Systematic Review on Animal-Assisted Therapy for Children Affected by Sexual Abuse

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By

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Abstract

Child sexual abuse (CSA) is a pervasive public health issue with profound psychological consequences. Traditional talk-based therapies often face limitations due to the mistrust, shame, and avoidance common among survivors. Therefore, this creates a need for complementary interventions. This qualitative narrative systematic review aims to explore the effectiveness and therapeutic mechanisms of Animal-Assisted Therapy (AAT) in addressing the psychological impact of CSA. It furthermore looks at the factors that might influence the success or limitation of AAT interventions in CSA treatment. Guided by the seven-step systematic review framework proposed by Petticrew and Roberts (2006), the review employed an interpretative thematic analysis (Braun & Clarke, 2006) to synthesise findings from fourteen studies published between 1994 and 2024 that were primarily conducted in the United States, Australia, and Israel. These studies provided both quantitative and qualitative evidence on AAT's role in trauma recovery among CSA survivors aged 4 to 17 years. Three overarching themes emerged: First, key therapeutic mechanisms were identified: the therapy animal provides psychological and physiological safety, which serves as a social bridge to facilitate communication and enables indirect emotional expression. Second, implementation factors, notably the structured integration of the animal into the therapeutic model and therapist competency, were evaluated to be determinants of success. Third, consistent clinical outcomes included significant reductions in PTSD, anxiety, and behavioural symptoms, coupled with exceptionally high treatment engagement and near-zero dropout rates. The review concludes that AAT is an effective complementary intervention for CSA survivors. Its efficacy is rooted in the animal's unique ability to establish a foundation of safety that bypasses verbal barriers and fosters therapeutic engagement.

Keywords: Animal-assisted therapy, AAT, child sexual abuse, CSA, systematic review

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AAA	Animal-Assisted Activities
AAI	Animal-Assisted Interventions
AAS	Animal-Assisted Services
AASP	Animal-Assisted Support Programs
AAT	Animal-Assisted Therapy
AATx	Animal-Assisted Treatment
AVMA	American Veterinary Medical Association
CBT	Cognitive Behavioural Therapy
CSA	Child Sexual Abuse
EMDR	Eye Movement Desensitization and Reprocessing
HAB	Human-Animal Bond
IAHAIO	International Association of Human-Animal Interaction Organization
JBI	Joanna Briggs Institute

MMAT	Mixed Methods Appraisal Tool
PTSD	Post-Traumatic Stress Disorder
RQ	Research Question
TF-CBT	Trauma-Focused Cognitive Behavioural Therapy
WHO	World Health Organization

Glossary

Animal-assisted activity (AAA): A less formal intervention that provides motivational, educational, recreational, and/or therapeutic opportunities to enhance quality of life, but it is not necessarily individualised or documented (Villafaina-Domínguez et al., 2020)

Animal-assisted interventions (AAI): The historically and currently widely used umbrella term encompassing the intentional and meaningful integration of animals into human health, well-being, or educational interventions (Villafaina-Domínguez et al., 2020).

Animal-assisted services (AAS): An umbrella term referring to structured services in which qualified professionals intentionally incorporate appropriately prepared animals into therapeutic, educational, or supportive processes to promote human well-being while ensuring animal welfare (Binder et al., 2024).

Animal-assisted support programs (AASP): A category within AAS to replace the term AAA, referring to programs in which animals are included directly or indirectly to provide support, motivation, comfort, or social engagement, without providers needing to be credentialed (Binder et al., 2024).

Animal-assisted therapy (AAT): A goal-directed intervention in which an animal meeting specific criteria is an integral part of the treatment process (Fine, 2015).

Animal-assisted treatment (AATx): The updated terminology proposed by Binder et al. (2024) to replace AAT, referring to structured, goal-directed health treatment in which qualified professionals incorporate animals as part of therapeutic practice within their scope of practice.

Attention agents: A term introduced by Odendaal (2000) to describe the innate biological need for affiliative attention that exists across species. It reflects the idea that both humans

and animals require and benefit from giving and receiving attention within social interactions. When this need is met, it promotes feelings of safety, belonging, and emotional balance (Odendaal, 2000, 2008).

Biophilia: A hypothesis suggesting that humans possess an innate tendency to seek connections with nature and other living organisms. This natural affinity promotes psychological well-being and emotional restoration through contact with living systems (Wilson, 1984; Kellert & Wilson, 1995).

Child sexual abuse: The involvement of a child in sexual activities that they are not developmentally prepared to comprehend or are incapable of giving informed consent. These acts often infringe upon societal legal standards and cultural norms concerning sexual behaviour (Rohanachandra, 2021; WHO, 1998).

Human-animal bond: The mutually beneficial and dynamic relationship between people and animals that is influenced by behaviours essential to the health and well-being of both species (American Veterinary Medical Association, n.d.) The realisation of the world.

Posttraumatic Stress Disorder (PTSD): A psychiatric diagnosis characterised by a specific constellation of symptoms (e.g., flashbacks, hypervigilance, avoidance) that may manifest following the experience or observation of a life-threatening event, such as a disaster or assault (Association, 2022).

Social symbiosis: A concept proposed by Odendaal (2008) describing the mutually beneficial emotional and physiological relationship between humans and animals.

Chapter 1: Introduction

1.1 Background and context

Child sexual abuse (CSA) is a profound public health crisis with devastating short- and long-lasting psychological consequences(Alcantara et al., 2019; Mathews, 2018; Trickett et al., 2011). For survivors, the path to healing is often obstructed by the very nature of their trauma: a deep-seated mistrust of adults, intense shame, and a paralysing avoidance of traumatic memories (Finkelhor & Browne, 1985; Murphy et al., 2013; Parish-Plass, 2008). These barriers frequently render traditional, talk-based therapies ineffective, leading to high dropout rates and unresolved trauma. In response to these challenges, Animal-assisted Therapy (AAT) has emerged as a promising complementary intervention that leverages the unique capacity of animals to bypass verbal defences and establish a foundation of safety, thereby supporting children who have experienced trauma (Moe, 2024; O'Haire et al., 2015).

AAT involves the integration of a trained animal (most commonly a dog) into a structured therapeutic setting to help achieve specific emotional and behavioural goals (Fine, 2015). Research has shown that the calm and responsive nature of animals fosters a sense of psychological and physiological safety, which can in turn reduce anxiety and help children begin to express themselves (Eggiman, 2006; Howell et al., 2021; Reichert, 1998).

As Zilcha-Mano et al. (2011) noted, the therapy animal may serve both as a secure base, from which the child can explore their environment, and as a safe haven, to which the child can return when they experience distress or perceive threat. Furthermore, Reichert (1998) observed that the animal can function as a transitional object that allows children to communicate their feelings through the animal instead of speaking directly to the therapist, who can be perceived as intimidating (Reichert, 1998). AAT is supported by multiple

theories, including biophilia, attachment, and neurobiological mechanisms (Reilly et al., 2024; Zilcha-Mano et al., 2011). The psychological and physiological benefits of human–animal interaction have been widely documented. Studies have shown that spending time with animals can reduce anxiety and heart rate, lower cortisol, and increase oxytocin, which is associated with attachment and calm (Krause-Parello & Gulick, 2015; Odendaal, 2000). For children who have experienced CSA, these mechanisms may be particularly important, as they create the conditions of safety and emotional regulation necessary for therapeutic engagement.

1.2 Rationale for the Study

Preliminary reviews indicate that the evidence base for AAT in the treatment of child CSA remains relatively small and methodologically heterogeneous. Systematic reviews previously done have provided valuable insight into the potential benefits of AAT; however, these systematic reviews primarily place CSA within a broader context of trauma (Germain et al., 2018; Hediger et al., 2021; O'Haire et al., 2015). Therefore, highlighting the importance of closely analysing the effectiveness of AAT in meeting the needs of children impacted by CSA.

Furthermore, a master's thesis done by Johnston (2021) provides a useful overview of the integration of therapy dogs into interventions for sexually abused children. The thesis is framed as a practice-oriented manual that puts emphasis on psychoeducation and the emotional benefits of animal-assisted interventions (AAI); however, the thesis primarily draws from literature published prior to 2018 and did not follow a formal systematic review methodology structure. Additionally, the thesis primarily focused on anxiety reduction, and it did not focus on the broader psychological outcomes and the mechanisms underlying change (Johnston, 2021).

A more recent systematic review that was conducted by Thorne (2024) examined the integration of AAT into trauma-focused interventions for CSA survivors. The review found that the inclusion of AAT contributes to significant therapeutic benefits, which include marked reductions in symptoms of post-traumatic stress disorder (PTSD) and anxiety, along with better engagement and fewer dropouts during therapy. However, the review's synthesis was primarily quantitative and focused on outcomes, which offered limited insight into the mechanisms underlying these effects. Therefore, it left an important conceptual gap in understanding how AAT works, specifically looking at the mechanisms through which the presence of an animal fosters safety, emotional regulation, and trust within the therapeutic context that could speak to the factors that provide success or failure of this type of intervention.

Taken together, these studies highlight the need for a more theory-driven synthesis of AAT within CSA treatment contexts. The present review thus addresses that gap through the use of a qualitative, narrative systematic review that examines both the effectiveness of AAT and the therapeutic mechanisms that underpin its impact on the psychological recovery of CSA survivors.

1.3 Aim and Research Questions

The aim of this study is to explore the effectiveness and therapeutic mechanisms of AAT in addressing the psychological impact of child sexual abuse. The articles included in this review aimed to address the following research questions:

1. How effective is AAT in addressing the psychological impact of CSA in children?
2. What factors influence the success or limitations of AAT interventions in CSA treatment?

1.4 Outline of Thesis

The remainder of the review is structured in the following way:

Chapter 2: Literature review

The literature review examines CSA and details its impacts and the limitations of traditional therapeutic approaches. AAT follows as a promising complementary approach. The chapter provides an overview of what AAT entails, including the core components and the theoretical underpinnings of AAT, and furthermore differentiates it from other animal interventions. Lastly, the chapter provides an overview of research on AAT's application in CSA cases while also acknowledging critical ethical considerations and identifying significant gaps in the current literature, such as a lack of long-term and culturally specific studies.

Chapter 3: Methodology

The chapter outlines the methodological framework that guides this review. It explains the constructivist-interpretivist paradigm and details the qualitative narrative systematic review used, which was guided by the seven-step framework of Petticrew and Roberts (2006). Furthermore, the chapter gives a clear step-by-step synthesis process that ensures methodological rigour and transparency.

Chapter 4: Results

Chapter 4 presents the findings that were derived from the included studies, which include an overview of the methodological quality of the included studies, as well as an overview of their demographic and methodological characteristics. The results are organised into three overarching themes: therapeutic mechanisms, implementation factors, and clinical outcomes of AAT in the context of CSA.

Chapter 5: Discussion

This chapter interprets the findings in relation to the existing literature and theoretical frameworks outlined in Chapter 2. It explores how AAT may facilitate psychological healing among survivors of child sexual abuse (CSA), integrating the results within broader conceptual perspectives. The chapter also acknowledges the study's limitations and outlines directions for future research.

Chapter 2: Literature Review

2.1 Introduction

CSA is a pervasive issue that leads to significant psychological, developmental, and relational consequences. While traditional approaches such as Cognitive Behavioural Therapy (CBT), particularly Trauma-Focused Cognitive Behavioural Therapy (TF-CBT), are commonly used for CSA cases, they are not always effective or suitable for every child. In this context, AAT, which leverages the bond between humans and animals, has emerged as a promising alternative. AAT may enhance engagement and provide emotional safety for CSA survivors. This chapter reviews the definitions, prevalence, and impacts of CSA, examines existing therapeutic approaches, and explores the potential role of AAT as an effective psychological intervention.

To ground this review, the next section clarifies what constitutes CSA, how often it occurs, and the contexts in which it happens.

2.2 Understanding Child Sexual Abuse (CSA)

An alarming statistic, as indicated by Ritblatt and Hokoda (2022), shows that approximately one out of every four girls and one out of every thirteen boys will experience sexual abuse before reaching the age of eighteen. Recent reviews have sought to better estimate the prevalence of child sexual abuse worldwide. A large-scale systematic review and meta-analysis of 165 national-level studies covering 958,182 children across 80 countries found that the global lifetime prevalence of sexual harassment against children is approximately 11%, while 9% reported contact sexual violence, and 6% reported completed forced sexual intercourse (Piolanti et al., 2025). Indeed, CSA transcends geographical boundaries, impacting children worldwide (Alcantara et al., 2019). A meta-analysis carried out by Pereda et al. (2009) found that Africa specifically has the highest prevalence rates of

CSA. Furthermore, in South Africa, despite having progressive legislation put in place across child and protection areas, the rate of violence against children remains one of the highest in the world (Naidoo & Van Hout, 2021).

CSA is broadly defined as the involvement of a child in sexual activities that they are not developmentally prepared to comprehend or incapable of giving informed consent, these acts often infringe upon societal legal standards and cultural norms concerning sexual behaviour (Rohanachandra, 2021; WHO, 1998). CSA may involve both physical and non-physical forms. Physical acts may include inappropriate touching, incest, and rape, whereas non-physical forms may encompass sexual harassment, exposure to pornography, or being coerced into sexualised activities like prostitution or pornography (Centers for Disease Control and Prevention, 2024; Selengia et al., 2020). Abuse can occur in different relational contexts. It may take place within the family (intrafamilial), where the offender is a family member of the child, typically residing within the same household as the victim. This category encompasses parents, siblings, other blood relatives, and step-parents or those outside the family (extrafamilial), such as strangers, teachers, and friends (Aslan et al., 2025; Fischer & McDonald, 1998). Distinguishing intrafamilial from extrafamilial abuse is clinically relevant, as the relational context often shapes symptom presentation and treatment needs.

