



Narrative Synthesis Of Equine-Assisted Psychotherapy Literature: Current Knowledge And Future Research Directions

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Equine - assisted psychotherapy (EAP) is an innovative emerging approach to mental health treatment. This narrative synthesis explores the current state of knowledge and areas for future research in EAP. Specifically reviewed are qualitative and quantitative empirical studies, including both articles published in peer - reviewed journals and research presented in theses and dissertations. We selected 24 studies for final inclusion in this study, dating between 2005 and 2013, and including the first EAP empirical research completed in 2005. Four of these studies are peer - reviewed journal articles, while 20 are master's theses or doctoral dissertations. The reviewed qualitative research provides initial evidence for the value of EAP for enhancing adolescents' communication and relationship skills. The reviewed experimental and quasi - experimental research provides initial evidence for the value of EAP for enhancing children's and adolescents' emotional, social and behavioural functioning. Yet, conclusions about the effectiveness of EAP must still be considered preliminary due to various methodological limitations in the reviewed research. The narrative review describes these methodological limitations and concludes with recommendations for future research.

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Review

Narrative synthesis of equine-assisted psychotherapy literature: Current knowledge and future research directions

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What is known about this topic

- Although equine-assisted psychotherapy (EAP) is quickly emerging as an innovative mental health treatment approach, EAP research is still in its infancy.
- This review of early EAP research suggests that EAP is a promising mental health treatment approach for adolescents.

What this paper adds

- This review clarifies the various psychotherapeutic approaches that incorporate horses.
- This is the only comprehensive review of the overall knowledge base of EAP to date.
- Recommendations for future research are provided to address methodological limitations of previous EAP research and to continue knowledge development in this field.

Abstract

Equine-assisted psychotherapy (EAP) is an innovative emerging approach to mental health treatment. This narrative synthesis explores the current state of knowledge and areas for future research in EAP. Specifically reviewed are qualitative and quantitative empirical studies, including both articles published in peer-reviewed journals and research presented in theses and dissertations. We selected 24 studies for final inclusion in this study, dating between 2005 and 2013, and including the first EAP empirical research completed in 2005. Four of these studies are peer-reviewed journal articles, while 20 are master's theses or doctoral dissertations. The reviewed qualitative research provides initial evidence for the value of EAP for enhancing adolescents' communication and relationship skills. The reviewed experimental and quasi-experimental research provides initial evidence for the value of EAP for enhancing children's and adolescents' emotional, social and behavioural functioning. Yet, conclusions about the effectiveness of EAP must still be considered preliminary due to various methodological limitations in the reviewed research. The narrative review describes these methodological limitations and concludes with recommendations for future research.

Keywords: equine, equine-assisted psychotherapy, horse, narrative synthesis, psychotherapy, research

Background

The incorporation of horses into mental health treatment is a quickly growing mental health treatment innovation. The role of horses for health promotion has traditionally been limited to treating physical illness through hippotherapy or therapeutic riding (Pugh 2010). Hippotherapy is a physical, occupational and speech-language therapeutic approach that utilises a horse's movements to achieve treatment outcomes (AHA 2014). In the United States, hippotherapy has primarily been developed by the American Hippotherapy Association (AHA), and this approach is practised by physical therapists, occupational therapists and speech-language pathologists (AHA 2014). Therapeutic riding incorporates horseback riding to promote cognitive, physical, emotional and social well-being for people who have special physical needs. Therapeutic riding has primarily been developed in the United States by the Professional Association of Therapeutic Horsemanship International (PATH Intl.). This approach is

practised by certified PATH International instructors with varied backgrounds including, but not limited to, psychotherapists (PATH Intl. 2013).

Newer approaches that incorporate horses into mental health treatment are equine-assisted psychotherapy (EAP), equine-assisted learning (EAL), equine-facilitated psychotherapy (EFP) and equine-facilitated learning (EFL). In this narrative synthesis, we use the term equine-assisted therapy as a general term in a particular study when the specific mental health treatment approach is not given, or when multiple approaches are used together. Table 1 shows the differences between these equine-based mental health treatment approaches. The four approaches vary in terms of their goals; EAL and EFL focus on learning goals (e.g. problem-solving abilities and team building), while EAP and EFP address treatment goals (e.g. treating depression and trauma). These four approaches were developed by two different professional organisations. The Equine Assisted Growth and Learning Association (EAGALA) developed EAP and EAL, which involved 100% ground (unmounted) activities (EAGALA 2009). PATH Intl. developed EFP and EFL, which involve both mounted and unmounted activities (PATH Intl. 2012). In unmounted activities, horses are able to act more naturally because they are not controlled by riders (EAGALA 2009). EAP, EAL and EFP approaches are provided in a collaborative, interdisciplinary manner by two professionals: a mental health practitioner and an equine specialist. EFL can be provided by one practitioner or by a team. EFL practitioners may be teachers, equine specialists, equestrian instructors, mental health practitioners (e.g. clinical social workers, counsellors, and psychologists) or life

coaches. If riding, vaulting, or driving will be part of the EFL curriculum, one of the professionals in the team needs to have related training and credentials (PATH Intl. 2012).

EAGALA (2009) states that:

Equine-assisted psychotherapy (EAP) incorporates horses experientially for emotional growth and learning. It is a collaborative effort between a mental health professional and a horse specialist working with clients and horses to address treatment goals. (p. 13)

The EAP model uses a team approach, which involves an equine specialist and a mental health practitioner working together. The equine specialist focuses more on clients' physical safety and horses' non-verbal communication, whereas the mental health practitioner focuses more on clients' emotional safety and non-verbal communication. Because PATH Intl. and EAGALA have articulated different treatment approaches (e.g. EAGALA uses unmounted activities only, while PATH Intl. uses mounted and unmounted activities), it is important to examine these approaches separately. This narrative review specifically focuses on EAGALA's EAP approach. However, we also included two EAL studies from Dell *et al.* (2011) and Frederick (2012); these are the only two studies that we have found that follow EAGALA's foundation and that concern EAL. We included these EAL studies because it is hard to clearly distinguish between EAP and EAL, as they are typically practised together, with an overlap between EAP and EAL. For example, learning how to clearly express thoughts and feelings to family members may reflect both the learning goal of enhancing interpersonal skills as well as a treatment goal in family therapy.

Table 1 Differences between EAL, EAP, EFL, EFP, therapeutic riding and hippotherapy

Associations	Approach	Mounted	Unmounted	Learning goals	Treatment goals	Mental health practitioners
EAGALA	EAL		X	X		X
	EAP		X		X	X
PATH International	EFL	X	X	X		(maybe)
	EFP	X	X		X	X
	Therapeutic riding	X		X		
AHA	Hippotherapy	X			X	X

EAL (equine-assisted learning): A mental health practitioner and an equine specialist work together and incorporate at least one horse to help clients address learning goals. EAL only includes unmounted activities (EAGALA 2009). EAP (equine-assisted psychotherapy): A mental health practitioner and an equine specialist work together and incorporate at least one horse to help clients address treatment goals. EAP only includes unmounted activities (EAGALA 2009). EFL (equine-facilitated learning): EFL practitioners may be teachers, equine specialists, equestrian instructors, mental health practitioners (e.g. clinical social workers, counsellors, psychologists) or life coaches, and EFL can be provided by one professional or by a team to help clients address learning goals. If riding, vaulting, or driving will be part of the EFL curriculum, one of the professionals in the team needs to have related training and credentials. EFL can include mounted and unmounted activities (PATH Intl. 2012). EFP (equine-facilitated psychotherapy): A mental health practitioner and an equine specialist work together and incorporate at least one horse to help clients address treatment goals. EFP can include mounted and unmounted activities (PATH Intl. 2012).

PATH Intl. was founded in the United States in 1969, and EAGALA in 1999 (EAGALA 2013; PATH Intl. 2013). Since being developed by EAGALA in 1999, EAP is now practised in 49 countries (EAGALA 2013). A new and innovative mental health treatment approach, EAP is quickly growing in popularity and has an early, exploratory research base concerning its implementation and effectiveness. Thus, the first aim of this narrative synthesis was to summarise the overall EAP knowledge base about the implementation and effectiveness of EAP, and about client and practitioner experiences with EAP, focusing on both what is known as well as gaps in knowledge. Certain methodological limitations are common to early, exploratory research and EAP is no exception. Therefore, the second aim of this narrative synthesis was to evaluate the quality of existing research to help inform and strengthen future research efforts.

