Effectiveness of Animal-Assisted Therapy in Improving PTSD Symptoms Among Children

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Research Summary

Symptoms of Post-Traumatic Stress Disorder (PTSD) can impact a child's development and overall functioning throughout the lifespan (Downey & Crummy, 2022). PTSD symptoms can have adverse effects on one's overall well-being, family systems, interpersonal relationships, cognitive functioning, emotional regulation, and development of co-occurring conditions (Hamama et al., 2011; Maoz et al., 2021; Muela et al., 2019). As many non-pharmacological interventions appear to be increasing in research, animal-assisted therapy (AAT), also referred to as animal-assisted interventions (AAI), has gained popularity. AAT is a goal-oriented intervention directed and delivered by healthcare professionals and a skilled and well-trained animal (Dietz et al., 2012; Signal et al., 2017). AAT promotes the foundation of the human-animal connection to facilitate a safe and trusting environment (Dietz et al., 2012). This review seeks to explore the significance of AAT in improving PTSD symptoms in children.

This literature review includes six quantitative studies (Balluerka et al., 2014; Dietz et al., 2012; Hamama et al., 2011; Krause-Parello et al., 2018; Maoz et al., 2021; Muela et al., 2019), one qualitative study (Parish-Plass, 2008), and one mixed-method design (Signal et al., 2017). Of the seven that were quantitative, six were quasi-experimental (Balluerka et al., 2014; Dietz et al., 2012; Hamama et al., 2011; Maoz et al., 2021; Muela et al., 2019; Signal et al., 2017) and one was a randomized controlled trial (Krause-Parello et al., 2018). The studies took place in a variety of settings, including child advocacy centers (Dietz et al., 2012; Krause-Parello et al., 2018), a sexual abuse (SA) treatment center, a shelter for the protection of children and animals(Signal et al., 2017), schools (Hamama et al., 2011; Maoz et al., 2021; Parish-Plass, 2008), a public park (Hamama et al., 2011), an emergency shelter, group home, community-space, zoo (Parish-Plass, 2008), a barn (Balluerka et al., 2014), and social services' domestic violence and child protection team locations (Muela et al., 2019).

While our primary goal was to understand the effect of AAT on PTSD symptoms, only three of the studies included participants who had a formal PTSD diagnosis (Dietz et al., 2012; Hamama et al., 2011; Maoz et al., 2021). The remaining studies examined psychological distress from traumatic experiences such as sexual abuse and domestic violence (Hamama et al., 2011; Muela et al., 2019; Signal et al., 2017) and youth with behavior disorders and depressive anxiety disorders from childhood maltreatment (Balluerka et al., 2014), which are components of PTSD. The ages of the participants ranged from 4 to 17, with a majority of the studies ranging from 10 to 17 (Balluerka et al., 2014; Dietz et al., 2012; Hamama et al., 2011; Krause-Parello et al., 2018; Maoz et al., 2021; Muela et al., 2019; Signal et al., 2017). Additionally, across all of the studies, gender representation consisted of 62 male and 77 female participants.

All eight studies utilized canines in treatment (dogs), while two incorporated a more diverse selection of animals (cockatiels, hamsters, rats, horses) (Balluerka et al., 2014; Parish-Plass, 2008). The canine-specific studies used interventions involving child-canine interactions through emotional expressive activities (Hamama et al., 2011; Muela et al., 2019; Signal et al., 2017), dog training (Hamama et al., 2011; Maoz et al., 2021), developing a sense of responsibility and relationships through child-facilitated interactions (Hamama et al., 2011; Krause-Parello et al., 2018; Maoz et al., 2021; Signal et al., 2017), and bibliotherapy (Dietz et al., 2012). The studies with canines *and* other animals utilized strategies related to interpersonal relationships, including child-directed play to promote autonomy, boundary development, and attachment (Balluerka et al., 2014; Parish-Plass, 2008). Of the eight studies, six utilized a group format (Balluerka et al., 2014; Dietz et al., 2012; Hamama et al., 2011; Signal et al., 2017; Maoz et al., 2021; Muela et al., 2019), and two studies used an individual approach (Krause-Parello et al., 2018; Parish-Plass, 2008). The interventionists included psychologists (Maoz et al., 2021; Muela et al., 2019), a psychiatrist (Maoz et al., 2021), an animal-assisted therapist (Hamama et al., 2011; Parrish-Plass, 2008), and student social workers overseen by a master's social worker (Hamama et al., 2011). Two studies mentioned the integration of Bowlby's Attachment Theory in AAT highlighting the emotional attachment and support children seek with caregivers and animals (Balluerka et al., 2014; Parish-Plass, 2008).