With these definitions and contexts in place, the following section outlines the psychological, developmental, and neurobiological sequelae of CSA.

2.3 Impact of Sexual Abuse

Research consistently highlights the deep, devastating impacts sexual abuse can have on victims' psychological health and well-being, with several studies finding high prevalence of PTSD, anxiety, and dissociation symptoms among survivors, with PTSD symptoms being

the most consistently reported (Hashim et al., 2024; Mullers & Dowling, 2008; Trickett et al., 2011). However, because factors that occur in relation to CSA (e.g., feelings of powerlessness, betrayal of trust, shame and guilt) create a symptom profile that is so distinct from other forms of trauma (Finkelhor & Browne, 1985; Lewis et al., 2015; Thorne, 2024), it is difficult to link CSA to a single universal set of symptoms. Instead, a constellation of short-term and long-term symptoms has been observed (Kendall-Tackett et al., 1993; Makhija, 2014). This constellation spans a broad spectrum of symptoms, including internalising difficulties (e.g., depression, anxiety, PTSD, guilt, and feelings of powerlessness), externalising behaviours (e.g., aggression and sexualised behaviours), and physical or somatic complaints such as gastrointestinal disturbances (Arora, 2020; Bruno, 2008; Inderbitzen-Pisaruk et al., 1992; Swain et al., 2025).

In the aftermath of abuse, survivors frequently experience depression (Walsh et al., 2015), anxiety, conduct-related difficulties, and symptoms of PTSD (Caro et al., 2023). These challenges are often compounded by maladaptive cognitive patterns and interpersonal dysfunction, which can hinder emotional and social development (Pittenger et al., 2015). These difficulties are magnified when abuse occurs within close relationships, where betrayal and loss of safety undermine core attachment processes

Ensink et al. (2019) found that intrafamilial CSA leads to greater psychological difficulties due to the disruption of primary attachment relationships. Since most people who commit CSA are known to the victim, often family members, friends, or neighbours (David et al., 2018; Hassan et al., 2015; Hinds & Giardino, 2020; Ullman, 2007), the abuse can represent a fundamental violation of trust, safety, and care (Hébert et al., 2019). Indeed, as Srivastava et al. (2017) highlighted that CSA can damage the child's self-concept, sense of trust, and perception of the world as a relatively safe place.

The long-term repercussions include PTSD later in life, difficulties in intimate relationships, challenges in social and emotional well-being, and the risk of being victimised again (Bigras et al., 2015). Furthermore, CSA has also been found to be associated with a number of adult psychiatric diagnoses, including borderline personality disorder, anxiety, conversion disorder, depression, eating disorders, PTSD, and schizophrenia (Hailes et al., 2019; Kendall-Tackett et al., 1993). CSA has been further linked to an increased risk for substance abuse (Halpern et al., 2018). Converging neurobiological evidence helps explain these durable effects.

Furthermore, research outlines neurobiological evidence from longitudinal and cross-sectional studies, demonstrating how CSA can cause brain structural changes and affect brain chemicals like serotonin and dopamine, which compromise executive functioning and emotion regulation (Cross et al., 2017; Huffhines et al., 2024; Shrivastava et al., 2017).

Given the breadth and persistence of CSA's impacts, a range of therapeutic models has been developed to address symptoms across cognitive, emotional, and relational domains.

2.4 Overview of Common Therapeutic Approaches

In addition to psychodynamic therapy, evidence-based approaches remain the front line of care for CSA-related distress. Among the most widely used effective therapy approaches for sexually abused children are cognitive behavioural therapy, trauma-focused cognitive behavioural therapy, and eye movement desensitisation interventions in treating child sexual abuse (Alahakoon, 2019; Caro et al., 2023).

Psychodynamic Therapy

Psychodynamic therapies encompass all forms of psychoanalysis and psychoanalytically derived psychotherapy (Caro et al., 2023). Treatments based on psychoanalytic or psychodynamic psychotherapy are often provided to survivors of sexual

abuse. These treatments operate under the assumption that past relationship difficulties are pushed into the unconscious but can re-emerge as present problems (Parker & Turner, 2013).

Psychodynamic therapy for CSA survivors focuses on creating a safe and supportive relationship, helping children express their inner struggles and slowly overcome resistance (Caro et al., 2023). The early stages of therapy focus on building trust. Children are encouraged to express their thoughts and fantasies as they occur, which they can present in whatever way, for example, through their drawings, verbally, non-verbally, or by dramatisation (Clarkson & Pokorny, 1994). While respecting their defences, therapists use psychoanalytic procedures like 'clarification' and 'interpretation' to help the child understand behaviour significance (Kegerreis, 2009; Lanyado & Horne, 2009). Clarifications involve describing a patient's behaviour or repeating statements to encourage elaboration and help children understand and label their feelings. Through 'interpretation' of play or verbal statements, therapists bring unconscious material to awareness by commenting on relationships between thoughts, feelings, and behaviours, or suggesting hypotheses about behavioural meanings (Caro et al., 2023).

EMDR

Eye movement desensitisation and reprocessing (EMDR) is a therapeutic intervention that was introduced in 1989 and designed to treat psychological distress associated with trauma (Shapiro, 1989). As per the NICE guidelines (2018), EMDR can be considered for children aged 7 to 17 who display PTSD symptoms more than 3 months after a traumatic event, but only when CBT is not effective or not feasible (NICE, 2018). EMDR focuses on how the brain processes and stores information, particularly memories. This approach suggests that current symptoms are viewed as resulting from disturbing experiences that have not been adequately processed and have been encoded in an unhealthy way (Solomon &

Shapiro, 2008). During EMDR, children focus on recalling a traumatic memory in brief sequential doses while simultaneously focusing on an external stimulus such as tracking the therapist's finger waving back and forth (Shapiro, 1993, 2007). This simultaneous talking about a painful memory while also focusing on movements going back and forth helps the brain work through the memory. Over time, the traumatic memory becomes less distressing and gets connected with more positive, healthier thoughts. The brain reshapes the old memory in a way that no longer feels overwhelming (Shapiro, 2007). Alongside EMDR, CBT offers a structured pathway for modifying trauma-related cognitions and behaviours.

Cognitive Behavioural Therapy (CBT)

Cognitive-behavioural therapy (CBT) is a well-researched and commonly used treatment for children who have been sexually abused (Caro et al., 2023; Macdonald et al., 2012; Ramchandani & Jones, 2003). CBT's theoretical foundation rests on the premise that thoughts, feelings, and behaviours are interconnected and that therapeutic change can be achieved through systematic modification of maladaptive cognitive and behavioural patterns that maintain psychological distress (Syros et al., 2022). In the treatment of children who have been sexually abused, CBT specifically targets the meaning that children and non‑offending parents attribute to the abuse experience. This involves identifying and restructuring maladaptive cognitions, misattributions such as self-blame or responsibility, and low self-esteem. In addition, overt behavioural difficulties are addressed, including externalising behaviours (e.g., aggression or acting out), internalising behaviours (e.g., anxiety, self‑blame, or self‑deprecation), and sexualised behaviours (Macdonald et al., 2012). The structured and goal-oriented nature of CBT makes it especially adaptable across developmental stages, with modifications allowing its use in both younger children and adolescents (Heiervang et al., 2018; Kendall et al., 2023; Kendall & Peterman, 2015;

Muñoz-Solomando et al., 2008). Numerous studies have consistently demonstrated CBT's effectiveness in reducing core trauma symptoms, including anxiety, depression, and post-traumatic stress among CSA survivors (Choudhary et al., 2024; Damayanti et al., 2022; Habigzang et al., 2013; Macdonald et al., 2012). Building on these principles, TF-CBT adapts CBT techniques to the unique needs of traumatised children and their caregivers.

Trauma-Focused CBT

Trauma-Focused Cognitive Behavioural Therapy (TF-CBT) is a specialised adaptation of CBT developed specifically for children and adolescents who have experienced trauma, including sexual abuse. It integrates cognitive-behavioural principles with trauma-sensitive interventions to address the unique emotional and psychological needs of young trauma survivors (Macdonald et al., 2012; Sachser et al., 2016). TF-CBT is structured around eight components, which can be summarised using the acronym P.R.A.C.T.I.C.E.: Psychoeducation and Parenting skills, Relaxation skills, Affective modulation skills, Cognitive coping skills, Trauma narrative and cognitive processing of the traumatic event(s), In vivo mastery of trauma reminders, Conjoint child-parent sessions, and Enhancing safety and future developmental trajectory (Green & Pruitt, 2013; Sachser et al., 2016).

Multiple randomised controlled trials and meta-analyses have demonstrated that TF-CBT effectively reduces PTSD symptoms, depression, anxiety, and behavioural problems among children and adolescents survivors of sexual abuse. These effects are not only immediate but also sustained at 6–12 month follow-ups (Cohen et al., 2004; Deblinger et al., 2006; Mannarino et al., 2012; Silverman et al., 2008). The therapy also fosters emotional regulation and resilience by equipping children with coping skills and cognitive reframing techniques (Cohen et al., 2004; Jensen et al., 2013).

Active participation of caregivers is integral to the success of TF-CBT, as their involvement enhances parental emotional regulation, reduces caregiver distress, and improves parenting skills (Allen & Johnson, 2011; Brumley et al., 2021; Foster, 2014; Kirsch et al., 2018; Mannarino & Cohen, 2021). Beyond improving treatment adherence, caregivers reinforce a sense of safety within the home environment, which is critical for children's healing and long-term resilience. A strong therapeutic alliance with caregivers has also been shown to predict better child outcomes, underscoring the relational dimension of TF-CBT (Kirsch et al., 2018). Alongside cognitive and trauma-focused approaches, play therapy remains a central intervention in therapeutic work with children who have experienced sexual abuse.

Play Therapy

Play therapy represents a developmentally appropriate, cross-theoretical approach to CSA intervention that aligns with children's natural modes of communication and expression (Landreth, 2012). Unlike verbal therapies that rely on advanced linguistic abilities, play therapy enables children to process traumatic experiences through symbolic expression and enactment, making it particularly valuable for younger children and those who struggle to verbalise abuse experiences (Gil, 1991). Play therapy approaches are generally categorised into non-directive and directive modalities (Aarons, 2017).

Non-directive play therapy, grounded in humanistic and person-centred theory (Rogers, 1951), emphasises the child's autonomy and innate capacity for self-directed healing within a safe and accepting therapeutic relationship. Child-Centered Play Therapy (CCPT), the most extensively researched non-directive model, allows children to lead sessions through free play while the therapist provides empathic reflection and unconditional positive regard (Ray et al., 2015). Within CCPT, therapy occurs in a structured playroom environment

containing carefully selected toys and materials that function as symbolic tools through which children communicate perceptions, emotions, and lived experiences (Axline, 1947; Ray et al., 2015). Rather than directing the play process, the therapist adopts a responsive and facilitative stance, reflecting emotions and content, tracking behaviour, supporting decision-making, encouraging creativity, fostering relational engagement, and setting appropriate limits when necessary (Landreth, 2002; Ray et al., 2015). In contrast, directive play therapy involves greater therapist structure and intentional guidance, with specific techniques and activities designed to achieve targeted therapeutic goals. Directive models often draw on cognitive-behavioural and psychodynamic frameworks (Aarons, 2017).

Empirical evidence consistently supports the effectiveness of play therapy in reducing trauma-related symptoms among children affected by CSA, with studies reporting significant decreases in anxiety, depression, PTSD symptoms, and both internalising and externalising behaviours following individual and group interventions, and demonstrating that these improvements are sustained at follow-up (Amini et al., 2016; Haas & Ray, 2020; Ibharim et al., 2023; Normandin et al., 2023).

Despite strong empirical support for traditional and play-based interventions, some children continue to experience difficulties engaging in trauma-focused treatment, particularly when avoidance, shame, and relational mistrust are prominent. These engagement barriers underscore the need for complementary approaches that can foster safety and relational connection without relying solely on verbal disclosure. In this context, AAT has emerged as a promising adjunctive modality within trauma-informed care.

2.5 Emerging Therapy Modality: Animal-assisted therapy

Trauma treatment can be especially overwhelming and stressful for children who have experienced sexual abuse. Murphy et al. (2013) found that CSA survivors often display

higher levels of avoidance symptoms, which significantly lowered the completion of treatment. Engagement in traditional therapy may itself trigger feelings of vulnerability and loss of control (Villarroel et al., 2014), with survivors sometimes perceiving therapists as unsafe due to prior attachment injuries (Parish-Plass, 2020).

In contrast to traditional interventions, AAT offers a unique approach to therapy by incorporating an animal (most commonly, a dog) into the therapeutic environment. Including an animal creates a unique human-animal bond to form that is central to AAT (Zilcha‐Mano et al., 2011). The therapeutic benefits of the connection between humans and animals is to promote emotional stability, comfort, openness, active participation in therapy, and overall health, especially in children who have been victims of sexual abuse (Bánszky et al., 2012; Krause-Parello & Gulick, 2015; Reichert, 1998; Signal et al., 2016).