Methodology

To address our research aims, we conducted a narrative synthesis of the EAP research literature. Narrative synthesis is one approach to the synthesis of research evidence. There are numerous other approaches to evidence synthesis, which include traditional literature reviews, meta-ethnography, and Bayesian meta-analysis (Mays *et al.* 2005). More specifically, narrative synthesis is defined as an approach used for the:

Systematic review and synthesis of findings from multiple studies that relies primarily on the use of words and text to summarise and explain the findings of the synthesis. (Popay *et al.* 2005, p. 5)

Specific aspects of the systematic approach to reviewing research evidence in relation to a narrative synthesis include: defining the aim of the review; conducting an initial review of literature; conducting and documenting the search strategy, including inclusion and exclusion criteria and sources searched; data extraction; and appraisal of study quality (Mays *et al.* 2005, Popay *et al.* 2005). Narrative synthesis can be used to synthesise a variety of forms of evidence, including qualitative and quantitative research (Mays *et al.*, 2005). This was valuable for our purposes because we wanted our review approach to encompass a variety of research paradigms, both qualitative and quantitative.

Following our initial identification and review of a selection of relevant studies, beginning in January 2014, we consulted our school's liaison librarian Merinda McLure concerning the construction of systematic search strategies. The librarian executed searches

with language that was intentionally limited, and combined through search subsets, due to similarities between the language that is used to describe specifically EAP—our focus — but also other therapeutic horse and human interactions that are not pertinent to this review. The search language allowed for retrieval due to the co-occurrence of multiple words within a single database record (e.g. 'animal assisted' and 'equine') or the occurrence of an exact phrase or phrases (e.g. 'EAP' or 'equine psychotherapy'). The search strategies were crafted so as to restrict search result retrieval, wherever possible, to English language journal articles, master's theses or doctoral dissertations, dating to between 1999 (when EAGALA, the organisation that created EAP, was founded) and 2014 (when the search was conducted). Table 2 lists the databases that the librarian searched and the number of results that were retrieved from each. Search results were then examined to remove duplicative records. A total of 159 unique sources were identified through this systematic searching. These 159 unique sources added to and duplicated all but three studies (Shultz 2005, Pugh 2010, Dell *et al.* 2011) that we identified through our additional Google searches and review of the EAGALA Website. The primary investigator also performed hand searches of reference lists of reviewed studies to identify additional studies for inclusion, but did not identify any additional studies using this approach.

Criteria for the inclusion of studies from among those retrieved through searching included: the criteria applied in our searches (date, language, literature

Table 2 Summary of literature searches

Database (platform)	No. of search results retained for review
CAB Abstracts (EBSCO)	3
CINAHL (EBSCO)	22
Dissertations and Theses (ProQuest)	36
Open Access Theses and Dissertations (oatd.org)	10
PsycINFO (EBSCO)	56
PubMed (NCBI)	68
Social Sciences Abstracts (EBSCO)	1
Social Services Abstracts (ProQuest)	7
Social Work Abstracts (EBSCO)	2
SPORTDiscus (EBSCO)	4
Web of Science (Thomson Reuters)	12

Search strategies were crafted so as to restrict search result retrieval, wherever possible, to English language journal articles, or master's theses or doctoral dissertations, dating to between 1999 and 2014. Result totals in this table precede the removal of duplicate records retrieved from one or multiple of all of the databases searched.

type); studies published in any country; qualitative, quantitative and mixed-methods empirical studies related to EAP or EAL, even if other therapeutic approaches (e.g. EFP, EFL, therapeutic riding, hippo-therapy, play therapy, or art therapy) were also used. We included unpublished master's theses and doctoral dissertations in our narrative synthesis for three reasons. First, this research is searchable through multiple databases that are available to researchers and mental health practitioners, and may therefore impact the development of EAP. Second, as there are few published peer-reviewed articles on EAP, the current knowledge base in EAP is heavily dependent on research presented in theses and dissertations. Third, the inclusion of only peer-reviewed articles raises the potential concern of publication bias, defined by Dickersin (1990) as:

The tendency on the parts of investigators, reviewers and editors to submit or accept manuscripts for publication based on the direction or strength of the study findings. (p. 1385)

Avoiding or mitigating publication bias thus necessitates the inclusion of unpublished literature such as master's theses or dissertations in addition to published literature. Nonetheless, we acknowledge the inherent limitations of a review that is so heavily oriented towards unpublished master's theses and doctoral dissertations. Specifically, research presented in theses and dissertations often has certain limitations such as small samples or less rigorous designs, and has not been through the double-blind, peer-review process seen in published articles that helps to ensure research integrity and quality. Having noted these limitations, we offer a reminder that the second aim of our narrative review was to evaluate the existent research in the field to inform and strengthen future research in this field. We anticipate that as EAP research develops, future literature reviews will focus more heavily on published research.

We excluded from our narrative synthesis research that concerned the establishment of EAP practices as businesses, people's interest in potentially participating in EAP as clients, researchers' self-narratives and manuscripts that were theoretical rather than research-based. In addition, two studies (Basile & Antoon 1996, Foley 2008) had titles indicating that they were about EAP or EAL, but they were really about EFP, EFL, therapeutic riding or natural horsemanship, and these studies were also excluded from this review.

Following the above inclusion and exclusion criteria, we independently reviewed the studies' titles and

abstracts, and, if these were promising or unclear, the full manuscript, of the 159 unique sources that we identified through searching. The first and second authors then debriefed our review process with each other and identified through consensus the final 24 studies included in this narrative synthesis. Of the 24 studies included in this synthesis, 21 came from the 159 unique sources identified through the search executed by our school's liaison librarian, while three studies (Shultz 2005, Pugh 2010, Dell *et al.* 2011) were identified through our additional Google searches and review of the EAGALA Website. One article (Trotter *et al.* 2008) was initially published as a dissertation, and we chose to include only the article and not the dissertation to avoid duplication and because of the additional rigour seen in the double-blind, peer-review process for article publication. The 24 studies included in this synthesis are presented in two categories, with peer-reviewed journal articles (four studies) as one category, and master's theses and doctoral dissertations (20 studies) as the other category. Table 3 provides information from the four journal articles and Table 4 provides information from the 20 theses and dissertations.

The following data were extracted from each of the identified studies: background information (author(s), study year, study aims, equine therapy modality, country of study, and Table 4 additionally indicates whether the study was a dissertation or master's thesis); study design, including nature of intervention and instruments used if relevant; participants (number, gender, age, and when research participants were clients, presenting clinical problems); and primary findings. Our assessment of the quality of the reviewed research—the second aim of our literature review – was aided by two efforts (Barker & Pistrang 2005, Pluye *et al.* 2009) to establish criteria for evaluating research that span multiple methodological paradigms. Researchers conducting narrative reviews such as this may or may not choose to exclude studies on the basis of quality (Mays *et al.* 2005, Popay *et al.* 2005, Pluye *et al.* 2009). We chose to include all studies that fit our inclusion and exclusion criteria, regardless of quality. There were several reasons for this decision. First, this is an early, exploratory area of research, and as such, much of the research has methodological limitations commonly seen in a field of research in its infancy. Second, we support the argument, discussed by Mays *et al.* (2005), that even flawed research can make a contribution to the field. Third, one of our aims in conducting this literature review was to identify future directions for research, which is helpfully informed by addressing the limitations of prior research.

Table 3 Equine-assisted psychotherapy (EAP) studies published in peer-reviewed journal articles

Background information Study aims	Study design	Participants	Primary findings
Chardonens (2009) Explore the potential value of working with horses with a child who has severe mental health problems EAP and EFP Switzerland	Qualitative, case study Treatment: 1 year residence in a therapeutic farm environment that involved regular contact with several psychologists	One child (boy, age 8) with severe mental health problems and a behaviour disorder; from an extremely precarious family environment	At the end of 1 year treatment, the child was identified as having improved physical and emotional boundaries with people and animals, increased self-esteem and sense of responsibility, and enhanced relational competencies
Dell <i>et al.</i> (2011) Explore the experiences and the potential benefit of an EAL residential treatment programme on First Nations and Inuit adolescents who abuse solvents EAL Canada	Qualitative, phenomenological; individual, semi-structured interviews EAL treatment: 12 weeks	15 First Nations and Inuit Canadian adolescents (seven males, eight females), ages: 12–17, all participants were receiving residential treatment for solvent abuse One counsellor, two teachers	<ol style="list-style-type: none">1 Participants described experiencing a meaningful connection to horses that helped to calm them and enabled them to stay 'in the present moment', in other words, to focus less on future worries2 Participants identified developing an ability to communicate with horses non-verbally3 Female participants expressed empathy and described developing caretaking abilities towards horses4 Male participants indicated that interacting with horses presented opportunities to express affection
Schultz <i>et al.</i> (2007) Investigate the effectiveness of EAP in a group of children and adolescents who receive psychotherapy for various mental health concerns EAP United States	Quantitative, quasi-experimental design: One group pretest–posttest design Participants received EAP over an 18-month period (6–116 sessions) from a licensed social worker, no information given about whether intervention delivered in individual or group format Instrument: Children's Global Assessment of Functioning Scale (GAF)	63 children and adolescents (37 males, 26 females), ages: 4–16; 36 children with a mood disturbance diagnosis including attention deficit hyperactivity disorder, post-traumatic stress disorder, adjustment disorder, disruptive disorder, other disorders, and three without any diagnosis	<ol style="list-style-type: none">1 All participants showed significant improvement in GAF scores pretest to posttest ($t = 9.06$, d.f. = 96, $P < 0.001$)2 There was a statistically significant correlation between the percentage improvement in the GAF scores and the number of sessions given ($r = 0.73$, $P < 0.001$)3 The greatest improvement in the GAF scores occurred in the youngest participants ($F = 4.9$, d.f. = 2, 46, $P = 0.01$)4 Females had a significantly greater improvement in GAF scores than males ($t = 2.64$, d.f. = 47, $P = 0.02$)