The length, frequency, and duration of AAT varied across studies, ranging from fourteen 60-minute sessions (Muela et al., 2019), ten weekly 90-minute sessions (Signal et al., 2017), twelve weekly 180-minute sessions (Hamama et al., 2011), and three to five weekly sessions occurring for an unknown number of minutes across 12 months (Maoz et al., 2021). The remaining studies lacked specificity in length, frequency, and duration but spoke to the large variability of AAT provision. These studies included 12 AAT sessions occurring at any point during treatment (Dietz et al., 2012), sessions to 3 years (Parish-Plass, 2008), and 34 sessions (Balluerka et al., 2014). In one study, the length, frequency, and duration specifications were completely excluded (Krause-Parello et al., 2018). Overall, AAT interventions ranged from one to five times a week for 60 to 180 minutes, lasting ten weeks to three years, with a range of ten to 34 sessions.

Several outcomes were measured throughout the eight studies, with trauma, depression, and PTSD being the most common. Trauma was measured using the Trauma Symptom Checklist for Young Children (TSCYC; Signal et al., 2017), the Trauma Symptom Checklist for Children (TSCC; Dietz, 2012), and the DMS-IV (A1 and A2 criteria; Hamama, 2011). Depression was measured using the Short Center for Epidemiologic Studies Depression Scale (SCESCD; Hamama, 2011) and the Beck Depression Inventory 2 (BDI-II; Maoz et al., 2021). PTSD symptoms were measured using the PTSD Checklist-Civilian version (PCL-C; Hamama et al., 2011) and the Clinician Administered PTSD Scale for Children and Adolescents (CAPS-CA; Maoz et al., 2021). Coping with stress was measured using a five-point Likert scale (Hamama et al., 2021). Stress levels were measured through self-report and by collecting salivary samples analyzing cortisol levels, salivary alpha-amylase (sAA), and immunoglobulin A (IgA), as well as monitoring heart rate and blood pressure (Kraus-Parello et al., 2018). Well-being was measured through a four-point Likert scale (Hamama et al., 2011). Attachment was measured using the reduced version of the CArtes-Modèles Individuels de Relations questionnaire (CaMir; Balluerka et al., 2014). Behavior was measured using the Spanish version of the Child Behaviour Checklist (CBCL; Muela et al., 2019). Finally, emotional and attentional dysregulation were measured using the Auditory Sustained Attention Test (ASAT) and acoustic startle reflex (Maoz et al., 2021).

Throughout the studies, notable changes were observed, such as significant improvements in overall post-traumatic stress symptoms (Dietz et al., 2012; Hamama et al., 2011; Maoz et al., 2021; Muela et al., 2019; Signal et al., 2017), dissociation (Dietz et al., 2012; Maoz et al., 2021; Signal et al., 2017), arousal (Maoz et al., 2021, Signal et al., 2017), avoidance (Maoz et al., 2021, Signal et al., 2017), intrusion (Signal et al., 2017), internalizing/externalizing symptoms (Muela et al., 2019), anxiety (Dietz et al., 2012), anger (Dietz et al., 2012), re-experiencing symptoms (Maoz et al., 2021), cognition (Maoz et al., 2021), mood (Maoz et al., 2021), and attentional regulation (Maoz et al., 2021). Emotional regulation had both significant (Maoz et al., 2021) and non-significant findings (Muela et al., 2019). Depression also had significant (Dietz et al., 2012; Maoz et al., 2021) and non-significant findings (Hamama et al., 2011). For attachment, significant improvements were only found in secure attachment, while no significant improvements were found for other dimensions of attachment (Balluerka et al., 2014). No significant improvements were found for subjective well-being (Hamama et al., 2011), coping (Hamama et al., 2011), sexual concerns (Dietz et al., 2012), and salivary biomarkers (salivary cortisol, sAA, IgA;

Krause-Parello et al., 2018). Five themes emerged from two of the eight studies, including that animal interactions influenced children's interpersonal relationships (Parish-Plass, 2008), communication of traumatic events was strengthened through role-playing within AAT (Parish-Plass, 2008; Signal et al., 2017), and familial relations, behavior, academics, and overall mood improved through AAT (Signal et al., 2017).