The origins of AAT are often traced to the pioneering work of Dr Boris Levinson, who observed in 1953 that his dog's presence encouraged a withdrawn child to engage in therapy (Levinson, 1962). Interestingly, long before, Sigmund Freud often had his Chow Chow, Jofi, present during psychotherapy sessions. Freud initially found the dog's presence relaxing for himself, but he later observed that patients, particularly children and adolescents, appeared more at ease and more willing to address painful issues when his dog was present (Fine, 2015). Building on these insights, Samuel Corson, a psychologist who worked with Dr Levinson in the 1960s, explored the concept of using pet animals as nonverbal communication mediators in psychotherapy sessions in institutional settings. He believed that the presence of a pet animal in therapy sessions could help break down barriers between patients and therapists and provide a way for patients to express their feelings and emotions in a nonverbal manner, coining dogs as the "social lubricant" (Fung, 2024, p. 2). These early observations laid the groundwork for today's structured interventions.

Since then, the field of AAT has evolved and expanded considerably to encompass structured interventions to address various physical, psychological, and social health outcomes (Fung, 2024; Pandey et al., 2024; Szewczyk et al., 2023). In addition, AAT has demonstrated adaptability, with interventions successfully incorporated across diverse environments, including hospitals, schools, nursing homes, rehabilitation centres, psychiatric wards, and community care (Anderson & Olson, 2006; Baird et al., 2023; Chamlai, 2024; O'Loughlin et al., 2024).

Dogs are the most commonly utilised in AAT settings due to their socialisation skills, affectionate nature, and ability to form attachment bonds with humans (Lee et al., 2023; Pandey et al., 2024). However, various other animals can be utilised for therapeutic purposes, including horses, cats, and, less commonly, birds, dolphins, and robotic animals (Gee et al., 2023; O'Loughlin et al., 2024; Szewczyk et al., 2023).

AAT can be applied in the context of various other therapeutic modalities, including but not limited to cognitive behaviour therapy (Eggiman, 2006; González-Ramírez et al., 2013), play therapy (Parish-Plass, 2008), and eye movement desensitisation reprocessing (EMDR) treatment (Jenkins, 2025), among others (Parish-Plass, 2020).

2.6 Animal-Assisted Interventions (AAI): Definitions and Variations

A primary challenge in the field of animal-assisted interventions (AAI) is the ambiguity associated with key terminologies, including animal-assisted therapy (AAT), animal-assisted Activities (AAA), and general animal interactions (Green et al., 2024; Howell et al., 2022). Currently and historically, AAI has been the most widely used umbrella term to describe the intentional and meaningful integration of animals into human health, well-being, or educational interventions (Villafaina-Domínguez et al., 2020). Within this broad category, there are two primary types: AAA and AAT.

Pet Partners, previously known as The Delta Society, was founded in 1977 by veterinarian Leo K. Bustad and psychiatrist Michael J. McCulloch. It is a pioneering organisation dedicated to improving human well-being through interactions with animals (Kruger & Serpell, 2010). To reduce confusion in the literature, the Delta Society distinguished between AAT and AAA.

AAT is defined as a goal-directed intervention in which an animal meeting specific criteria is an integral part of the treatment process. AAT requires formally trained, licensed health professionals working within their scope of their practice. The professional is responsible for setting specific goals for each client and measuring the progress toward those goals (Fine, 2006; Kim et al., 2015; Kogan, 2023; Pichot, 2013). Importantly, the animal itself is not considered the therapist; rather, interactions with the animal are incorporated into the professional's therapeutic work to provide benefit to the client (Howell et al., 2022). Therefore, AAT does not constitute a stand-alone therapy. Rather, it is incorporated into an existing therapeutic practice, whether in individual or group contexts (Chandler, 2012). This integration into an existing practice is what differentiates AAT from AAA. AAA is a less formal intervention that provides motivational, educational, recreational, and/or therapeutic opportunities to enhance quality of life, but it is not necessarily individualised or documented (Villafaina-Domínguez et al., 2020). Unlike AAT, AAA does not require specified treatment goals and is often delivered by volunteers rather than healthcare professionals. These activities typically involve more casual interactions between humans and animals and can take place in a variety of environments, provided the animals meet certain criteria (Marino, 2012). For CSA populations, maintaining this distinction is critical for treatment fidelity, outcome evaluation, and ethical safeguards.

More recently, terminology within the field has been revised. Binder et al. (2024) recommend replacing the umbrella term AAI with Animal-Assisted Services (AAS). Within this updated framework, AAT is referred to as Animal-Assisted Treatment (AATx), and AAA are reconceptualised as Animal-Assisted Support Programs (AASP). These revisions aim to enhance conceptual clarity and professional standardisation within the field. However, as the empirical studies included in this review predominantly employ the terminology of AAT, the original terms are retained throughout this thesis for consistency.

2.7 Theoretical mechanisms in psychological healing

Biophilia Hypothesis

The biophilia hypothesis proposes that humans have a deep-rooted inclination to relate with nature and all living forms (Wilson, 1984). This hypothesis was introduced and largely recognised by E.O. Wilson. Wilson (1984) described biophilia in his book *Biophilia* as our natural tendency to focus on life and lifelike processes, suggesting that from a young age, humans are instinctively drawn to living things, much like moths are attracted to a porch light. Since Wilson believed humans have an inborn pull towards life and living things, he was later joined by Stephen Kellert, who questioned whether this pull towards nature is partly genetic. Their idea was that humans evolved in nature (surrounded by animals, plants, and natural environments), and because our brains are products of that evolution, it makes sense that we are wired to value and seek nature. In other words, we survived by paying attention to animals and natural cues (for food, danger, safety, etc.), and over thousands of years, this became a built-in tendency (Kellert & Wilson, 1995).

Building upon this, Odendaal (2000) described the term “attentionis egens” (p. 276), meaning the need for attention, which is used to describe a normal emotional requirement shared by all social species. He argued that every living being has an inborn need to give and

receive positive attention as part of healthy social interaction. When this need is met, it produces feelings of safety and belonging; when it is unmet, it can lead to withdrawal or problematic attention-seeking behaviour. He extended this idea beyond human relationships to include human–animal bonds, explaining that animals such as dogs can meet this same need because they are highly social and non-competitive with humans for basic survival resources. This will therefore allow for a mutually beneficial emotional exchange, a "social symbiosis" (p. 276) in which both human and animal experience comfort and well-being (Odendaal, 2000).

In terms of animal-assisted therapy, Parish-Plass (2020) highlights that in situations where a therapist might feel threatening or intimidating to a child, social interaction can still happen, which can occur across species, meaning the child will look to the animal for social cues. The key point is that the animal is perceived as safe. Furthermore, it has been found that mammals have the ability to signal safety to one another, which helps guide social interactions (Porges, 2011). This is especially pertinent for CSA survivors, for whom safety cues can facilitate engagement where verbal assurance alone may fail.

Research suggests that when a child perceives that the therapy animals in the room are calm and interacting safely with the therapist, they are likely to interpret the animals' behaviour as cues of safety, which may allow the child to feel more secure, engage socially, and develop trust toward the therapist. One client described this process, explaining why he could openly share his traumatic experiences with the therapist as opposed to not sharing with his previous therapists: "I saw that the animals trusted you, so I thought I could trust you, too" (Parish-Plass, 2020, p. 312).

MyersOlin (1996) observed that children often mirror the affect of the animals they engage with. For example, it was found that when the children interacted with an energetic

dog, they became lively and energetic. On the other hand, when they spent time with sluggish ferrets, they mirrored that lethargy. Moreover, Melson (2000) proposed that if children feel a sense of security with animals, they are likely to seek them out during times of emotional distress. These dynamics were illustrated in a South African case study of Brandon, a 14-year-old who had been placed in a place of safety following severe family disruption and exposure to injury. He had refused to attend school and had a history of disengagement from therapy. When he began sessions, he presented as shy and withdrawn. However, when the calm therapy dog Morkie was present, Brandon gradually began to relax, smile, and communicate more. He mirrored Morkie's calm behaviour and used Morkie as a medium to express his feelings, which in turn helped develop trust with the therapist (Lubbe & Scholtz, 2013). Furthermore, Julius et al. (2012) propose that on a subconscious level, humans tend to monitor the behaviour of animals, and when animals appear calm and relaxed, people tend to interpret that as a signal that the environment is safe, which in turn promotes physiological relaxation and a sense of security.

Biological Perspective

Cortisol levels: Research has shown that interactions with animals reduce levels of cortisol, a stress hormone (Meints et al., 2022). Cortisol levels have been successfully assessed via salivary measures in both humans and dogs. Research has shown that having a dog around reduces cortisol levels, and in response, dogs may respond to their owner's hormonal states by correlating (Kertes et al., 2016; Ryan et al., 2019; Viau et al., 2010). In addition, research has indicated that dogs can provide social support. The social buffering hypothesis states that social support can be a protective factor against stress (Reilly et al., 2024). Kertes et al. (2016) demonstrated that dogs provide social and emotional support in stressful events for children by lowering levels of cortisol in response to petting their dog.

Petting a dog can activate the parasympathetic nervous system, which induces relaxation (Arsovski, 2024).

Oxytocin levels: Furthermore, engaging with animals can increase oxytocin levels. Oxytocin is involved in social attachment and emotional regulation (Arsovski, 2024). In addition, Parish-Plass (2020) highlighted that oxytocin reduces fear responses, stress, and anxiety and enhances trust. Additionally, regular engagement with animals can lower heart rate and blood pressure (Arsovski, 2024). Studies have shown that the human-dog social bond highly resembles the mother-infant bond (Nagasawa et al., 2009; Payne et al., 2015; Stoeckel et al., 2014; Thielke & Udell, 2015). Nagasawa et al. (2015) have demonstrated that a mutual gaze between owner and dog increases oxytocin levels in humans.

Odendaal's experimental work provided the first physiological evidence that human–animal interaction induces measurable neurochemical changes (Odendaal, 2000). These findings built on his earlier theoretical formulation of attentionis egens, the innate need for affiliative attention across species (Odendaal, 2008). In his controlled experiment, 18 participants together with their dogs engaged in positive interactions while researchers measured plasma levels of oxytocin, β-endorphin, dopamine, prolactin, and cortisol. Results showed significant increases in oxytocin, dopamine, and β-endorphin, and a significant decrease in cortisol among participants after interaction. The strongest oxytocin response occurred when individuals interacted with their own dogs. Furthermore, the study demonstrated that the stress hormone (cortisol) reduction and the social attachment and emotion regulation hormones (oxytocin and dopamine) can all be achieved in 5 to 24 minutes of interaction (Odendaal, 2000).

Human-Animal Bond and Attachment Theory

Attachment Theory was first developed by John Bowlby (1958-1988) and later expanded by Ainsworth using an experimental design called the Strange Situation to assess the quality of attachment formed between mother and infant (Bretherton, 1992). Bowlby's attachment theory contends that children are born with a psycho-biological system, attachment behavioural system, which motivates them to seek or maintain proximity to an attachment figure (Bowlby, 1988). The attachment behavioural system rests on several important claims: the child desires to remain close to the attachment figure, particularly during periods of distress or fear (proximity-seeking); the child derives comfort and security from the presence of the attachment figure (secure base); and the child experiences distress and protests when the attachment figure becomes unavailable (separation anxiety) (Jones, 2015).

Building on Bowlby's foundational work**,** Ainsworth and colleagues (1978) provided empirical evidence for the existence of different attachment styles through the "Strange Situation" paradigm. Secure attachment, in which the child feels confident in the caregiver's availability and responsiveness, contrasts with insecure patterns (avoidant, ambivalent, and disorganised) that emerge from inconsistent, rejecting, or frightening caregiving. Crucially, attachment is not limited to optimal relationships: children may form bonds even with rejecting or abusive caregivers, which underscores the deep psychological need for attachment, regardless of its quality (Bretherton, 1992).

Zilcha‐Mano et al. (2011) propose that attachment theory provides an important theoretical bridge for understanding the human–animal bond. Increasing evidence suggests that attachment processes may extend beyond human caregivers to include animals, particularly companion animals such as dogs and horses. The human-animal bond is a

profound and mutually beneficial relationship that has evolved over thousands of years (Kumar & Singh, 2024). The term human-animal bond (HAB) was first coined in the 1970s by Leo Bustad and Michael McCulloch, drawing parallels to the established concept of the parent-infant bond. Zilcha‐Mano et al. (2011) highlight that the literature on human–pet bonds demonstrate that these relationships frequently fulfill the four central criteria of an attachment bond: proximity seeking, safe haven, secure base, and separation distress. Extending this perspective, contemporary scholarship increasingly recognizes that attachment between children and companion animals, particularly dogs, shares fundamental mechanisms with human attachment. These include behavioural proximity seeking, caregiving behaviours, and the provision of emotional support (Jalongo, 2015; Reilly et al., 2024; Rockett & Carr, 2014).