Table 3 (continued)

Background information Study aims	Study design	Participants	Primary findings
<p>Trotter <i>et al.</i> (2008) Test the effectiveness of equine-assisted counselling (EAC) by comparing EAC to classroom-based counselling children and adolescents at risk for academic or social failure</p> <p>EAC: The authors primarily used the EAGALA approach in this study, but added some mounted activities in a few sessions</p> <p>EAP, EFP, or equine-assisted counselling (EAC). EAC is the name given to a therapeutic approach created by the author</p> <p>United States</p>	<p>Quantitative, quasi-experimental design: two groups (experimental and comparison) pretest–posttest</p> <p>The EAC and classroom-based counselling groups each received one group session per week over 12 consecutive weeks</p> <p>Instrument: Behavioural Assessment System for Children (BASC) Self-Rating and Parent-Rating Scales</p>	<p>164 children and adolescents (102 males, 62 females), ages: 8–14 at risk of academic or social failure</p> <p>126 participants in treatment (EAC) group, 38 participants in control (classroom-based) group</p>	<p>1 BASC Self-Report: EAC group showed statistically significant improvement in five areas of the BASC Self-Rating Scales, while the classroom-based counselling group showed statistically significant improvement in four areas</p> <p>2 BASC Parent-Report: EAC group showed statistically significant improvement in 12 areas of the BASC Parent-Rating Scales, while the classroom-based counselling group showed statistically significant improvement in one area</p> <p>3 Using ANCOVA of BASC Self-Report and BASC Parent-Report pretest and posttest scores, conducted a comparison of EAC group and curriculum group: Compared to the classroom-based counselling group, the EAC group showed significantly better outcomes in over seven scales</p>

EAGALA, Equine Assisted Growth and Learning Association.

Results

Below we synthesise and evaluate the EAP research literature to date.

Current knowledge and gaps in EAP research content

Research pertaining to children and adolescents

EAP research is largely focused around school-age children (age 8 and above) and adolescents. Ten of the reviewed studies (Shultz 2005, Tetreault 2006, Schultz *et al.* 2007, Trotter *et al.* 2008, Chardonnes 2009, Whitely 2009, Graves 2010, Dell *et al.* 2011, Frederick 2012, Stiltner, 2013) involved a direct qualitative or quantitative assessment of the impact of EAP with children or adolescents. In addition to these 10, five of the reviewed studies (Frame 2006, Gestrin 2009, Pugh 2010, Devon 2011, Ledbetter 2013) focused indirectly on EAP with adolescents, based on practitioners' feedback about clinical work with this population.

Six studies provided a qualitative assessment of the value of EAP, primarily in adolescent popula-

tions. Three of these (Chardonnes 2009, Dell *et al.* 2011, Stiltner 2013) did so directly, based on client experiences, and three (Frame 2006, Pugh 2010, Devon 2011) did so indirectly, based on practitioner perceptions. One study (Whitely 2009) used a mixed-methods approach to evaluate the impact of EAP in adolescents based on qualitative and quantitative findings. The qualitative results across these six studies and the qualitative data from Whitely (2009) suggest the value of EAP for enhancing adolescents' communication and relationship skills. These skills include the ability to keep clear boundaries, read non-verbal cues, and to trust, nurture and be assertive. The qualitative data also suggest that, through interacting with horses, children and adolescents gain in responsibility, self-esteem, self-control, empathy, self-efficacy, self-awareness, emotional awareness and the ability to stay in the present. The qualitative data also suggest horses' potential for relieving negative emotions and, in residential programmes, for creating a welcome atmosphere for participants.

Six studies (Shultz 2005, Tetreault 2006, Schultz *et al.* 2007, Trotter *et al.* 2008, Graves 2010, Frederick

Table 4 Equine-assisted psychotherapy (EAP) studies in theses and dissertations

Background information	Study design	Participants	Findings
<p>Abrams (2013) Explore why mental health practitioners choose to include EFP/EAP as a complementary or alternative treatment for veterans with PTSD and how they incorporate EFP/EAP into psychotherapy EAP, EFP, Epona Equestrian Service United States Doctoral dissertation</p>	<p>Qualitative, phenomenological; individual, semi-structured interviews</p>	<p>Five licensed mental health practitioners (all females) with experience incorporating EAP or EFP with veterans, ages: 33–66, three were certified by EAGALA, one was certified by PATH Intl., one was certified by Epona Equestrian Service</p>	<p>Reasons therapists chose EFP/EAP for veterans with PTSD: (i) EFP/EAP emphasises non-verbal communication; (ii) interacting with large animals through EFP/EAP helped clients gain confidence; (iii) the presence of horses helped build trust between therapists and veterans, and between veterans and horses; and (iv) EFP/EAP motivates clients to engage in the treatment. Therapists' perceptions of EFP/EAP effectiveness for veterans with PTSD include: (i) the outdoor setting where EFP/EAP took place was viewed as less stigmatising than traditional, office-based mental health treatment; (ii) EFP/EAP helped veterans improve faster than other types of psychotherapy for trauma</p>
<p>Cepeda (2011) Obtain expert feedback on a draft manual developed for psychotherapists on how to incorporate EAP in their practice EAP, EFP, therapeutic riding United States Doctoral dissertation</p>	<p>Quantitative, mail survey; participants reviewed the manual that the researcher developed. The manual focuses on EAP, private practice and miniature horses Likert scale from 1 (strongly disagree) to 5 (strongly agree) in six areas: accuracy, thoroughness, clarity, practicality, organisation, likelihood of recommending the manual to other therapists</p>	<p>50 EAP practitioners were contacted by email and asked to review the manual. 18 experts agreed to review the manual. 12 experts returned the survey by emails (66.67% return rate) 12 EAP practitioners (all females), no information about age</p>	<p>The content of the manual included definitions of terminology, benefits of animals, benefits of horses, benefits of miniature horses, how to choose an animal, how to train and care for horses, legal and ethical issues Accuracy (M = 3.00, SD = 0.77); thoroughness (M = 2.60, SD = 0.77); clarity (M = 4.50, SD = 1.08); practicality (M = 3.10, SD = 0.67); organisation (M = 4.00, SD = 0.95); likelihood of recommending the manual to other therapists (M = 2.70, SD = 1.10)</p>
<p>Devon (2011) Explore therapists' experiences with EAP for adolescents with ADHD. For example, explore how therapists feel EAP is a method of treatment for adolescents with ADHD, and their experiences working with ADHD adolescent using EAP EAP United States Doctoral dissertation</p>	<p>Qualitative (specific qualitative discipline not indicated); individual, semi-structured interviews</p>	<p>Eight EAP mental health practitioners, no information about age and gender</p>	<p>Main findings about participants' perceptions: horses mirrored clients' actions and reactions; horses promoted impulse control; horses demonstrated and taught honest communication, trust, boundaries, leadership, assertiveness, play, affection and nurturance; horses' sensitivity to non-verbal communication helped clients develop a greater awareness of their emotions; adolescents with ADHD had heightened non-verbal, sensory and reactive skills which were similar to that of horses, so they could relate to each other</p>

Table 4 (continued)