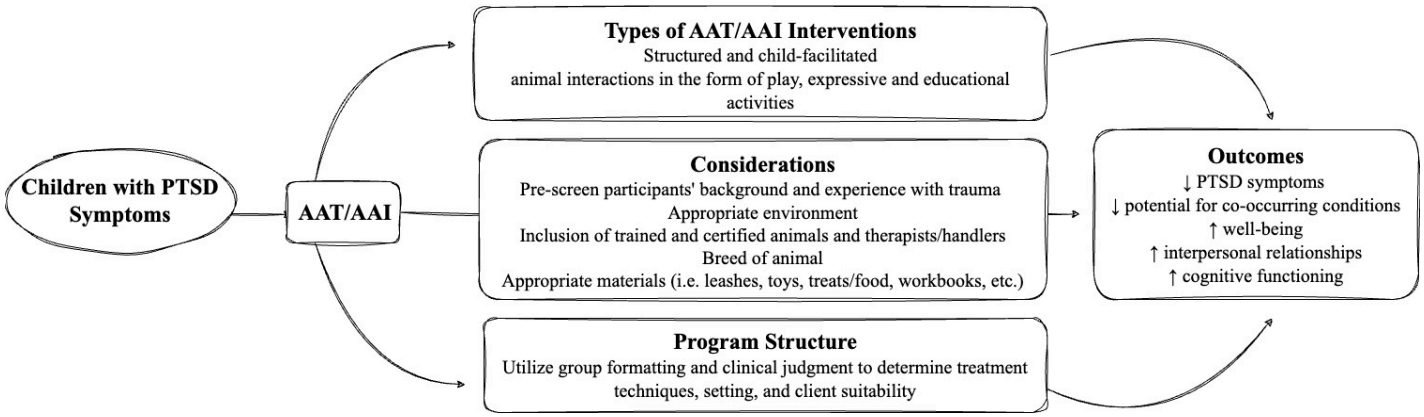
Common limitations across the eight studies included small sample sizes (Hamama et al., 2011; Krause-Parello et al., 2018; Maoz et al., 2021; Muela et al., 2019; Parish-Plass, 2008; Signal et al., 2017), lack of a control group (Dietz et al., 2012; Muela et al., 2019), unfeasible random assignment (Balluerka et al., 2014; Dietz et al., 2012; Hamama et al., 2011; Maoz et al., 2021), lack of diverse ethnic representation (Signal et al., 2017), absence of specificity concerning session length, duration, and client history (Parish-Plass, 2008), and lack of variety among the participants' backgrounds, setting, dog-breed, and clinician type (Krause-Parello et al., 2018).

Further research suggests implementing group assignment after pre-test scores to better balance control and experimental groups (Dietz et al., 2012), using a multi-site approach (Krause-Parello et al., 2018; Maoz et al., 2021; Muela et al., 2019; Signal et al., 2017), implementing follow-ups to further examine program effectiveness (Signal et al., 2017), and addressing specifications of mediational effects such as participants backgrounds, dog breed, group dynamics, duration, severity, and perpetrator of abuse, family environment, child characteristics, length and type of treatment, and facilitation techniques for specific setting characteristics and roles that canines play in the intervention itself (Dietz et al., 2012; Krause-Parello et al., 2018; Signal et al., 2017).

Knowledge Translation Plan

Recreational Therapists (RTs) should consider utilizing AAT when working with children with PTSD symptoms based on the evidence gathered from the literature. AAT improves symptoms of PTSD and positively impacts well-being, interpersonal relationships, cognitive functioning, emotional regulation, and reduces the potential for co-occurring conditions (Hamama et al., 2011; Maoz et al., 2021; Muela et al., 2019). RTs should consider implementing AAT to provide meaningful interactions and a trusting environment to influence a child's relationships, processing/communication of traumatic events, and psychosocial well-being (Parish-Plass, 2008; Signal et al., 2017). To safely reinforce the human-animal bond, RTs should aim only to use trained and certified animals with therapists trained in AAT. Canines were the most prevalent assistive animals studied within the literature, which supports this animal's appropriateness to be utilized within structured and child-facilitated animal interactions in the form of play (Balluerka et al., 2014; Hamama et al., 2011; Krause-Parello et al., 2018; Maoz et al., 2021; Parish-Plass, 2008; Signal et al., 2017), and expressive (Hamama et al., 2011; Muela et al., 2019; Signal et al., 2017) and educational activities (Dietz et al., 2012; Hamama et al., 2011; Maoz et al., 2021). Still, RTs can consider using animals in other settings during treatment with close supervision (e.g., zoos) and should strongly consider the type and breed of animal used in therapy as this can directly impact the treatment outcome (Dietz et al., 2012; Hamama et al., 2011; Muela et al., 2019; Parish-Plass, 2008; Signal et al., 2017).

RTs should use clinical judgment to determine treatment techniques, setting, client suitability, and materials such as leashes, toys, brushes, food, etc., to help facilitate canine-child interactions (Parish-Plass, 2008) along with workbooks for the participants to complete activities (Muela et al., 2019; Signal et al., 2017). The research provided a variation of intervention length, duration, and frequency, so RTs should consider their agency's programming availability when creating a treatment plan. A group-based format would best support the intervention structure in maximizing outcomes due to the interpersonal interaction and peer support provided (Balluerka et al., 2014; Dietz et al., 2012; Hamama et al., 2011; Signal et al., 2017; Maoz et al., 2021, Muela et al.,2019). However, therapists should be mindful when considering a group approach and pre-screen the type of trauma experienced and child demographics to create an appropriate environment for therapy (Dietz et al., 2012; Krause-Parello et al., 2018; Signal et al., 2017).



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