Drawing on the work of Ainsworth, several studies have employed the use of adapted human attachment instruments, such as modified versions of the Strange Situation Test and attachment questionnaires, which have become widespread in this field (Kerns et al., 2022; Melson, 1990). For example, Topál et al. (1998) adapted Ainsworth's Strange Situation Paradigm to study the attachment between dogs and owners. Their findings showed that dogs use their owners as a secure base to explore, seek comfort when distressed, and display separation distress when the owner leaves. The authors concluded that canine attachment behaviours align with the secure–insecure continuum in human attachment theory, providing evidence that the Strange Situation applies to human–animal relationships. This is a key concept in the HAB, as Zinn and Beck (2014) acknowledged that for a “bond” to form, a mutually beneficial relationship must exist.

2.8 Application in trauma and child sexual abuse cases

Reichert (1998) provided one of the earliest detailed examinations of AAT in individual counselling for sexually abused children, highlighting the therapeutic role of animals in facilitating disclosure and emotional expression. Reichert (1998) found that the therapy dog served as a bridge between the social worker and the child; the dog helped to lower the child's anxiety and created a safe space for disclosure. It was furthermore found that children often project their own feelings onto the dog and therefore were able to share experiences that were otherwise too overwhelming to voice directly.

Animal-assisted therapy can also be applied to groups. Group-based animal-assisted therapy has been applied in child advocacy centres to support children recovering from sexual abuse. For example, Dietz et al. (2012) evaluated the effectiveness of group interventions for 153 children aged 7–17 who had experienced CSA. It was found that groups that included therapy dogs demonstrated significant reductions in trauma symptoms, including anxiety, depression, anger, PTSD, dissociation, and sexual concerns (Dietz et al., 2012). In addition, a study by Signal et al. (2016) followed 20 children (ages 5–12) who completed a 10-week animal-assisted therapy program. PTSD symptoms were assessed at three points: intake (Time 1), pre-program (Time 2), and post-program (Time 3). PTSD symptoms (overall and across intrusion, avoidance, arousal, and dissociation clusters) were clinically significant at intake and pre-program but dropped below the clinical cut-off after the intervention. Parents reported noticeable positive changes, such as greater kindness/empathy toward animals, improved family relationships, better school adjustment, reduced aggression, better sleep, and less anxiety. Furthermore, Hamama et al. (2011) evaluated the effectiveness of dog-assisted therapy for adolescent girls exposed to physical or sexual abuse using both longitudinal and cross-sectional designs. Their findings showed a

rapid decline in PTSD symptoms among participants receiving dog-assisted therapy, along with a reduction in the proportion at elevated risk for PTSD.

An environment that can potentially give us a more accurate idea of how AAT can be impactful is in the forensic setting, where child sexual abuse survivors have to recount their traumatic experiences to unfamiliar adults. A study by Krause-Parello and Gulick (2015) investigated the effects of having a therapy dog present during forensic interviews on the physiological stress responses of children during forensic interviews for alleged CSA victims. The results indicated that children in the control group (without a dog) showed significantly higher heart rates during interviews, especially those disclosing sexual contact or indecency. Children in the dog-assisted group started with lower heart rates and didn't show the same stress spike, suggesting the therapy dog buffered their physiological stress or acted as a safeguard for the victims when disclosing details of the trauma (Krause-Parello & Gulick, 2015). Therapy animal impact extends beyond physiological calming but may also include assisting CSA victims in talking about their traumatic experiences. Howell et al. (2021) explored this through a qualitative study, looking at how professionals view the employment of dogs in legal settings. The participants noticed significant benefits for survivors. They observed that survivors felt more at ease discussing their experiences and stayed calm enough to provide reliable evidence. Interestingly, several participants mentioned that this readiness to testify in court often led those accused to admit guilt (Howell et al., 2021).

Furthermore, a case study was done by Eggiman (2006) with a 10-year-old girl with PTSD and a history of physical and sexual abuse. AAT was used as part of a broader CBT intervention. The patient's behaviour during therapy sessions was observed before and after the introduction of the therapy dog. There was a dramatic change in behaviour and a subsequent report from her foster mother that behaviour in the home improved.

As utilisation expands, rigorous ethical frameworks are essential to protect both children and animals and to ensure responsible implementation.

2.9 Ethical and practical considerations

When incorporating animals into therapeutic settings with CSA survivors, it is vital to establish clear guidelines to ensure the ethical use of animals and to prevent harm to both clients and animals. Fine (2006) emphasised the importance of obtaining informed consent, screening for breed-specific allergies, identifying potential phobias, and considering religious or cultural beliefs that may conflict with the principles of AAT.

There are numerous publications, including handbooks and manuals, on guidelines and ethics for animals incorporated into the therapeutic space. Across the world, multiple organizations are responsible for training animals for therapeutic purposes; among these are organizations that have pioneered in the field, such as the "International Association of Human-Animal Interaction Organizations" (IAHAIO), Pet Partners (formerly known as the Delta Society), and the American Veterinary Medical Association (AVMA), each of which has published comprehensive guidelines to safeguard animal welfare and responsible practice (Clark et al., 2020; Jegatheesan et al., 2020).

Therapy dogs, for instance, are generally required to complete special training to be certified as a therapeutic animal. In addition, a temperament test is required to meet established criteria (Fine, 2015). Among these are the ability to be calm and gentle, to be able to follow commands, to be attentive to the client, and to remain steady in unfamiliar or stressful environments (Fine, 2015; Glenk, 2017; Piva et al., 2008).

Even with clear standards, evidence specific to CSA remains uneven, pointing to important gaps.

2.10 Gaps in Literature

Although interest in animal-assisted therapy (AAT) for trauma is growing, research that focuses specifically on CSA survivors is still limited. The majority of systematic reviews on AAT often look at trauma in a broader context and do not look closely at how effective AAT is for CSA survivors in particular (Germain et al., 2018; Hediger et al., 2021; O'Haire et al., 2015). As a result, there exists a clear need for research that directly addresses this population. In addition, many studies suffer from limited sample sizes, which makes it hard to generalise findings (Chapman et al., 2024; O'Haire et al., 2015).

There is also conflicting data and little research on the effectiveness and feasibility of combining AAT with established trauma therapeutic modalities like TF-CBT (Allen et al., 2021; Brown et al., 2024; Dietz et al., 2012). Furthermore, research is concentrated in specific geographic regions and cultural contexts, which can affect whether the treatment and how AAT is applied work the same way for everyone (Johnston, 2021; Taylor et al., 2014). Lastly, few studies provide long-term follow-up, limiting understanding of sustained effects and the durability of animal-assisted therapy benefits. This gap restricts conclusions about lasting therapeutic impact and informs only short-term efficacy.

Addressing these gaps is critical to evaluating whether AAT can be a viable and sustainable therapeutic option for children affected by CSA.

2.11 Conclusion

In summary, CSA has profound psychological, developmental, and relational consequences that extend into adulthood and affect adult relationships. Although evidence-based treatments such as CBT, TF-CBT, and EMDR are effective and regarded as the gold standard, barriers such as avoidance, mistrust, and treatment dropout highlight the need for complementary interventions. Supported by theories of biophilia, attachment, and

neurobiological mechanisms, AAT shows promise in enhancing engagement, reducing stress, and supporting disclosure in CSA survivors. However, despite these encouraging findings, the current research on AAT for CSA survivors has limitations, including fragmented information, and often lacks cultural and long-term perspectives. This underscores the need for a systematic examination of AAT in the context of CSA, which is the goal of the research being discussed.

Chapter 3: Methodology

3.1 Introduction

This chapter outlines the methodological framework guiding the study to investigate the effectiveness of AAT for children affected by CSA. The study utilised a qualitative narrative systematic review, which enabled a comprehensive exploration of existing literature relevant to the study. A qualitative systematic review follows a transparent and structured process to identify, appraise, and synthesise all relevant studies based on clearly defined inclusion and exclusion criteria, which aims to minimise bias (Petticrew & Roberts, 2006). This approach is best for understanding multifaceted psychosocial phenomena such as therapeutic interventions for CSA survivors since it considers both depth and contextual nuance.

The study was structured according to the seven-step framework proposed by Petticrew and Roberts (2006). The framework provided a structured guide for conducting the systematic review, ensuring that the study adds value to the current body of knowledge. These steps included defining the research question and determining the inclusion criteria, which was followed by conducting a thorough literature search, screening studies, appraising their quality, synthesising the findings, and lastly drawing conclusions.

Furthermore, the study was grounded within a constructivist-interpretivist paradigm, which ensured that the review is not merely concerned with aggregating results but rather with understanding how AAT impacts children's lived experiences within different contexts. The deeper focus on meaning and interpretation made it well-suited to the study's emphasis on qualitative research.

Reflexivity was therefore an integral part of the research process, as the researcher's positionality and way of interpreting information naturally shape how findings are analysed

and integrated. In conclusion, the purpose of this chapter is to outline the methodological steps that will ensure the study's findings are both trustworthy and contextually grounded.

3.2 Research Philosophical Approach

This study is grounded in the constructivist-interpretivist paradigm, also commonly referred to as social constructivism. Social constructivism centers on the individual's cognitive processes of meaning-making, whereas social constructionism emphasises that meaning and reality are co-created through social interaction and language. However, the distinction is often blurred, with both perspectives collectively referred to as constructivism in the psychological literature (Young & Collin, 2004). This review will therefore look at constructivism more broadly.

Constructivism takes the stance that there's no single, fixed reality that everyone sees the same way. Instead, people build their own understanding of the world based on their experiences, cultures, and interactions with others, and that understanding is constantly changing (Khalifa, 2023). Within this paradigm, researchers do not passively absorb information but are rather actively interpreting and making meaning of the data with regards to their research questions and perspectives (William, 2024). Furthermore, the paradigm acknowledges that the synthesis of research findings is considered an interpretive act within itself, where the researcher will construct meaning by identifying patterns, themes, and relationships across diverse studies (Thorne, 2000).

The approach aligns with the research question that aims not only to explore the effectiveness of AAT but also to look at the impact of the therapeutic approach on the psychological, behavioural, or emotional well-being of CSA survivors. Furthermore, it allows for the exploration of complex phenomena such as therapeutic relationships, emotional

healing, and psychological recovery that cannot be fully captured through purely the utilisation of quantitative measures (Sandelowski & Barroso, 2007).

3.3 Research Approach

The study utilised a qualitative narrative systematic review approach to explore how AAT influences psychological outcomes in children who have experienced CSA. This approach corresponds and aligns with the philosophical assumption of social constructivism that fundamentally values contextual meanings, lived experiences, and subjective realities of individuals over objective generalizability (MacLeod et al., 2022).

Qualitative systematic reviews are defined by their analysis of studies that explore themes and constructs within a specific research domain (Grant & Booth, 2009). Consequently, this type of review does not aim to aggregate research findings or identify a 'best practice,' but rather serves as an interpretive approach designed to construct a comprehensive narrative of a research field or subject (Grant & Booth, 2009).

A narrative review is beneficial for examining a collection of studies, particularly qualitative ones, that employ diverse methodologies or investigate various theories and concepts (Siddaway et al., 2018). A narrative review prioritises the overarching meanings, patterns, and interconnections across studies rather than emphasising the statistical importance of results. When combining various different areas of research to build or evaluate a new theory, this method is particularly beneficial (Siddaway et al., 2018). For instance, a narrative review could investigate how and why something works by connecting different findings to explain a broader concept, for example, the efficacy of AAT for traumatised children, instead of just asking 'what works best'.

In a narrative qualitative systematic review, the emphasis is placed on integrating both qualitative and quantitative research findings while interpreting the results within a

narrative framework. This method is particularly useful when exploring complex phenomena, such as AAT for CSA victims. By combining qualitative insights with quantitative data, the review provides a holistic perspective on the impact and effectiveness of AAT, allowing for a richer understanding of the interplay between therapy interventions and psychological outcomes. The decision to adopt this method arose from the need to examine not only the efficacy of AAT in mitigating the psychological repercussions of CSA but also the reasons and conditions under which it may succeed or fail.

3.4 Research Design

Building on the qualitative narrative approach described above, this study adopted Petticrew and Roberts (2006) seven-step framework for conducting systematic reviews. A systematic review is defined as a review that aims to comprehensively identify, appraise, and synthesise all relevant studies on a specified topic (Petticrew & Roberts, 2006). Systematic reviews are considered the gold standard for collecting, critiquing, and summarising the best available evidence to answer clinical questions. They provide a strong foundation for developing trustworthy guidelines and making informed decisions, positioning them as a cornerstone of evidence-based healthcare (Munn et al., 2018). These reviews are characterised by their rigorous, transparent, comprehensive, and replicable methodology (Siddaway et al., 2018). In addition to the seven-step framework, the reporting of this systematic review was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 statement to enhance transparency, completeness, and methodological rigour (Page et al., 2021)

The review process involved systematically searching for all relevant published and unpublished studies related to one or more research questions, followed by a detailed synthesis and presentation of their characteristics and findings (Siddaway et al., 2018).

The following section details how each phase of the procedure was carried out, as well as the measures taken to ensure the methodological rigour of the research.

3.4.1 Steps and Procedure

This review followed Petticrew and Roberts (2006), a seven-step framework for conducting systematic reviews. These steps are:

1. Clearly define the research question the study seeks to address.
2. Identify the types of studies required to answer the research question by establishing well-defined inclusion and exclusion criteria.
3. Undertake a comprehensive literature search to locate all relevant studies.
4. Screen the retrieved records to determine their eligibility based on the predefined criteria.
5. Critically appraise the methodological quality and relevance of the included studies.
6. Synthesise and integrate the findings from the selected studies to draw meaningful conclusions
7. Disseminate the results of the review.