Background information	Study design	Participants	Findings
<p>Esbjörn (2006) Explore perceptions of the major benefits and clinical outcomes of EAP/EFP as perceived by therapists and how these benefits and outcomes are effected</p> <p>EAP, EFP, therapeutic riding, horsemanship and other private agencies which incorporate horses into human work (e.g. Epona and British Horse Society) United States Doctoral dissertation</p>	<p>Mixed-method Part 1: quantitative: mail survey; explored important components of EAP/EFP, horses' role and so on Part 2: qualitative, grounded theory and heuristic approach (the researcher's own experience of the topic was included in the study); individual, semi-structured interviews</p>	<p>Part 1: questionnaire: 35 mental health practitioners 100% return rate (likely due to snowball strategy) with EAP/EFP experience (30 females, 5 males), ages: 30-62 Part 2: Semi-structured interviews with 15 therapists from Part 1</p>	<p>Participants perceived horses to be a metaphor for other aspects of clients' lives; horses assisted clients in being attentive and totally present to the present; physical contact with horses played an important role in EAP/EFP</p>
<p>Frame (2006) Explore the role of horses in EAP/EFP in treating adolescent depression and identify theoretical influences that inform EAP/EFP EAP and EFP United States Doctoral dissertation</p>	<p>Qualitative research (specific qualitative discipline not indicated); individual, semi-structured interviews</p>	<p>15 EAP and EFP mental health practitioners (six PATH International members, five EAGALA members and five members in both), no information about age and gender</p>	<p>Participants perceived horses as providing immediate feedback about adolescents' behaviours and emotions and representing other people in adolescents' lives Participants perceived EAP and EFP as reducing depression by increasing adolescents' self-esteem, self-efficacy and decreasing their isolation EAP/EFP mental health practitioners practised <i>mounted work</i> to help clients build self-esteem. They practised <i>groundwork</i> to help individuals become more self-aware, and to help family and group members become more aware of their interpersonal communications through feedback from horses</p>
<p>Frederick (2012) Investigate the impact of a 5-week equine-assisted learning (EAL) group programme on hope, self-efficacy and depression among adolescents at risk for not completing high school EAL United States Doctoral dissertation</p>	<p>Quantitative, experimental design. Treatment group received one group EAP session per week over 5 weeks. Control group received only the regularly provided services of their school staff Instruments: Adolescent Domain-Specific Hope Scale (ADSHS), New Generalized Self-efficacy Scale (NGSE); Major Depression Inventory (MDI)</p>	<p>Total 26 participants (9 males, 17 females), ages: 11-17, 14 in the treatment group; 12 in the control group; all participants met one or more of the Texas Education Agency's criteria that place a student 'at-risk' for not completing high school Participants were middle or high school students in Central Texas. They all attended Temple Education Center in Temple, Texas</p>	<p>1 Score on ADSHS: participants in the treatment group had significant increase from pretest to posttest scores on ADSHS. $t = -2.536$, d.f. = 12, $P < 0.05$ 2 Score on NGSE: participants in the treatment group did not have a significant increase from pretest to posttest scores on NGSE. $t = -1.896$, d.f. = 12, $P > 0.05$ 3 Score on MDI: participants in the treatment group did not show a significant decrease from pretest to posttest scores on MDI. $t = 1.827$, d.f. = 12, $P > 0.05$</p>

Table 4 (continued)

Background information	Study design	Participants	Findings
<p>Gergely (2012)</p> <p>1 Examine the programme operations and treatment practices of various equine-assisted therapy programmes across the United States</p> <p>2 Investigate the frequency of various therapeutic skills occurring during EAP sessions (EAP, EFP, EAC, therapeutic riding and other approaches (e.g. equine-facilitated mental health and equine experiential learning))</p> <p>United States</p> <p>Doctoral dissertation</p>	<p>Quantitative, survey and evaluation</p> <p>Phase 1: Internet-based survey was sent via email, 191 equine-assisted therapy service providers responded to the survey (31.83% return rate)</p> <p>Phase 2: 20 recorded EAP sessions were rated using the Equine-Assisted Psychotherapy Treatment Integrity Checklist (EAP-TIC) designed by the researcher. The raters included the researcher, EAP providers from Phase 1 and trained observers</p>	<p>Phase 1: 191 equine-assisted therapy service practitioners from different equine-assisted modalities, no information about age and gender</p> <p>Phase 2: nine EAGALA model EAP teams recorded their EAP sessions. A total of 20 EAP sessions was recorded</p>	<p>Regarding the question, 'What type of equine therapy services do you provide?', 136 (72.7%) reported practising EAGALA model EAP; 103 (55.1%) reported practising EAGALA model EAL; 47 (25.1%) reported practising EFP; 37 (19.8%) reported practising therapeutic riding; and 32 (17.1%) reported practising EFL</p> <p>Regarding the question, 'What percentage of the equine therapy services you provide involve ground versus riding?', 87 (67%) reported practising all groundwork</p> <p>EAP-TIC was found to be a reliable measurement to evaluate EAP respondents' facilitation skills. EPA-TIC could help EAP practitioners evaluate whether EAP sessions were being conducted effectively</p>
<p>Gestrin (2009)</p> <p>Identify the critical elements in a curriculum for equine-assisted therapy with traumatised adolescents in a residential treatment programme and their families; assess the perceived effectiveness of EAP/EFP for clients with trauma symptoms</p> <p>EAP and EFP</p> <p>United States</p> <p>Master's thesis</p>	<p>Mixed-methods study with two surveys. Survey 1 used a checklist format to identify important curriculum components</p> <p>Survey 2 used a checklist and open-ended question format to explore horses' role in EAP/EFP</p> <p>Three responded to Survey 1 (8.57% response rate) and one responded to Survey 2 (2.86% response rate)</p>	<p>Four EAP and EFP mental health practitioners who were master's students in their final year of a counselling programme and worked in the field as interns; no information about age and gender</p>	<p>Activities (activities designed to elicit a specific response from clients) and evaluation (determining the effectiveness and outcome of EAP/EFP) were identified as being important components in a curriculum for working with adolescents with PTSD</p> <p>Cognitive-behavioural therapy was listed as the most effective method for use in EAP and EFP to address trauma symptoms</p>

Table 4 (continued)

Background information	Study design	Participants	Findings
<p>Gilbert (2013) Examine EAP providers' beliefs about the role of horses in EAP and explore the relationships between equine specialists and mental health professionals in EAP EAP United States Doctoral dissertation</p>	<p>Qualitative, hermeneutic and phenomenological study; individual, semi-structured interviews</p>	<p>Nine EAP practitioners (two males, seven females), no information given about age, four mental health practitioners (MH), four equine specialists (ES) and one both (MH and ES)</p>	<p>1 Horses identified as being naturally good therapeutic animals because being both prey and herd animals makes them sensitive to other animals and the environment. Participants saw horses as partners in EAP instead of tools or assistants. Participants let horses guide therapy 2 Interacting with horses viewed as positive for clients in: developing a connection with another creature, providing safe platform for clients to express thoughts and feelings, decreasing clients' distress in the therapeutic environment, providing metaphors for clients, teaching clients boundaries and providing role models for social skills and non-verbal communication 3 The relationship between MH and ES was identified as being collaborative in nature. Both MH and ES were seen as having important roles in EAP; however, these roles were not always perceived as being clear-cut. MH and ES working together was identified as presenting certain challenges</p>
<p>Graves (2010) Conduct meta-analysis to examine the effectiveness of equine-assisted therapy with children and adolescents who are severely emotionally disturbed (SED) and/or autistic (ASD) EAP, EFP, therapeutic riding, therapeutic horsemanship United States Doctoral dissertation</p>	<p>Quantitative, meta-analysis</p>	<p>17 independent studies (four published studies, eight dissertations, four theses, one presentation) Children or adolescents diagnosed with a severe emotional disturbance (SED) or autistic spectrum disorder (ASD)</p>	<p>1 Equine-assisted therapy (EAT) had overall moderate to large effect on behavioural, emotional and functional domains with SED/ASD children and adolescents 2 EAT equally effective when utilising behavioural, emotional and functional outcome measures 3 EAT conducted with a manualised treatment model was significantly more effective than EAT conducted without a manualised treatment model 4 No significant differences in the effectiveness of EAT in different age groups: (i) 12 and under, (ii) 13-21 and (iii) mixed-age group (all participants combined) 5 EAT was found to be significantly more effective with SED children/adolescents than with ASD children/adolescents</p>

Table 4 (continued)

