of EFP are most beneficial to identified subgroups. Notwithstanding the present challenges, the results of this review provide practitioners initial support for the use of EFP with children and adolescents, and particularly for children with ASD and “at-risk” youth.

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