The subsequent sections provide a detailed account of how each of these steps was implemented in the present study.

3.4.2 Formulating the research questions

When conducting a systematic review, developing a clear and answerable research question is the essential first step. This step defines the objectives and criteria for including and excluding the research (Knoll et al., 2017). For this step, the research question, “How effective is AAT in addressing the psychological impact of sexual abuse in children?” was formulated using the PICO framework. The PICO framework was applied with a slight variation: no direct comparison group (C) is included, and the outcome (O) is a reduction in psychological distress, an improvement in well-being, and an improvement in trauma symptoms. Furthermore, a secondary question was explored: “Which factors impact the

success or failure of AAT in mitigating symptoms of CSA?" This question aimed to understand the mechanisms that contribute to the therapeutic effectiveness of AAT.

The PICO framework, which is an acronym for Population, Intervention, Comparison (or control), and Outcome, is described as a tool originally developed to help clinicians to formulate structured clinical questions to support evidence-based practice (EBP). The framework aims to enhance search strategies, minimise irrelevant results, and boost the accuracy of evidence retrieval. It is especially beneficial to apply the framework for questions related to therapy or treatment that involve comparing one intervention to another. Additionally, it helps identify keywords for database searches (Schiavenato & Chu, 2021).

3.4.3 Identify the types of studies required to answer the research question

As this is a literature-based study, the population refers not to individuals but rather to studies looking at the application of AAT with children who have suffered CSA. A purposive sampling strategy was employed to identify and include only those peer-reviewed studies that met the review's predefined eligibility criteria. Purposive sampling strategies aim to ensure specific types of cases are included in the final sample of a research study, moving away from random sampling methods (Campbell et al., 2020). Purposive sampling is a type of non-probability sampling that is appropriate for systematic reviews, as it enables the selection of sources that are most relevant and informative to the research questions (Patton, 2001). As defined by Moser and Korstjens (2017), purposive sampling allows researchers to pre-define the types of participants or cases (in this case, studies) to include, ensuring all relevant variations are captured based on theoretical frameworks, previous literature, and clinical significance.

Aligned with Step 2 of Petticrew and Roberts (2006) framework, it is essential to define clear eligibility criteria to guide the inclusion and exclusion of studies. Eligibility

criteria in systematic reviews are essential tools to reduce selection bias. These criteria are crucial in determining appropriate research studies for thorough analysis, encompassing both inclusion and exclusion factors. Following these criteria helps choose relevant studies, maintain focus, reduce bias, and increase the review process (Khan et al., 2003; Petticrew & Roberts, 2006). The following criteria were established for this systematic review:

- **Population**: Studies involving children, youth, and minors who had experienced sexual abuse (18 years and younger) were included.
- **Interventions**: Research that focused explicitly on addressing CSA was included to ensure a concentrated exploration of this particular type of trauma. Additionally, research that explored the effects and application of AAT in the context of CSA, whether as a standalone intervention or as part of a broader treatment approach, was included. Furthermore, studies that investigated the broader effects of AAT on children who had experienced trauma, with a particular emphasis on cases of CSA, were also incorporated.
- **Context**: Only literature focusing on AAT was included, as AAT is a more structured approach.
- **Publication dates**: Studies published from the 1990s to the present were included. Because of the limited articles published on AAT with CSA survivors.
- **Types of studies**: quantitative, qualitative and mixed-method studies were systematically reviewed.
- **Language**: Only studies written in English were considered.
- **Animal Population**: Inclusion criteria were restricted to studies that incorporated therapy dogs (canines).

3.4.4 A comprehensive literature search

The third step in this systematic literature review involved conducting searches for relevant literature. To ensure comprehensive coverage, reputable electronic databases and peer-reviewed articles have been utilised. Both quantitative and qualitative research methodologies were utilised. The researcher incorporated data from both national and international search engines, recognising the limited number of studies on AAT in South Africa. The primary sources include the Rhodes University Library online catalogue and Google Scholar as the secondary search engine, supplemented by other recognised databases, namely:

- Cochrane Library
- EBSCOhost Research databases
- EBSCOhost APA PsychArticle
- EBSCOhost APA PsychInfo

In addition to peer-reviewed sources, the study also included grey literature that is available on online databases, provided it is easily accessible. The term "grey literature" refers to material that is created and shared outside of conventional academic or commercial publication and dissemination channels. According to Lawrence et al. (2014), it includes a wide variety of knowledge artefacts that are not often subject to peer review, which is the standard quality-control process used in scholarly journal publication. Grey literature encompasses various sources such as theses, dissertations, government documents, conference papers, white papers, blog posts, and press releases (Mering, 2018). Mahood et al. (2013) argue that incorporating grey literature can expand the review's reach to encompass more pertinent studies, thereby offering a more comprehensive perspective of all available information. Grey literature in the form of theses and dissertations that were easily accessible

online was utilised. These works undergo a rigorous examination process by typically two external examiners before being accepted into university repositories, which serves as a form of quality control analogous to peer review.

In order to maximise the effectiveness of search strategies, the selection of appropriate keywords is crucial. The sensitivity and specificity of these keywords will determine the relevance of the retrieved studies. Following the guidelines proposed by Petticrew and Roberts (2006), the following search terms have been identified:

- "animal-assisted therapy" AND effectiveness AND "child sexual abuse"
- "animal-assisted therapy" AND "psychological impact" AND "CSA survivors"
- "animal-assisted interventions" AND children AND "trauma symptoms"
- "pet therapy" AND "mental health outcomes" AND "child survivors of abuse"
- AAT AND "emotional well-being" AND "sexual abuse victim"

Additional keyword variations, synonyms, and combinations were also used to maximise retrieval sensitivity across different databases. A full list of search terms and strings is provided in Appendix B.

3.4.5 Screen the retrieved records

In screening the results of the research findings, the established inclusion criteria guided the process. This procedure ensures that only relevant studies were included, enhancing the validity and reliability of conclusions regarding the effectiveness of AAT for children affected by sexual abuse. The screening process was conducted in two stages. Firstly, all data were initially subjected to a title screening to determine whether the study should be excluded or advanced to the second stage of screening. The following questions (see Appendix C) were addressed to identify whether the study titles could be considered for inclusion in the study. These questions were:

- Does the title mention animal-assisted therapy?
- Is the population focused on children, youth, or minors?
- Does it mention sexual abuse, child sexual abuse (CSA), or childhood trauma?
- Does the title imply a focus on psychological or emotional outcomes related to abuse or trauma?

Subsequently, the abstracts of the selected studies were evaluated against the inclusion criteria to guide choices on inclusion. In the second stage, entire texts were downloaded and evaluated based on the set criteria; these were studies that passed the initial screening phase. Following this, the second-stage screening further reduced the pool of potential studies. Furthermore, studies were excluded due to not being freely accessible.

Additionally, the reference lists of all included studies were examined to identify any supplementary literature that may not have appeared in the initial database searches. Any newly identified studies were subjected to the same screening process to maintain consistency. This sequential process ensures that all the relevant literature is found and reduces the risk of overlooking (Petticrew & Roberts, 2006).

3.4.6 Critically appraise the included studies.

This step aimed to determine whether a study could effectively address the research question. Each study was evaluated using the same criteria in an unbiased and transparent manner, with each study appraised according to the inclusion criteria. To prevent selection bias, all potentially relevant articles were shortlisted and submitted to an independent reviewer to assess their relevance. The involvement of two reviewers helps minimise the introduction of bias by either reviewer (Wright et al., 2007). In addition, systematic reviews

often include critical appraisals, which assess the methodological soundness of each study to determine whether each study is adequate and trustworthy for answering the research question (Munn et al., 2019; Petticrew & Roberts, 2006). Critical appraisal is a process conducted in systematic reviews to establish the internal validity and risk of bias of studies that meet the review inclusion criteria (Moola et al., 2015). The Joanna Briggs Institute (JBI) Critical Appraisal Tools were selected to assess the trustworthiness, results, and relevance of the studies included in the review (Munn et al., 2022). The JBI framework was chosen because it accommodates diverse study designs and aligns with the interpretive nature of a qualitative narrative systematic review. In addition, the mixed methods appraisal tool (MMAT) Version 2018 was used for quality evaluation of mixed-method studies (Hong et al., 2018). However, the appraisal results were not used to exclude studies outright but to determine their weight in the final synthesis.

3.4.7 Synthesise and integrate the findings

The review followed a qualitative narrative synthesis approach (Petticrew & Roberts, 2006), within which interpretative thematic analysis (Braun & Clarke, 2006) has been applied to interpret and integrate findings across studies. This approach involved identifying, analysing, and reporting recurring themes or patterns within a diverse set of data (Braun & Clarke, 2006). A structured data extraction sheet was developed to organise and summarise key study details before synthesis (see Appendix D).

The thematic analysis approach was selected because it offers flexibility in accommodating both deductive and inductive analytical processes, enabling the identification of predetermined themes (see Appendix E) while remaining open to emergent patterns in the data (Boyatzis, 1998). Deductive, or a priori, coding involves creating codes prior to data analysis and applying those codes to the data, whereas inductive coding allows the data to

determine the themes by reading through the data and identifying codes, patterns, categories, and themes as they emerge (Saldana & Omasta, 2017; Witkowsky & Bingham, 2021).

The analysis process followed Braun and Clarke's (2006) six-phase framework: The six phases included:

Phase 1: Familiarisation with the data. The first step involved reading through the selected data to obtain a precise and clear comprehension to make an appropriate analysis. This involved asking basic descriptive questions in order to become familiar with the dataset, such as, 'What are the main findings?' What outcomes were measured? What populations were studied? What contextual factors were mentioned? Throughout the reading, special attention was paid to concepts and terms that were repeated in studies, and these were highlighted.

Phase 2: Coding. Once familiar with the data, initial codes were generated that are relevant, and crucial facts have been highlighted, labelled, and/or coded into simpler terms to describe the content. In addition, a priori codes were developed based on existing theoretical frameworks and knowledge on AAT research in line with the research question (see Appendix E). These predetermined codes guided the initial data classification while allowing for the emergence of novel themes and insights. In the second cycle, as recommended by Saldana (2012), the researcher revisited and refined these initial codes to develop broader conceptual categories. Relationships among categories were examined to identify recurring patterns, divergences, and contextual nuances across studies. These categories then formed the basis for developing higher-order themes that captured the overarching meanings and mechanisms of AAT’s therapeutic impact.

Phase 3: Generating Themes. All the codes generated were revisited and analysed to identify patterns and relationships within and across the data sets, and to consider how the

different codes could be combined to form an overarching theme (Braun & Clarke, 2006). For this step, the selected articles were read once to ensure that the data presented similar ideas to be combined. As noted by Braun and Clarke (2006), a theme is not just a single code or observation, but it's a pattern that appears across your dataset. Therefore, codes were also analysed for relevance and compared across articles to examine their frequency of occurrence. Codes that were too vague were discarded. However, codes were also considered as themes that could make sense on their own if they captured something meaningful that helps answer your research question.

Phase 4: Reviewing themes. During this phase, all initially identified themes were systematically reviewed and refined to ensure that they accurately represented the data and maintained internal coherence. Braun and Clarke (2006) emphasise that this stage requires checking each theme for internal homogeneity (the extent to which data within a theme fit together meaningfully) as well as external heterogeneity (the extent to which each theme is distinct from others).

The review was conducted in two levels: (1) all coded extracts relevant to each theme were revisited. The extracts were exported into a Word document to facilitate cross-referencing between codes and their corresponding data segments. Each extract was carefully reread to assess whether it aligned with the assigned thematic meaning. Where inconsistencies or overlaps were found, themes were refined or merged accordingly. This process ensured that each theme captured a coherent, meaningful pattern in the data. (2), the researcher reviewed the validity of themes in relation to the entire dataset. All studies were re-examined to ensure that the identified themes reflected the overall meaning and scope of the reviewed literature. This involved revisiting the original findings and, where necessary, adjusting or collapsing similar themes to ensure clarity and precision. Some themes that

initially appeared relevant were either renamed, merged, or discarded if they were not sufficiently supported by the data.

Phase 5: Defining and Naming Themes. Each theme was examined in detail to identify its central organising concept, which looked at the key idea that unified the sub-themes and codes within it. During this process, short descriptive summaries were written for each theme to define its boundaries and clarify what was included or excluded. For example, if several codes looked at the same idea, they were consolidated into a single theme that captured the concept. Naming each theme involved selecting concise labels that clearly and meaningfully conveyed the main idea. The final names were chosen to balance accuracy and readability while ensuring that each theme provided insight into the research question the review wishes to answer.

Phase 6: Writing up by Contextualising Data in a Report. The final phase involved synthesising and presenting the findings of the review in a coherent and meaningful narrative. This phase focused on interpreting the identified themes in relation to the research questions, drawing together evidence from the included studies to illustrate the effectiveness of AAT for children affected by sexual abuse.

Each theme and sub-theme was discussed in detail, supported by references to the reviewed studies. These are presented in Chapter 4 as the results section of this study. Additionally, this stage aimed to move beyond mere description by offering an interpretive account of how AAT contributes to psychological, emotional, and behavioural recovery in CSA survivors.