Background information	Study design	Participants	Findings
<p>Ledbetter (2013) Design an EAP intervention guide that can be applied by EAP practitioners working with adolescents in residential substance abuse treatment facilities EAP, EFP United States Doctoral dissertation</p>	<p>Quantitative, online survey; participants evaluated intervention guide on a 5-point Likert scale; 100% return rate The intervention guide included selecting participants, introducing the EAGALA model and designing eight EAP activities for adolescents</p>	<p>Two EAGALA-certified EAP practitioners; no information about gender and age</p>	<p>Intervention guide evaluation category ratings: adequate information regarding EAP ($M = 3.75$); adequate information regarding adolescent substance use ($M = 4.25$); easy to read and understand ($M = 4.25$); well organised ($M = 4.25$); appropriate for the treatment of adolescent substance use disorder ($M = 4.5$); developmentally appropriate ($M = 4.25$); practical and readily applicable for EAP with substance abusing adolescents ($M = 3.5$); overall quality ($M = 4.1$)</p>
<p>Lujan (2012) Explore how counselling practitioners in the Southwest incorporate EAP in their practice; challenges they face in implementing EAP in their practice; and discoveries that practitioners have made about EAP EAP and art, play, adventure therapy United States Doctoral dissertation</p>	<p>Qualitative, phenomenological, survey, seven open-ended questions sent via mail to 25 practitioners with 12 participants responding (48% return rate)</p>	<p>12 mental health practitioners (nine females, three males) ages: 36-66+; 7 of 12 participants were EAGALA-certified</p>	<ol style="list-style-type: none"> 1 Participants focused on learning skills when implementing EAP in group format and went deeper with emotional issues when implementing EAP in individual therapy 2 The use of metaphors was a key component of EAP 3 Client progress was perceived to be more rapid in EAP than in traditional therapy 4 Horses were trusted and perceived as knowing what was happening in therapy sessions before therapists 5 Starting an EAP practice was an expensive investment, and participants indicated that financing an EAP practice was one of their greatest challenges
<p>McConnell (2010) Examine practitioners' theoretical foundation, perceptions of effectiveness of EAT, and client backgrounds (e.g. diagnosis) in EAP EAP, EFP and therapeutic riding United States Doctoral dissertation</p>	<p>Mixed-methods, qualitative/quantitative Internet-based survey Survey was emailed to 713 EAGALA and PATH Intl. members and 203 participants responded (28.47% return rate)</p>	<p>203 participants (no information about age and gender)</p>	<p>The primary orientation among participants was experiential theory ($N = 111$, 68%) Most participants responded that there is no specific client diagnosis that is most appropriate for EAT ($N = 129$, 81.1%) The top four exclusionary criteria in participants' EAT programmes were clients who: are suicidal ($N = 43$, 31%), have been violent ($N = 35$, 42%), have a history of abusing animals ($N = 27$, 19.7%) and are too heavy to ride horses safely ($N = 20$, 14.5%) 157 (97%) participants reported that EAT was very beneficial for clients, while four (2%) reported that EAT was somewhat beneficial</p>

Table 4 (continued)

Background information	Study design	Participants	Findings
<p>Notgrass (2011) Gather information from EAGALA-certified EAP practitioners in the United States regarding their professional background and various aspects of their EAP practice experience United States Doctoral dissertation</p>	<p>Quantitative, Internet-based survey of EAP practitioners with questions concerning their demographics, education and training, and professional experience 328 EAGALA-certified EAP mental health practitioners and equine specialists responded (23.89% return rate)</p>	<p>328 EAGALA-certified EAP mental health practitioners and equine specialists, no information about gender and age</p>	<p>1 More respondents reported working with adolescents than any other age group; 80.2% of respondents responded that their EAP practice included adolescents; only 11% indicated that they worked with preschool-age children 2 The clinical problems that the largest percentage of respondents indicated encountering in their practice were depression (81.7% of respondents), anxiety (80.2% of respondents), and child and adolescent behaviour problems (76.8% of respondents) 3 84.8% of respondents did not include mounted activities within their practice</p>
<p>Pugh (2010) Examine therapists' perspectives about how rescue foals influence at-risk adolescent girls' healing process at an EAP programme. The integration of rescue foals into EAP contrasts with the integration of well-trained horses into traditional EAP United States Master's thesis</p>	<p>Qualitative (specific qualitative discipline not indicated); individual, semi-structured interviews</p>	<p>Three EAP mental health practitioners (all females), ages: 29-34, all practised EAP using a transpersonal counselling approach</p>	<p>1 All participants used attachment theory to understand clients' experiences in EAP 2 Horses were identified as providing the following benefits in therapy: being non-judgemental partners; providing immediate feedback; helping clients to stay in the present; giving clients an opportunity for reflection and projection 3 Rescue foals were identified as being unpredictable, hypersensitive and distrustful of humans. Those characteristics were described as being similar to the adolescent programme participants. Thus, working with foals was seen as creating an opportunity for reciprocal healing between clients and horses</p>
<p>Schlote (2009) Examine the current state of EAT, EAL and AAT in Canada (e.g. professional backgrounds, challenges practitioners face, supports practitioners need). The researcher conducted a national, bilingual (English and French) survey of helping professionals who incorporate animals into their practice AAT, EAT, EAL (EAP in part of the study) Canada Master's thesis</p>	<p>Quantitative, Internet-based survey using snowball and convenience sampling 143 responded to the survey and 131 were retained for analysis (some respondents did not meet study criteria) Calculating a return rate for this study is not possible because the respondents accessed the survey through the Survey Monkey</p>	<p>Demographic information available for 99 respondents (9 males, 89 females, 1 person declining to answer); 62 (62.7%) respondents were between ages 36 and 55, age not otherwise reported The eligibility criterion for participating in this study was being a mental health provider (e.g. professional counsellor, clinical social worker, etc.) currently practising in the field of AAT and EAT/EAL</p>	<p>1 The largest percentage (68.9%) of respondents reported working with adults, followed by 60.2% of respondents who reported that they work with adolescents 2 When asked what clinical issues they typically addressed, 74.8% of respondents indicated personal growth and self-awareness; 73.8% indicated mental health, such as depression and anxiety; and 69.9% indicated self-esteem 3 Most commonly used theoretical frameworks were cognitive-behavioural therapy (47.5% of respondents), mind-body approaches (42.6%) and person-centred therapy (41.6%) 4 Most commonly identified roles played by animals in their work were sources of calm and relaxation (79.2% of respondents), animals as mirrors for clients (75.2%) and animals as teaching about how to be in relationships (72.3%)</p>

Table 4 (continued)

Background information	Study design	Participants	Findings
<p>Shultz (2005) Examine psychosocial change during a 10-week EAP programme for adolescents identified as being 'at-risk' due to poverty, family discord and disorganisation, violence and abuse, substance abuse, congenital defects, low birth weight, perinatal stress, divorce, parental alcoholism, more than four siblings living in the home, parental mental health problems or parents with minimal education. Participants were considered at risk if they exhibited three or more of the 12 risk factors</p> <p>EAP United States Master's thesis</p>	<p>Quantitative, randomised experimental pretest-posttest design Adolescents in the treatment group received 10 weeks of weekly individual or group sessions; nine of these also received traditional talk therapy Nine participants in the control group received traditional talk therapy, although some did not receive any therapy Instruments: Youth Outcome Questionnaire (Y-OQ) and Self-Report (Y-OQ-SR)</p>	<p>Total 29 participants, 15 in the treatment group (eight males; seven females); 14 in the control group (nine males; five females), ages: 12–18 The eligibility criteria for participating in this study were adolescents who exhibited three or more of the 12 risk factors; three risk factors were chosen to include adolescents who are moderately at risk</p>	<p>1 Outcomes on Y-OQ: At-risk adolescents who participated in an EAP programme experienced significantly greater improvements in psychosocial functioning than those in the control group 2 Outcomes on Y-OQ-SR: At-risk adolescents who participated in an EAP programme experienced significantly greater improvements in psychosocial functioning than participants in the control group</p>
<p>Stiltner (2013) Explore the experiences of dually diagnosed adolescent males who received EAP as part of a residential treatment programme; their experiences with EAP were sought to understand how EAP impacted their mental health issues</p> <p>EAP United States Doctoral dissertation</p>	<p>Qualitative, phenomenological; individual, semi-structured interviews. Participants received EAP sessions once a week (no information given about whether intervention delivered in individual or group format)</p>	<p>Eight adolescent boys ages 13–17 received EAP at their residential centre All dual diagnosis adolescents at the residential treatment centre were eligible to participate; in addition to substance abuse concerns, the participating adolescents also had mental health concerns including ODD, ADHD and OCD</p>	<p>1 Participants reported that their experiences with EAP made the facility feel more like a home and less like an institution. Participants reported liking the hands-on approach of EAP and looking forward to EAP sessions. EAP was preferred to other previous therapies 2 Participants stated that EAP had helped them by relieving negative emotions and creating a calming atmosphere 3 Participants reported that horses had helped them by: helping them develop trusting relationships, mirroring participants' emotions</p>

Table 4 (continued)

Background information	Study design	Participants	Findings
<p>Tetreault (2006) Examine the effectiveness of equine-assisted growth and learning as intervention for students with emotional disorders</p> <p>EAP United States Master's thesis</p>	<p>Quantitative, quasi-experimental, one group pretest and posttest design Participants received five EAP group sessions, one session per week Instrument: Student Symptom Checklist (created by the researcher and completed by teachers)</p>	<p>10 children (six females, four males), ages: 10–12, participants were entering the fifth and sixth grades at the time of study; each participant had been diagnosed as having an emotional disorder</p>	<p>EAP significantly helped students with identifying and managing behaviour EAP significantly helped students with using learnt communication and social skills to interact with others</p>
<p>Whitely (2009) Investigate the therapeutic benefits of EAP in the treatment of adolescents identified as at risk ('at-risk' not otherwise defined)</p> <p>EAP United States Doctoral dissertation</p>	<p>Mixed-methods study with two parts Part 1. Quantitative, experimental pretest–posttest design, 20 adolescents who lived in a residential treatment centre were randomly assigned into treatment (6 weeks of weekly group EAP sessions) and control (delayed treatment group) Instruments: Youth Outcome Questionnaire Self-Report (Y-OQ-2.0 SR), Youth Outcome Questionnaire parent/guardian (Y-OQ-2.0) Part 2. Qualitative, phenomenological approach: individual, semi-structured interviews with the five participants with the most improvement from Part 1</p>	<p>20 adolescents, 10 participants in each group (7 males, 13 females) ages: 12–19, only seven participants from the treatment group completed all six sessions and three participants from the control group completed all six sessions</p>	<p>Part 1 (quantitative) findings: A <i>t</i>-test analysis was conducted to compare group differences between pretest and posttest scores. Statistically significant differences between the groups were evident in the Y-OQ-2.0 guardian measure. $M = 46.00$, $SD = 33.52$, $t = 4.34$, $d.f. = 9$, $P = 0.002$. Statistically significant difference between the groups was not found in the Y-OQ-2.0 Self-Report. $M = 11.30$, $SD = 19.72$, $t = 1.81$, $d.f. = 9$, $P = 0.103$ Part 2 (qualitative) findings: seven areas of improvements emerged as themes in participants' descriptions of EAP benefits: relationship skills; emotional awareness; responsibility; self-control; self-awareness; self-concept; empathy</p>

M, mean; SD, standard deviation; EAGALA, Equine Assisted Growth and Learning Association.

2012) provided a quantitative assessment of EAP in child or adolescent populations. One study (Whitely 2009) used a mixed-methods approach to evaluate the impact of EAP in adolescents based on qualitative and quantitative findings. Child and adolescent participants in five experimental or quasi-experimental studies (Shultz 2005, Tetreault 2006, Schultz *et al.* 2007, Trotter *et al.* 2008, Whitely 2009) and one meta-analysis (Graves 2010) showed significant improvement in multiple areas, namely, psychosocial functioning (Shultz 2005, Whitely 2009), social functioning (Tetreault 2006), global functioning (Schultz *et al.* 2007, Graves 2010), emotional functioning (Graves 2010) and behavioural functioning (Tetreault 2006, Trotter *et al.* 2008, Graves 2010). One exception to the overall finding of participant improvement following EAP is seen in Frederick's (2012) study, which explored the effectiveness of a 5-week EAL group programme on at-risk adolescents' levels of hope, self-efficacy, and depression. Although participants in this study had a significant improvement in hope, they did not have a significant improvement in self-efficacy or a significant decrease in depression.

Dell *et al.* (2011) and Schultz *et al.* (2007) are the only two studies pertaining to children and adolescents that explored the differential effect of EAP by gender. The adolescent boys in Dell *et al.* (2011) reported that interacting with horses helped them to express affection. In contrast, female participants' interactions with horses helped them to express empathy as well as to develop caretaking abilities. Schultz *et al.* (2007) noted that females measured significantly greater improvement than males on the Children's Global Assessment of Functioning Scale after receiving EAP.

Two studies (Schlote 2009, Notgrass 2011) surveyed practitioners about their most commonly served client populations. In Schlote's (2009) survey of animal-assisted therapy (AAT) practitioners and equine-assisted therapy (EAT) practitioners in Canada, participants were given a list of various client populations and asked to indicate with which of these populations they had worked. The category with the largest number of responses was adults (68.9%). The category with the second largest number of responses was adolescents (60.2%). However, Notgrass (2011) surveyed 328 EAP mental health practitioners – as opposed to the broader categories of EAT or AAT examined in Schlote's (2009) study – regarding the age of their clients and found that the most commonly selected age group (between zero and 65+) was teenagers (80.2%). In contrast, only 11% indicated that they worked with preschool-age children. Thus, it appears the heavy focus on school-age

children and adolescents that is seen in the research is supported by the strong emphasis on this population in EAP practice. Shultz (2005) states that the challenges of working with at-risk adolescents have increasingly led mental health professionals towards non-traditional therapies—such as experiential therapies, expressive therapies, animal-assisted therapies and adventure-based therapies — in hopes of finding more effective interventions for this population. EAP is philosophically aligned with each of these non-traditional therapies, which may explain why EAP is such a popular modality for at-risk adolescents.

Although the initial research in EAP supports its clinical value with school-age children and adolescents, the lack of research about other populations raises questions. Why do EAP practitioners not work with other age groups as much? What clinical considerations are involved when EAP practitioners work with other age groups? What are the strengths and limitations of using EAP with other age groups? There is a particular gap in knowledge about EAP in preschool-age children (4 and under) and older adults, so future investigations concerning these age groups will be valuable. While not focusing exclusively on preschool-age children, Schultz *et al.*'s (2007) research on a mental health promotion/intervention modality for children who had experienced intra-family violence included participants from age 4 to 16. The researchers found that the youngest participants showed significantly greater improvements following the EAP sessions than did older participants ($F = 4.9$, $d.f. = 2, 46$, $P = 0.01$). If, as this research suggests, preschool-age children have the potential to benefit from EAP, then EAP practitioners should further develop their abilities to work with this population, aided by relevant research. On the other hand, Graves (2010) examined the effectiveness of EAT (combined approaches, including EAP) based on age for children and adolescents who were autistic or severely emotionally disturbed, and did not find any significant differences between different age groups. There are several possible reasons for the difference in findings between the two studies. First, Schultz *et al.* (2007) examined EAP as a specific treatment modality, while Graves (2010) examined EAT more broadly (including, but not specific, to EAP). Second, the two studies examined different clinical concerns. Third, Schultz *et al.* (2007) examined more narrowly defined age groups (less than 8, and the youngest participant was age 4, 8–12 and older than 12) than did Graves (12 and under, 13–21, mixed-age group). Perhaps, these design and methodological differences account for the difference in findings between the two studies. Clearly, further research is needed to

clarify the impact of EAP in preschool-age children with various clinical concerns.

Qualitative research concerning perceptions of EAP

One developing area in EAP research is the qualitative exploration of clients', equine specialists' and mental health practitioners' experiences. This area of research is important because qualitative research can help to identify the mechanisms through which a particular intervention generates an impact (Dakin & Areán 2013). Determining how an intervention brings about client change is particularly challenging with respect to EAP because it involves a complex treatment team consisting of one equine specialist, one mental health practitioner, and one or more horses. Equine specialists and mental health practitioners come from a wide variety of training backgrounds, so they may have different perspectives on how horses can help clients. Likewise, clients may perceive therapy differently from equine specialists and mental health practitioners, so it is important to consider perspectives and experiences from all three groups.

Three studies (Whitely 2009, Dell *et al.* 2011, Stiltner 2013) examined client experiences with treatment, as discussed above, while seven studies (Esbjörn 2006, Frame 2006, Pugh 2010, Devon 2011, Lujan 2012, Abrams 2013, Gilbert 2013) explored EAP or EFP mental health practitioners' perspectives about the impact of EAP or EFP. Three of the studies that explored mental health practitioners' perspectives (Frame 2006, Pugh 2010, Devon 2011) are specific to and incorporated into the above discussion on the impact of EAP on child and adolescent populations. Altogether, these seven studies examined EAP and EFP practitioners' perspectives on the major benefits of EAP/EFP for clients generally or for client groups that are specific with respect to age (adult or adolescents) and clinical problem (e.g. attention-deficit disorder/attention-deficit hyperactivity disorder, posttraumatic stress disorder, depression or 'at-risk' adolescent girls). These seven studies report a variety of practitioner beliefs about the value of horses. First, horses give clients immediate feedback about how the client behaviour influences them, which can increase client self-awareness. Second, horses can serve as metaphors for aspects of clients' lives (i.e., the way a horse interacts with a client reflects the client's situation in real life). Third, interacting with horses provides opportunities for clients to project or express their emotions. Fourth, horses teach clients boundaries, assertiveness, and leadership. Fifth, in EAP, clients develop the ability to work with large animals which raises clients' self-esteem. Sixth, horses' playfulness helps clients relax and decreases

distress. Seventh, some horses' characteristics are similar to some particular clients' personalities or issues, which can facilitate reciprocal healing between clients and horses.

Equine specialists and EAP research

Frame (2006) interviewed both EAP and EFP mental health practitioners to identify the role of EAP/EFP in treating adolescents with depression, as well as to identify theoretical influences that inform EAP and EFP. The EAP and EFP mental health practitioner participants in this study were also asked to provide their perspectives about the role of equine specialists in EAP and EFP. They primarily identified equine specialists' role as being a kind of 'translator' who objectively observes, describes, and explains horses' behaviours in EAP. All of the interviewed EAP mental health practitioners emphasised the importance of equine specialists as an essential part of the treatment team.