3.5 Trustworthiness and Rigour/Validity and Reliability

The primary purpose of quantitative research is to collect and analyse data that can be evaluated for reliability and validity. This technique is carried out slightly differently in a

qualitative investigation, emphasising evaluating and analysing the trustworthiness of the research findings. Kakar et al. (2023) highlighted that the most important factor that influences the rigour of qualitative research studies is trustworthiness. Lincoln and Guba (1985) established four general criteria in their approach to trustworthiness. These are credibility, transferability, dependability, and confirmability (Kakar et al., 2023; Shenton, 2004).

Credibility refers to the confidence that can be placed in how the data gathered accurately seeks to address the intended focus, thereby looking at the internal validity (Guba, 1981). One way of establishing credibility is through prolonged engagement (Guba, 1981; Shenton, 2004). To ensure credibility, all the studies selected in this systematic review were thoroughly reviewed, and a considerable amount of time was spent searching through data and across patterns and themes.

The concept of transferability refers to the extent to which one study's findings may be generalised to other contexts or settings (Guba, 1981). To enhance transferability, the study provided a thick description of the study context, including sufficient information for the reader to understand AAT, the inclusion criteria, and the synthesis process. They have been provided to allow readers to determine the relevance of the findings to other settings. The inclusion of diverse studies from different geographical and therapeutic contexts supports the potential transferability of the conclusions drawn about the effectiveness and adaptability of AAT for children affected by sexual abuse.

Furthermore, dependability relates to the consistency and reliability of the research findings and speaks to the replicability of the findings by assessing whether the study could be repeated in the same context, methods, and population; the findings would be similar (Kakar et al., 2023; Shenton, 2004). The researcher made every decision during the review

process clear regarding the database selection, screening rationale, and coding decisions. The inclusion of a data extraction sheet provides a clear record of how the data were organised, interpreted, and synthesised.

Lastly, confirmability refers to the researcher's interpretation and conclusions being plainly derived from the data (Nowell et al., 2017). To ensure confirmability, the researcher maintained detailed documentation of all methodological steps, including decisions made during data extraction, coding, and theme development. The independent appraisal of studies and the use of standardised JBI tools further enhanced objectivity. The researcher also practised reflexive awareness by consistently reflecting on their role in interpreting data and on the assumptions that may influence the synthesis process.

3.6 Ethical Considerations

As a secondary research study based exclusively on existing literature, this systematic review presents minimal ethical risks because it does not involve direct contact with human participants (Israel & Hay, 2006). Ethical clearance for this study was obtained from the relevant institutional ethics committee, and the approval letter is included in Appendix G.

The research adhered to principles of academic integrity, which included accurate citation of all sources. The sources consulted were cautiously approached by ensuring they are fair representations of study findings; therefore, plagiarism or misrepresentation of authors' work was avoided (“Guidelines on Good Publication Practice,” n.d.). Particular attention was paid to accurately reporting study limitations and potential biases, ensuring the review provides a balanced and honest assessment of the available evidence. Additionally, the researcher was mindful of allowing their respective value systems to influence the research process.

The potential benefits and risks of the research were carefully considered, with recognition that improved understanding of AAT effectiveness may contribute to better therapeutic services for children affected by sexual abuse, while acknowledging the potential for findings to be misinterpreted or misapplied in a practical context.

3.8 Summary

This chapter outlined the methodological framework used to guide this qualitative narrative systematic review, which sought to explore the effectiveness of AAT for children affected by sexual abuse. The study followed the seven-step framework proposed by Petticrew and Roberts (2006), ensuring a transparent and structured approach to identifying, appraising, and synthesising relevant literature.

Grounded in an interpretive approach, the review integrated both qualitative and quantitative evidence within a narrative framework to capture the complexity of therapeutic outcomes and contextual factors influencing AAT effectiveness. Thematic analysis, as outlined by Braun and Clarke (2006), was employed to interpret and synthesise recurring patterns and themes across studies. This method enabled the researcher to examine not only the outcomes of AAT interventions but also the mechanisms through which these interventions may promote emotional healing and psychological well-being among CSA survivors.

Rigour and trustworthiness were maintained throughout the review process through the use of clear inclusion and exclusion criteria, transparent search and selection procedures, and critical appraisal of studies using the JBI Comprehensive Critical Appraisal Tools. The systematic organisation of extracted data, maintenance of an audit trail, and reflexive engagement ensured dependability, confirmability, and credibility of the findings.

Chapter 4: Results

4.1 Introduction

This chapter presents the findings of the qualitative narrative systematic review. The chapter is structured to provide a transparent and comprehensive account of the results. It begins by detailing the study selection process, illustrated with a PRISMA flow diagram. This is followed by a critical appraisal of the methodological quality of the included studies using the JBI and MMAT tools. Subsequently, a descriptive overview of the demographic and methodological characteristics of the studies is provided. The core findings are then organised and presented through three overarching thematic patterns that emerged from the thematic analysis. By presenting the results in this sequenced manner, this chapter provides the foundational evidence necessary to address the research questions guiding this review, which will be interpreted and discussed in Chapter 5.

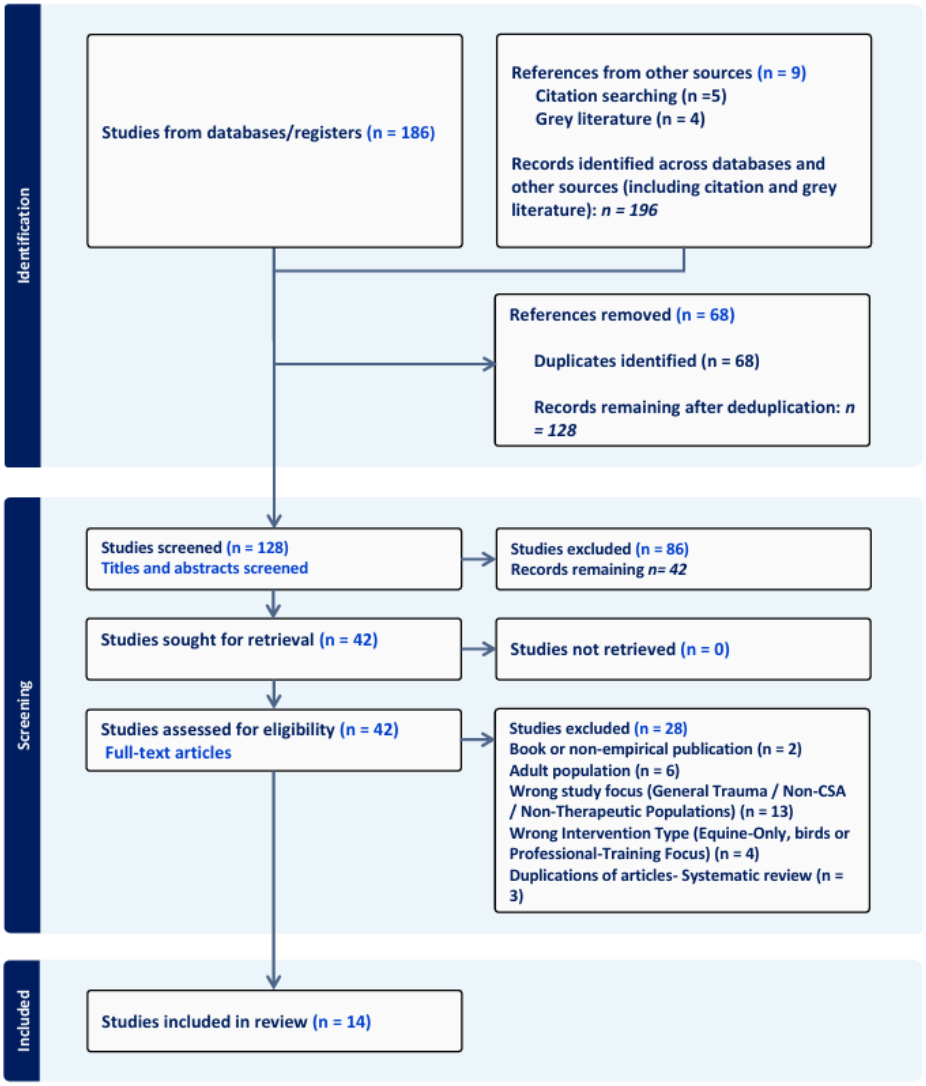
4.1 Search and Screening Results

A total of *n=196* records were initially identified through database searching. With *n=4* being citation searching of selected studies and *n=4* grey literature in the form of theses. After *n=68* duplicates were removed, *n=128* records remained for screening. Following the initial screening phase, n=86 records were excluded based on reviewing the title and abstract (see Appendix A). The approach resulted in *n=42* studies proceeding to full-text review. During the full-text review an additional *n=29* studies were excluded for not meeting the inclusion criteria: studies were removed focusing on adult population *(n=7),* wrong study focus which included general trauma and not a specific focus on CSA and non-therapeutic populations *(n=13)*, systematic reviews were excluded (n=3) that would otherwise result in potential double reporting on article results, studies focusing on the wrong intervention type (Equine-Only, birds or Professional-Training Focus) (n = 4) were also excluded, and books

(n=2). The final dataset comprised n=14 studies that met all inclusion criteria and provided sufficient data for thematic analysis (see Figure 1).

Figure 1

PRISMA Flowchart



4.2 Quality Appraisal Using JBI and MMAT Tools

The methodological quality of the 14 included studies was assessed using the Joanna Briggs Institute (JBI) critical appraisal tools and the Mixed Methods Appraisal Tool (MMAT, 2018). The results of this quality appraisal are summarised in Table 1.

Across the 14 included studies, methodological quality ranged from moderate to high, with no studies classified as low quality. Specifically, 7 of the 14 studies (50%) were rated as high quality and 7 studies (50%) as moderate quality. No studies were excluded on the basis of poor methodological rigour.

Studies were appraised as high quality that typically demonstrated clear intervention protocols, appropriate data collection and analysis methods, and sufficient consideration of ethical standards and confounding variables. These included the experimental, randomised controlled trial designs and one case study (Allen et al., 2021; Dietz et al., 2012; Hamama et al., 2011; Shenk et al., 2022).

Studies rated as moderate quality were generally limited by small or convenience samples, absence of randomisation, or insufficiently detailed reporting on intervention fidelity or follow-up outcomes. These included early case reports (Eggiman, 2006; Reichert, 1994, 1998) and quasi-experimental or observational designs with restricted generalizability (Krause-Parello & Gulick, 2015; Luley, 2016; Signal et al., 2016).

No studies were excluded based on quality appraisal evaluations. The quality appraisal confirmed that the existing evidence based on AAT and in the CSA context demonstrates methodological adequacy and provides moderate to strong support for the effectiveness and feasibility of AAT intervention.

Table 1

Quality Appraisal of Included Studies

Quality Category	Number of Studies (n)	Percentage (%)	Typical Characteristics
High/Strong Quality	7	50%	Clear intervention design, rigorous methodology, transparent clear reporting and ethical

			approval
Moderate/Adequate Quality	7	50%	Small samples, partial reporting on study procedure and results, limited follow-up, or missing demographic details
Low/Weak Quality	0	0%	Not applicable, no studies met exclusion threshold

Having established the methodological quality of the included studies, the following section describes their demographic and methodological characteristics.

4.4 Description of Studies included in the Review

A data extraction form was developed and piloted to ensure consistent data collection across the included studies (see Appendix D). The fourteen included studies demonstrated considerable diversity in the demographic and methodological characteristics, which reflects the evolution of AAT research over the years. All of the included studies were in English, with publication years ranging from 1994 to 2024.

Geographically, most of the studies were conducted in the United States (n=11), followed by Australia (n=2) and Israel (n=1). Methodologically, the included studies employed a range of research designs, encompassing both qualitative and quantitative paradigms. These included randomized controlled trials (n = 3) (Allen et al., 2021; Brown et al., 2024; Shenk et al., 2022), quasi-experimental designs (n = 3) (Howell et al., 2021; Signal et al., 2016; Taylor et al., 2014), case studies (n = 3) (Eggiman, 2006; Reichert, 1994, 1998), a retrospective study (Luley, 2016), a combined cross-sectional and longitudinal design (Hamama et al., 2011), and an exploratory qualitative study (n = 1) (Howell et al., 2021). In

addition, experimental (n=1) (Krause-Parello et al., 2018) and controlled (n=2) (Dietz et al., 2012; Krause-Parello & Gulick, 2015) studies were also presented.

Settings included clinical environments (e.g., outpatient trauma clinics), child advocacy centres, and forensic contexts (Krause-Parello et al., 2018; Krause-Parello & Gulick, 2015). Sample sizes ranged from single case reports to large group interventions (Dietz et al., 2012), n = 153. Across all studies, participants were children and adolescents aged between 4 and 17 years with histories of child sexual abuse (CSA) or exposure to trauma. Of the fourteen studies, ten focused exclusively on CSA survivors, while five examined trauma more broadly with CSA cases included in the sample. All fourteen studies incorporated dogs as the primary therapy animals. The duration of interventions varied between single-session implementations and structured twelve-session weekly programmes. Most interventions were facilitated by a counsellor, psychologists, social worker volunteers, and dog handlers.

The theoretical frameworks underpinning the included studies reflected a clear evolution from humanistic and attachment-based perspectives toward more trauma-informed and evidence-based orientations. Four studies focused on physiological and psychophysiological mechanisms, such as stress and autonomic regulation. Seven studies incorporated trauma-informed care principles and specific therapeutic modalities, such as, TF-CBT, group and play therapy approaches.