Three of the reviewed studies (Notgrass 2011, Gergely 2012, Gilbert 2013) included equine specialists as research participants. Two of the studies (Notgrass 2011, Gergely 2012) involved a quantitative survey of EAP equine specialists and mental health practitioners. Notgrass' (2011) online survey examined the extent to which certified EAGALA practitioners conform to the EAGALA model of EAP. Of the 328 respondents, 278 (84.8%) did not include mounted activities within their practice, meaning that these respondents conform to the EAGALA model. Gergely's (2012) online survey investigated the programme operations and practices of various nationwide EAT programmes, including but not limited to EAP. Of the 187 respondents, 136 (72.7%) reported practising EAGALA model EAP; 103 (55.1%) reported practising EAGALA model EAL; 47 (25.1%) reported practising EFP; 37 (19.8%) reported practising therapeutic riding; and 32 (17.1%) reported practising EFL. While these studies included both mental health practitioners and equine specialists, they did not examine group differences in their results. Thus far, Gilbert's (2013) research is the only qualitative study to explore EAP equine specialists' experiences in-depth. Gilbert's (2013) findings show that both mental health practitioners and equine specialists have unique roles in EAP that create varied and complex dynamics and sometimes make it challenging for the two to work together. For example, a mental health practitioner may feel fearful of horses, which could cause the equine specialist (whose role is to handle horses in an EAP session) to feel frustrated because the mental health practitioner's fear could make EAP sessions less effective. In contrast, an equine specialist may have difficulty with their role if they feel

overwhelmed when encountering a client's mental health symptoms in an EAP session, and this can also be frustrating to the mental health practitioner. Equine specialists enter this profession from a wide variety of professional backgrounds that may not have anything to do with mental health treatment, whereas EAP mental health practitioners specifically have training and experience in mental health (e.g., as social workers or psychologists). Because of equine specialists' varied professional backgrounds and distinct role in the EAP session, they may have unique and valuable insights that deserve exploration. Future research concerning the experiences of equine specialists will be important for understanding and improving EAP practice.

Discussion

Appraisal of reviewed research

The second aim of our narrative synthesis was to evaluate the quality of existing research, with the larger goal of helping to inform and strengthen future research efforts in this field. Furthermore, this aim adheres to one of the core components of narrative synthesis, which is appraising the quality of reviewed research (Mays *et al.* 2005, Popay *et al.* 2005). The research on EAP to date has certain limitations commonly seen in early, exploratory research. In this section, we discuss the common methodological problem of combining different types of EAT together in one study. We then appraise the survey, experimental and quasi-experimental, and qualitative research included in our narrative synthesis.

The problem of combining different types of equine-assisted therapy together in one study

Many of the reviewed qualitative, quantitative, and mix-methods studies (Esbjörn 2006, Frame 2006, Chardonens, 2009, Gestrin 2009, Schlote 2009, Graves 2010, McConnell 2010, Cepeda 2011, Gergely 2012, Abrams 2013) combined data about different types of EAT together into one study. For example, Esbjörn (2006) surveyed EAT practitioners regarding the perceived major components, benefits, and clinical outcomes of incorporating horses in their practice. This study combined data from practitioners of various types of EAT, including EAP, EFP, therapeutic riding and other types of organisations that develop their own therapeutic modalities. In this survey, practitioners were asked to rank order various components of EFP, although in this study, the term 'equine-facilitated therapy' was intended to be inclusive of a variety of different kinds of EAT. Six

different therapeutic components from different EAT were listed, and participants were asked to rank order these components from most to least important (see Table 5). Means for each component were calculated as an aggregate of all respondents' scores, and there were no separate analyses comparing practitioners from various therapeutic modalities. The calculation of mean scores from data aggregated from practitioners of different types of EAT creates significant interpretive challenges. For example, the component 'horses as a metaphor for other aspects of the client's life' is one of the most important components of EAP (EAGALA 2009). For this reason, the EAP practitioners within the sample may have rated this component particularly highly, perhaps elevating its value among the respondents overall and thereby presenting a false impression of its importance. In contrast, perhaps this component was rated as less important by therapeutic riding instructors because therapeutic riding focuses on teaching riding skills. As another example, EAP uses only groundwork (unmounted activities) (EAGALA 2009). In contrast, because EFP and therapeutic riding do include horseback riding, the practitioners of these approaches would likely value the component 'process of learning to ride a large and powerful animal' more than EAP practitioners. Because EAP uses only groundwork, it is likely that EAP practitioners may have rated 'process of learning to ride a large and powerful animal' as the least important component, perhaps lowering its value among the respondents and falsely diminishing its importance.

However, including several forms of EAT together in one study could potentially be very useful if data

Table 5 Most important components of equine-facilitated psychotherapy (EFP) as judged by questionnaire participants ($N = 35$)

Mean rating*	Most important component when practising EFP
2.53	Horses as a metaphor for other aspects of the client's life
2.55	Relationship that develops between the horse and the client
2.63	Behaviour of the horse and how this impacts the client
4.46	Increased confidence a client develops in learning about horses
4.53	Archetypal imagery that is brought forth by horses
5.26	Process of learning to ride a large and powerful animal

Table excerpted directly from Esbjörn (2006, p. 62).

*Participants rated components on a scale from 1 (most important) to 6 (least important).

analysis allows for the comparison and contrast of treatment approaches and effects across EAT treatment modalities. A nice example of this is seen in Frame's (2006) qualitative study, which explored the differences between the incorporation of mounted work, which is only used in EFP, and groundwork, which is used in both EAP and EFP. This study found that mounted work was practised to help clients build self-esteem. Groundwork, by comparison, was practised for individuals who had the goal of becoming more aware of themselves, and for family and group members who had the goal of becoming more aware of their interpersonal communications through feedback from horses.

Appraisal of reviewed survey research

Nine of the reviewed quantitative, qualitative and mixed-methods studies (Esbjörn 2006, Gestrin 2009, Schlotte 2009, McConnell 2010, Cepeda 2011, Notgrass 2011, Gergely 2012, Lujan 2012, Ledbetter 2013) involved surveys, and many of these had the significant methodological limitation of a low response rate or small sample size. These studies used mailed or online surveys, and had response rates ranging from 8.57% to 100%. Babbie (1990) suggests that in mailed surveys, a response rate of 60% is good and 70% is very good. Petchenik and Watermolen (2011) found that online surveys typically have an 11% lower response rates than mailed surveys, so it seems reasonable to suggest that for online surveys, a 50% response rate would be good and 60% very good. Based on these recommendations, four (Gestrin 2009, McConnell 2010, Notgrass 2011, Gergely 2012) of the nine reviewed studies have low response rates, which is problematic because low response rates biases a sample's representation of the target population and jeopardises the ability to generalise findings (Sivo *et al.* 2006).

Also problematic are the very small sample sizes seen in Gestrin's (2009) and Ledbetter's (2013) studies. Gestrin's (2009) study only had four participants who identified the critical elements in a curriculum for EAT with traumatised adolescents in a residential treatment programme for youth and their families. Ledbetter (2013) used snowball sampling to recruit two participants who evaluated an EAP intervention guide. Certainly, the extremely small sample sizes in these studies make it difficult, if not impossible, to draw any meaningful conclusions from their results.

Appraisal of reviewed experimental and quasi-experimental research

This narrative synthesis includes three randomised experimental studies (Shultz 2005, Whitely 2009,

Frederick 2012) and three quasi-experimental studies (Tetreault 2006, Schultz *et al.* 2007, Trotter *et al.* 2008). Tetreault (2006) and Schultz *et al.* (2007) each used a single-group pretest–posttest design without a second comparison group. The lack of a comparison group in either of these studies makes it difficult to conclude that any changes seen in the experimental groups were due to the interventions, thus presenting a threat to internal validity (Gliner *et al.* 2009). The single-group pretest–posttest design, in particular, presents the maturation threat to internal validity, wherein the changes in the group members could be due to their own development over time, rather than being due to the intervention (Gliner *et al.* 2009). This is particularly a problem with research concerning children and adolescents, because they are quickly maturing.

Shultz (2005), Whitely (2009), and Frederick (2012) conducted randomised experimental studies to examine the therapeutic outcome of EAP or EAL with at-risk adolescents. In Shultz's (2005) study, some participants in the experimental (EAP) group only received EAP, while others received both talk therapy and EAP. Conversely, some participants in the control group received talk therapy, while others did not receive any therapy. Participants in the experimental group had significantly better psychosocial functioning at posttest. However, the use of talk therapy in both experimental and control groups, and the fact that some participants in the control group received no therapy at all, make it very difficult to conclude that the differences in the experimental group are due to EAP.

In Whitely's (2009) study, there were 10 participants in the experimental treatment group and another 10 participants in the control group. Only seven participants completed the treatment in the first group and three participants finished the treatment in the control group. Although there was a significant difference across both groups in the Y-OQ-2.0 guardian measure, it is very possible that the high attrition from these (particularly the control group) led to a biased posttest score (Gliner *et al.* 2009). High overall attrition during the study can decrease internal validity. For example, it could have been that the experimental group participants for whom the treatment was least effective were the ones who quit the study, thus making the treatment appear more effective than it actually was.

In Frederick's (2012) study, there were only five EAL sessions to deal with adolescents' deep emotional problems, such as depression and low self-efficacy. An inadequate number of sessions could explain why the treatment group did not significantly

increase from the pretest to posttest on the Generalised Self-efficacy Scale and did not significantly decrease from pretest to posttest on the Major Depression Inventory. On the other hand, perhaps EAP, which involves mental health treatment, should have been used in this study instead of EAL, which emphasises learning goals over treatment goals. This is another possible explanation for why the treatment group did not show significant improvement in self-efficacy or diminished depression.

Appraisal of reviewed qualitative research

Rigour in qualitative research is as important as it is in quantitative research. Barker and Pistrang (2005) provide a set of criteria for assessing the extent to which qualitative research is systematic and rigorous. Together, these criteria allow the qualitative researcher to demonstrate 'trustworthiness', or believability, in the conclusions drawn from his or her research (Lincoln & Guba 1985; Barker & Pistrang 2005). Barker & Pistrang (2005) identify various criteria for demonstrating trustworthiness in qualitative research. First, the researcher should provide a *disclosure of perspective*, in other words, a discussion of personal characteristics (e.g. gender, ethnic background, or personal experience with the phenomenon being studied) that may have been influential to the researcher. Providing this allows the reader to better evaluate the conclusions drawn from the research. Devon (2011), Frame (2006), Lujan (2012), Esbjörn (2006) and Stiltner (2013) discussed their experiences and characteristics, while Abrams (2013), Chardonnens (2009), Dell *et al.* (2011), Gilbert (2013) and Pugh (2010) failed to disclose information about their backgrounds.

A second dimension identified by Barker and Pistrang (2005) for demonstrating trustworthiness of qualitative research is *grounding interpretations in the data*, in other words providing sufficient examples from the original data to justify the researcher's findings. This allows the reader to assess for himself or herself the degree to which the data fit the researcher's interpretations of the data, and it also allows the reader to consider alternate possible understandings. Abrams (2013), Dell *et al.* (2011), Esbjörn (2006), Frame (2006), Gilbert (2013), Lujan (2012), Pugh (2010), and Stiltner (2013) are strong examples of grounding interpretations in the data, whereas Devon (2011) sometimes claimed findings without providing any quotations from participants to justify these findings.

The third criterion discussed by Barker and Pistrang (2005) for demonstrating trustworthiness in qualitative research is *coherence of interpretive framework*, in which:

Ideas that are induced from the data are presented within a logically coherent structure and fully address the complexity of the phenomenon under study. (p. 208)

This goes beyond presenting data in simple categories and into a higher level of analysis that presents data in a way that is complex, integrated, and illuminating. Devon (2011) and Esbjörn (2006) simply reported the findings by gathering the answers from each interview questions. In contrast, Abrams (2013), Dell *et al.* (2011), Frame (2006), Lujan (2012), Gilbert (2013), Pugh (2010), and Stiltner (2013) demonstrated a higher level of data analysis by identifying and defining more complex themes.

Suggestions for future EAP research

Here, we provide several suggestions for future EAP research based on our synthesis of the research literature. First, there is a need for rigorous experimental and quasi-experimental research designs to help determine the effectiveness of EAP for particular clinical issues and populations. This research should avoid the limitations of the experimental and quasi-experimental studies reviewed in this synthesis. Specifically, future studies should include randomly assigned treatment and control groups, should not combine multiple interventions given to treatment and control groups, and should involve enough exposure to the treatment to allow any true treatment effect to be generated. It is especially important that future EAP research with children and adolescents not use single-group pretest–posttest designs due to the internal validity threat of maturation noted above.

Furthermore, additional research is needed to explore the effectiveness and use of EAP for different clinical populations. For example, there are very few studies that examine the effectiveness of EAP for any particular clinical problem, such as autism (Graves 2010), depression (Frame 2006), trauma or posttraumatic stress disorder (Gestrin 2009, Abrams 2013), substance abuse or dual diagnosis (Dell *et al.* 2011, Stiltner 2013), family violence (Schultz *et al.*, 2007), ADHD (Devon, 2011), and risk for academic or social failure (Trotter *et al.* 2008, Frederick 2012). Thus, much more research is needed to learn whether and how EAP can be effectively used for any given clinical concern. Furthermore, much of the reviewed research uses vague or general terminology, for example using the term 'at-risk' (Shultz 2005, Whitely 2009, Pugh 2010) without a clear, measurable definition of what participants are at risk for. Research in this field needs to clearly define, specify, and operationalise presenting concerns to precisely identify

whether and how EAP impacts individuals with these presenting concerns.

As noted above, there is also a need for further research to explore the potential value and benefits of EAP for different age groups, for example in early childhood or for older adults. Future research is needed to determine whether there is further support for the preliminary finding (Schultz *et al.* 2007) that EAP may be a particularly effective intervention in early childhood. We have not identified any research that examines the implementation and effectiveness of EAP among older adults. Older adults may have particularly high identified stigma in relation to mental health concerns (Conner *et al.* 2010), and stigma has been found to be a barrier to people receiving mental health services (Vogel *et al.* 2009). EAP has the proposed benefit of involving a less stigmatising setting for providing mental health services than does traditional office-based services. Thus, EAP could prove to be a valuable area for mental health treatment for older adults.

One of the most significant limitations in the reviewed studies was the tendency for researchers to combine data from different equine-assisted modalities based on researchers' intention to represent the diversity in EAT. This is an admirable goal, but must be balanced with appropriate data collection, analysis, and presentation. For example, a valuable direction for future experimental research would be to compare both EAP and EFP modalities because so far no research has differentiated between the effectiveness of EAP and EFP in various populations. Although Frame (2006) made a valuable contribution by separating groundwork and mounted work in this analysis, her study was more concerned with the actual practice of EAP/EFP than with comparing differences in effectiveness between both modalities.

Moving the field of EAP forward will require sound, rigorous approaches to both qualitative and quantitative research. This is a particularly salient point with respect to qualitative research; because EAP is still so new and innovative, it is not yet on the 'radar' of traditional funding sources for large scale, typically quantitative research. The costs involved with carrying out experimental research, and the limited available research funding for EAP, will lead many researchers towards using qualitative methods when studying EAP. One area that is ripe for qualitative enquiry concerns equine specialists' perspectives. An EAP team consists of a mental health practitioner, an equine specialist, and at least one horse. The researchers who conducted the studies included in this research synthesis were primarily mental health practitioners from social work, counsel-

ling and psychology, rather than equine specialists. Because EAP is inherently interdisciplinary in nature (with a mental health practitioner and an equine specialist on each team), it is important that future research include equine specialists as participants, so their unique perspectives are presented.

Finally, there are several important considerations regarding conceptualisation and language choice when incorporating horses into mental health treatment. During the process of synthesising these studies, we found the need to clarify the conceptual relationship between animals and EAP practitioners (mental health practitioners and equine specialists). Incorporating animals into mental health treatment and considering their roles in human development represents a paradigm shift from an anthropocentric perspective, which emphasises the inherent value of humans, to a biocentric perspective, which emphasises the inherent value of all organisms (Besthorn & Saleebey 2003, Walsh 2009). There is a need for theory-building work that further explores and delineates the role of horses in the EAP process. In a related vein, it is important for EAP practitioners and researchers to pay attention to the terminology given to the horses who are incorporated into EAT. Several of the reviewed studies (Chardonnens 2009, Gestrin 2009, McConnell 2010, Pugh 2010, Cepeda 2011, Lujan 2012) adopt the term 'use' to describe the incorporation of horses into EAP. For example, the introduction of the research in Cepeda's (2011) dissertation states:

The purpose of this clinical application was to devise a manual for psychotherapists on how to incorporate EAP in their practice, specifically with the use of miniature horses. (p. v)

Choosing the word 'use' to describe the incorporation of horses into EAT reflects an anthropocentric perspective, related to the exploitation of animals for humans' needs. The Society and Animals (2013) suggests that researchers use language that is respectful of our relation to other species, for example using 'pet caretakers' instead of 'pet owners'. Careful attention to language should similarly occur in EAP practice and research.

Conclusion

Since its inception in 1999, EAP has quickly grown in popularity and is now practised in 49 countries by over 4000 practitioners (EAGALA 2013). However, EAP research is still in its infancy. At the time of writing, we were able to identify four studies published in peer-reviewed journals, and 20 unpublished master's theses and doctoral dissertations that were

directly related to EAP practice. We suggest that as this body of empirical research is limited, recent, and weighed towards theses and dissertations, it is also predominantly small-scale, exploratory, and of varying quality. Future, rigorous research is needed to build the evidence base for this increasingly popular and innovative emerging mental health treatment.

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