4.5 Emerging Themes

The predefined themes guided the initial coding (Appendix E) but were refined through iterative review cycles. Redundant or overlapping codes were merged to form conceptually coherent categories, while less-supported codes were discarded. Ultimately, the

analysis yielded three major themes with nine subthemes, each reflecting a distinct dimension of how AAT operates within the treatment of CSA (see Appendix F).

4.5.1 Theme 1: Therapeutic mechanisms and healing processes

Sub-Theme 1.1: Providing Comfort and Safety. The presence of the therapy animal consistently created a foundation of psychological safety and physical comfort for the children, a prerequisite for therapeutic engagement. This was observed in clinical settings, where a previously extremely shy and withdrawn child began to engage with the therapist's dog, an interaction that appeared to lower the child's anxiety and facilitate a gradual process of opening up in subsequent sessions (Reichert, 1998). Similarly, Eggiman (2006) documented reduced anxiety and a state of relaxation in a 10-year-old CSA victim who petted the therapy dog, Kotter, during an initial session. The child was observed sitting quietly with Kotter's head in her lap, demonstrating engaged interaction. Howell et al. (2021) noted that during legal proceedings, survivors felt safe and calm in the presence of the dog, noting that children had fallen asleep on the dog just before entering the court. Furthermore, clinicians integrated the dog as an active coping tool; for example, interactions with the dog were offered to youth when they appeared visibly stressed to help regulate their emotions (Allen et al., 2021; Shenk et al., 2022).

Sub-Theme 1.2: Enabling Emotional Expression. Reichert (1998) told a story about her dog having a nightmare and asked the child what she thought the dog's nightmare was about. The child then projected her feelings onto the dog and noted that "the nightmare was about being afraid of getting hurt again by someone mean" (Reichert, 1998, p. 182). This use of the dog as a secure base for disclosure was a common finding across multiple studies (Eggiman, 2006; Howell et al., 2021; Krause-Parello et al., 2018; Reichert, 1994, 1998), where children would often whisper their abuse into the dog's ear or hold or pet the dog

during disclosure. Eggiman (2006) noted that children find it easier to tell their “secrets” to Kotter and noted that one child approached the dog and reported, “He knows I'm sad today; that's why he came to me!”(p. 3). Caregivers were allowed to write anonymous feedback following a 10-week AAT program for CSA survivors; caregivers noted improved communication with their child, and one noted, “This program has made X open up to me about his feelings … thank you” (Signal et al., 2016, p. 88). Furthermore, a structured group intervention illustrated this process of building emotional expression over time. In a study with nine girls (aged 14-16) with histories of abuse who had been resistant to traditional therapy, the integration of therapy dogs facilitated a gradual progression: initial interaction led to building trust with a specific dog, which eventually enabled the girls to talk about their feelings to their canine partners during walks by the program's end (Hamama et al., 2011).

Sub-Theme 1.3: Facilitating Communication. Reichert (1998) often asked questions through her dog, Buster; she noted that asking indirect questions through Buster to gather background information made the information more concrete. One professional working with CSA-abused victims in legal contexts noted that a 5-year-old girl did not want to speak or make eye contact with anyone until the dog arrived; the child opened up to the dog and worried that the dog would be upset by her trauma story (Howell et al., 2021). This demonstrates how the dog served as a less intimidating social partner, facilitating communication where human-to-human interaction had failed. Howell et al. (2021) also reported that defence attorneys used the dog, Ziggy, to introduce themselves and get answers from the children during legal proceedings.

Sub-Theme 1.4 Physiological Stress Reduction. Krause-Parello and Gulick (2015) documented physiological stress in children (n=42) undergoing forensic interviews for alleged sexual abuse. Prior to the interview, children in the control group (no dog) had a

significantly higher heart rate (M = 91.57) than those in the animal-assisted intervention (AAI) group (M = 82.68), p = .050. Furthermore, within the AAI group, children who petted the dog following their disclosure of abuse had significantly lower systolic and diastolic blood pressure before the interview (p = .021; p = .008) and lower systolic blood pressure after the interview (p = .025) compared to those who did not pet the dog. For salivary cortisol, the control group showed a significant decrease from pre- to post-interview (p = .029), whereas the intervention group showed no significant change. Building on this, Krause-Parello et al. (2018) studied a sample of 51 children (ages 4-16), with 29 in the experimental condition (service-trained dog present) and 22 in the control condition (no dog). In this study, heart rate dropped significantly within the experimental group from before (M = 83.52) to after (M = 79.52) the interview (p = 0.0086). In contrast, the control condition showed no significant change in heart rate (before M = 80.09; after M = 79.23; p = 0.4986).

Sub-theme 1.5 Physical contact. All fourteen articles report physical contact with a dog. Krause-Parello et al. (2018) noted that children could gently pet and talk with the dog; Eggiman (2006) instructed that the child was only allowed to pet the dog on his muzzle, head, ears, paws, and back; the child cannot give the dog commands nor feed the dog, unless given permission; and when interacting with the dog, the child cannot get loud or rough. Some of the articles do not explicitly state how children interacted with the dog. Six of the articles included interactions with the dog at the start of the intervention (Eggiman, 2006; Hamama et al., 2011; Krause-Parello et al., 2018; Krause-Parello & Gulick, 2015; Reichert, 1994, 1998). Three articles revealed the introduction to the animal prior to the various interventions, one of which was Children and Animals (RSPCA) in groups of 4 to 6 for approximately 90 minutes. For the first 20 to 30 minutes for the first three weeks, children visited the animal shelter, the Royal Society for the Protection of Animals. For the next 60 to 70 minutes, children could

interact with the therapy dog in the presence of the dog's handler/owner, followed by activities involving human-animal interactions (Signal et al., 2016). Similarly, Taylor et al. (2014) reported three weekly visits to the RSPCA shelter with three groups of five to seven children, during which the children interacted with three dogs, followed by the RSPCA education officer delivering lessons on appropriate human-animal interactions. Dietz et al. (2012) reported that children could interact with the trained therapy dog 30 minutes before the group started.

4.5.2 Theme 2: Implementation Factors

Sub-theme 2.1 Intervention Features:

Structured Interventions. Studies were assessed on whether the therapy dog played an active role in the various therapeutic interventions. Studies were considered structured when the dog was integrated as an essential component of the therapeutic process, such as in individual or group sessions where the dog actively participated in activities aligned with the treatment model. Across the 14 included articles, seven articles were deemed structured. A prominent structured approach across three studies was the use of therapeutic storytelling, in which the dog served as a narrative anchor. For example, in multiple studies, therapists created stories about the dog's experiences (e.g., Buster, Kotter), which children then identified with, facilitating the projection and disclosure of their own trauma (Dietz et al., 2012; Eggiman, 2006; Krause-Parello et al., 2018; Krause-Parello & Gulick, 2015). During group sessions with 9- to 13-year-old sexually abused girls, Reichert (1994) used play therapy and therapeutic storytelling using a puppet. The play therapy format was as follows: Phase I: the introduction of the dog in the first session, stroking and holding the dog; Phase II: using the dog for play and projection, including therapeutic stories about Buster, and the group was encouraged to tell their sexual abuse stories; Phase III included integration of

family members into therapeutic stories and termination. Similarly, Eggiman (2006) documented a case in which a 10-year-old girl engaged in TF-CBT through stories structured around the dog "Kotter" (p. 1), which enabled her to sit calmly with Kotter's head in her lap during therapy. Another structured model involved scheduled, multi-session programs that combined animal interaction with psychoeducation. Dietz et al. (2012) systematically tested different formats within a 12-session group therapy for 153 children. The interventions included group 1: No dogs, where standard therapy protocol was applied, consisting of 12 sessions for CSA survivors; and group 2: Dogs, no stories. The group followed the same intervention structure as the no dogs group; however, 30 minutes before the group sessions, children had a chance to interact with the therapy dog in the presence of the dog handler, and then the dogs and their handlers joined the group session for 10 to 15 minutes and then left. Therapists experienced uncertainty about the transition once the dogs left; therefore, Group 3: Dogs with Stories was introduced. Similarly, two studies described programs involving visits to an animal shelter, the Royal Society for Protection of Children and Animals (RSPCA), where groups meet up with a trained therapy dog and their handler for 20 to 30 minutes and with an RSPCA education officer that provided sessions on animal safety, how to interact with animals, appropriately touching animals, and providing basic cues, prompting the dog to sit down, to sit, or to move, including topics on animal feelings and well-being. The skills learnt from animal-human interaction were then integrated into subsequent sessions with a social worker over 7 weeks, with a focus on human-directed empathy, body language and feelings, how to mention verbal and non-verbal communication, respecting boundaries, and asking for help and support (Signal et al., 2016; Taylor et al., 2014). In addition, Hamama et al. (2011), also reported on a structured 12-week program consisting of 3-hour sessions once

a week, where group sessions began with canine-focused activities like trust-building and walking the dogs before addressing psychosocial issues.

Unstructured Intervention. Three articles studied incorporated therapy dogs within an existing therapeutic modality, namely TF-CBT. Dogs were not formally integrated within the therapeutic modality, and the interventions were deemed unstructured. The TF-CBT interventions across the three studies consist of 12 structured sessions divided equally into three phases and delivered in 90-minute sessions for youth and non-offending caregivers who went through physical or sexual abuse between the ages of 6 and 17, with a total number of 33 participants (Allen et al., 2021; Brown et al., 2024; Shenk et al., 2022). In addition, for the TF-CBT+AAT, dogs were required to be in the room for all sessions; however, they did not have a clear role or structured approach, and the children's level of engagement with the dogs was determined by their own preferences and comfort. Clinicians, however, would offer interactions with the dogs when seeing children in distress (Allen et al., 2021; Brown et al., 2024; Shenk et al., 2022). Allen et al. (2021) found instances in which the child preferred the dog at their feet or sitting next to their chair, where the dog could be easily petted. The trained handlers would view the sessions behind a one-way mirror to ensure animal safety (Allen et al., 2021; Brown et al., 2024; Shenk et al., 2022).

Three articles reported on the use of certified dogs in forensic settings (Howell et al., 2021; Krause-Parello et al., 2018; Krause-Parello & Gulick, 2015). In two of the articles that investigated the effects of having dogs in forensic interviews, Krause-Parello et al. (2018) and Krause-Parello and Gulick (2015) reported that the dogs were introduced during the forensic interviews for allegations of CSA, and a child was instructed that if they were comfortable with the presence of the dog, they could gently pet and talk to the dog. Howell et

al. (2021) reported that the child may have access to a therapy dog for up to 12 months during the legal process, including during court.

Characteristics of animals. The most commonly reported breeds included Labrador Retrievers, Golden Retrievers, Poodle, and mixed-breed dogs, part Dachshund (Allen et al., 2021; Eggiman, 2006; Reichert, 1994, 1998). Twelve of the fourteen studies explicitly reported that the dogs were formally trained or certified as therapy or service animals. Several studies employed dogs certified by recognised organisations such as Canine Companions for Independence or other local or international therapy dog programmes (Allen et al., 2021; Dietz et al., 2012; Krause-Parello et al., 2018; Krause-Parello & Gulick, 2015). Other studies described dogs that were behaviourally screened and trained for suitability within therapeutic or educational contexts (Signal et al., 2016; Taylor et al., 2014) or facility-trained service dogs working in forensic or legal environments (Howell et al., 2021).

Therapist Qualifications. As presented in Table 2, across the 14 included studies, seven reported that interventions were conducted by master's-level social workers, counsellors, or therapists with between 3 and 17 years of experience working with abused children (Allen et al., 2021; Dietz et al., 2012; Krause-Parello et al., 2018; Reichert, 1998; Shenk et al., 2022; Signal et al., Taylor et al., 2014). Two studies noted that clinicians were trained in TF-CBT, and three confirmed that clinicians had completed formal TF-CBT certification requirements (Allen et al., 2021; Brown et al., 2024; Shenk et al., 2022). Five studies indicated that clinicians underwent animal-assisted therapy (AAT) training prior to implementation (Allen et al., 2021; Dietz et al., 2012; Howell et al., 2021; Shenk et al., 2022; Signal et al., 2016), with three providing details on training content, including recognising canine body language, providing basic obedience cues, and identifying signs of canine distress (Allen et al., 2021; Brown et al., 2024; Shenk et al., 2022). One study reported that interventions were facilitated by two social work students under

the supervision of a master's-level social worker and an AAT therapist experienced in working with at-risk adolescents (Hamama et al., 2011). Another study described legal and forensic professionals (e.g., coordinators, advocacy workers) with 2 to 17 years of experience handling facility dogs in court and legal settings (Howell et al., 2021). Finally, eight studies explicitly included certified animal-assisted therapists or handlers as part of the intervention team (Allen et al., 2021; Brown et al., 2024; Dietz et al., 2012; Howell et al., 2021; Krause-Parello & Gulick, 2015; Krause-Parello et al., 2018; Shenk et al., 2022; Signal et al., 2016; Taylor et al., 2014), while one study did not specify clinician qualifications (Eggiman, 2006).

Table 2

Therapist Qualifications

Clinician Qualification / Professional Role	Number of Studies (n=14)
Master's-level social workers/counsellors/therapists	8
Trained TF-CBT clinicians	2
Completed formal TF-CBT certification requirements	3
Certified animal-assisted therapists/handlers	8
(AAT) training prior to implementation	5
Legal/forensic professionals (coordinators, advocacy workers)	1
Social work students under supervision	1
Unspecified qualifications	1

Attrition Rates. As presented in Table 3, of the six articles that reported directly on attrition rates, 5 had zero dropout rates (Allen et al., 2021; Brown et al., 2024; Dietz et al., 2012; Shenk et al., 2022; Taylor et al., 2014). Among these, three studies (Allen et al., 2021;

Brown et al., 2024; Shenk et al., 2022) compared AAT with TF-CBT and reported two dropouts in each of their TF-CBT groups, with no dropouts in the AAT groups. Additionally, in both groups, one participant was withdrawn from the interventions due to inpatient hospitalisation (Allen et al., 2021; Brown et al., 2024; Shenk et al., 2022). Separately, Signal et al. (2016) reported two withdrawals (due to after-school commitments or ill health) and one termination due to aggressive behaviour during initial sessions.

Table 3

Attrition Rates Reported By Six Articles

Study	AAT Dropouts	AAT Withdrawals	FT-CBT Dropouts	FT-CBT Withdrawals	Notes
Allen et al., 2021	0	1	2	1	Withdrawal: hospitalisation
Brown et al., 2024	0	1	2	1	Withdrawal: hospitalisation
Dietz et al., 2012	0	0	N/A	N/A	Zero dropouts/withdrawals
Shenk et al., 2022	0	1	2	1	Withdrawal: hospitalisation
Taylor et al., 2014	0	0	N/A	N/A	Zero dropouts/withdrawals
Signal et al., 2016	0	3	N/A	N/A	Withdrawal: Premature, school obligations
Total number of Attrition	0	6	6	3	

4.5.3 Theme 3: Clinical Outcomes: PTSD and Associated Symptoms.

The effectiveness of AAT was assessed through its impact on a range of trauma-related psychological symptoms. Since PTSD is a primary concern for CSA survivors, the findings are first summarised by overall PTSD symptom reduction. To provide a more nuanced understanding. Following this, the results are then organised into two broad symptom clusters: internalising symptoms (e.g., depression, anxiety, withdrawal) and externalising symptoms (e.g., behavioural problems, aggression, sexualized behaviours). As shown in Table 4.

Sub-theme 3.1. PTSD symptom reduction: Of the fourteen included studies, six studies that specifically address PTSD symptoms reported significant reductions in PTSD symptoms (Dietz et al., 2012; Eggiman, 2006; Hamama et al., 2011; Signal et al., 2016). Although two studies are in contrast, Allen et al. (2021) reported no significant differences between the TF-CBT and TF-CBT + AAT groups during the pre-treatment phase; however, caregivers reported significant improvements in both groups. In contrast, children in the TF-CBT group showed significant improvements over time, whereas those in the TF-CBT+AAT group did not. In addition, post-treatment, the TF-CBT group's mean score was well below the clinical cut-off, whereas the TF-CBT+ group's mean score was not. Additionally, Brown et al. (2024) reported more severe posttreatment PTSD symptoms for TF-CBT+ AAT than less severe posttreatment PTSD symptoms for the CBT group. Furthermore, Dietz et al. (2012), Hamama et al. (2011), and Allen et al. (2021) all reported on the overall reduction in PTSD-related symptoms but also looked at PTSD subscales. Allen et al. (2021) reported the largest decrease was shown in the PTSD subscale pre- and post-treatment in the dogs with stories group (M=–5.24, SD=7.24), followed by the dogs with no stories group (M=–2.33, SD=5.30) and the groups with no dogs (M=−1.66, SD=5.46).

Findings from a longitudinal and a cross-sectional study reported higher levels of PTSD symptoms of girls in an intervention group vs. a normative group at baseline, but longitudinal findings indicated a rapid decline in PTSD symptoms of the intervention group with a reduction in the proportion of participants with elevated risk for PTSD (Hamama et al., 2011). Hamama et al. (2011) reported statistically significant reductions in dissociation and in avoidance symptoms. Beyond overall PTSD scores, several studies measured changes in specific symptom clusters, which we have categorised as internalising and externalising symptoms.

3.1.1 Cluster A: Internalising Symptoms. Four studies reported clinically significant reduction in depression symptoms (Dietz et al., 2012; Eggiman, 2006; Hamama et al., 2011; Luley, 2016). A cross-sectional study found lower levels of subjective well-being and higher levels of depressive symptoms for the intervention group compared to the control group at baseline, differences diminished by the end of the intervention (Hamama et al., 2011). Luley (2016) reported a reduction in internalising problems, specifically in the anxious/depressed and withdrawn/depressed subscales, following individual AAT. Two studies reported a decrease in stress biomarkers in forensic settings, including a decrease in heart rate and blood pressure (Krause-Parello et al., 2018; Krause-Parello & Gulick, 2015). Furthermore, five studies reported a statistically significant reduction in anxiety symptoms (Allen et al., 2021; Dietz et al., 2012; Eggiman, 2006; Luley, 2016; Signal et al., 2016), while three studies observed this, with children becoming calmer (Howell et al., 2021; Reichert, 1994, 1998). Furthermore, one study, Dietz et al. (2012), noted a decrease in anger symptoms. Lastly, Reichert (1994, 1998) noted that children often feel a sense of shame and guilt following CSA, the utilisation of therapeutic stories through the dog helped children express feelings of shame and guilt. Furthermore, studies highlighted that AAT can help with the promotion of

self-esteem (Reichert, 1994, 1998) and a sense of confidence and empowerment (Howell et al., 2021).

3.1.2 Cluster B: Externalising Symptoms. Three articles reported on reductions in inappropriate behaviour and sexual concerns (Dietz et al., 2012; Eggiman, 2006; Taylor et al., 2014), with Eggiman (2006) and Taylor et al. (2014) reporting a reduction in the frequency or a complete stop in behaviours indicative of cruelty towards animals and inappropriate sexual touching of animals. Four articles reported on significant reduction of behavioural problems, including aggressive behaviour, conduct and rule-breaking behaviours (Allen et al., 2021; Eggiman, 2006; Luley, 2016; Taylor et al., 2014), with Taylor et al. (2014) demonstrating that children who participated in individual AAT compared to group AAT showed a significant reduction in aggressive behaviours.

Table 4

Reduction in Trauma Symptoms

Categories of Outcomes	Outcome / Subscale	n
Cluster A: PTSD Symptoms	PTSD - general reduction	4
	Dissociation ↓	2
	Avoidance ↓	1
Cluster B: Internalising Symptoms	Depression ↓	4
	Anxiety ↓ (quantitative)	5
	Anger ↓	1
	Self-esteem ↑	2
	Empowerment/Confidence ↑	2
	Physiological stress markers (HR/BP) ↓	2
	Shame and guilt ↓	2
Cluster C: Externalising Symptoms	Sexual concerns/inappropriate sexual behavior ↓	3
	Cruelty/sexual touching of animals ↓	2
	Behavioural problems (aggression / conduct / rule-breaking) ↓	4

4.6 Conclusion

The findings of this review show that AAT can provide meaningful benefits for children who have experienced sexual abuse. In this review, three themes emerged across the fourteen included articles. The first theme highlighted the therapeutic mechanisms and healing processes, which showed how the presence of the animal helped create safety, comfort, and opportunities for emotional expression. The second theme focused on the implementation factors that influenced AAT's success, such as the therapist's training, the way the animal was integrated into the therapeutic model, attrition rates, and the animal's characteristics. The final theme identified clinical outcomes, which included reductions in PTSD symptoms, anxiety, and behavioural problems. Taken together, these findings suggest that AAT supports healing through a natural process in which the child's sense of safety and emotional regulation are strengthened through interaction with the animal. However, differences in intervention design, integration, and methodological quality indicate that these results should be interpreted with caution. The following chapter discusses these findings in relation to existing literature and theoretical frameworks to address the research questions guiding this review.

Chapter 5: Discussion

5.1 Introduction

This chapter discusses the findings of the qualitative narrative systematic review, which examines the effectiveness of AAT for children who have experienced CSA. The discussion integrates the emergent themes from fourteen studies with the existing literature reviewed in Chapter Two, while also addressing the research questions guiding this review:

1. RQ1: How effective is AAT in addressing the psychological impact of sexual abuse in children?
2. RQ2: What factors influence the success or limitations of AAT interventions in CSA treatment?

Framed within a constructivist–interpretivist paradigm, this discussion aims to interpret the patterns and relationships identified across studies to construct meaning and understanding rather than statistical generalisation (Petticrew & Roberts, 2006; Thorne, 2000).

5.2 Summary of main findings

Overall, the findings from the fourteen included studies revealed three overarching themes. The first theme concerned the therapeutic mechanisms and healing processes of therapy animals, which are based on five main themes: providing comfort and safety, enabling emotional expression, and facilitating communication. Furthermore, the presence of a therapy animal creates a foundation of psychological safety and physical comfort, lowering anxiety and facilitating a gradual process of opening up in subsequent sessions. The dog serves as an active coping tool, allowing children to regulate their emotions and feel safe (Krause-Parello & Gulick, 2015; Reichert, 1998). The second theme, Implementation

Factors, included the structural and professional elements influencing intervention success, such as therapist qualifications, characteristics of the therapeutic animal, intervention structure, and participant engagement (Allen et al., 2021; Dietz et al., 2012). Finally, theme 3: Clinical Outcomes documented significant reductions in trauma-related symptoms, including PTSD, anxiety, and behavioural problems, following AAT (Hamama et al., 2011; Signal et al., 2016).

5.3 Interpretation of Findings in Relation to Research Questions

5.3.1 Addressing RQ1: The Effectiveness of AAT for CSA

The findings of this systematic review indicate that AAT is an effective intervention for reducing the psychological impact of CSA. The effectiveness of AAT is demonstrated through significant reductions in trauma-related symptoms, as documented in Theme 3 (Clinical Outcomes). However, to understand how AAT achieves these outcomes, it is necessary to examine the therapeutic process revealed in Theme 1 (Therapeutic Mechanisms). The evidence shows that AAT works through a natural process in which feelings of safety lay the groundwork for deeper therapeutic engagement, which ultimately leads to clinical improvement.

A fundamental aspect of this process is the therapeutic animal's ability to establish psychological and physiological safety. The reviewed studies consistently highlighted that the presence of a therapy animal promotes a profound sense of comfort, safety, and predictability for children (Eggiman, 2006; Howell et al., 2021; Reichert, 1998). This is consistent with the earlier findings where Dr Boris Levinson observed that the presence of his dog encouraged a withdrawn child to engage in therapy (Levinson, 1962). The consistent finding that dogs provide comfort and safety suggests they act as a 'social lubricant' and a secure base, effectively lowering the affective barriers to therapy that are common in traumatised children.

As noted by Samuel Corson, dogs serve as a social lubricant since the presence of the animal can help break down barriers between a child and a therapist, which provides a way for the child to express their feelings and emotions in a nonverbal manner (Fung, 2024). The animal's calm and non-threatening behaviour functions as a safety signal, consistent with Porges (2011), theory that mammals convey safety through nonverbal cues. When the animal is perceived as safe, the child is likely to mirror its calm state (MyersOlin, 1996), which in turn promotes emotional regulation and engagement in therapy.

This finding is powerfully explained by Attachment Theory (Bowlby, 1988) and the Biophilia Hypothesis (Wilson, 1984). The therapy animal functions as a non-judgmental and secure base, fulfilling a fundamental need for safety that is often destroyed by abuse (Ensink et al., 2019). Furthermore, the child's innate draw to the calm, non-threatening animal, a core tenet of biophilia, activates a sense of safety that may not be possible with a human therapist alone (Ensink et al., 2019).

As Odendaal (2000) proposed, AAT is effective because it satisfies a fundamental biological need for connection and attention in both humans and animals, which creates a mutually restorative feedback cycle of fulfilment and need that supports emotional and physiological well-being. Therefore, it can be suggested that this psychological safety is deeply intertwined with physical regulation. The act of petting, stroking, holding, or sitting beside the dog was consistently reported as a grounding and regulating mechanism (Eggiman, 2006; Howell et al., 2021; Krause-Parello et al., 2018; Krause-Parello & Gulick, 2015; Reichert, 1998), a common form of physical contact (Sub-theme 1.5). This physical connection directly facilitates physiological stress reduction (Sub-theme 1.4), as seen in studies showing that children interacting with a dog had lower heart rate, blood pressure, and cortisol levels during stressful forensic interviews (Krause-Parello et al., 2018;

Krause-Parello & Gulick, 2015). In this way, AAT concurrently calms the mind and the body, creating a secure foundation essential for children whose sense of safety has been shattered by abuse. These findings support existing neurobiological research reviewed earlier, which shows that human-animal interaction can reduce cortisol and increase oxytocin (Arsovski, 2024; Meints et al., 2022). Furthermore, engaging with animals can increase oxytocin levels, which play a crucial role in social attachment and emotional regulation. The release of oxytocin is associated with reduced fear responses, stress, and anxiety, as well as enhanced trust (Arsovski, 2024; Parish-Plass, 2020). This result is further established in Odendaal's (2008) study that after participants interacted with dogs, their oxytocin and dopamine increased, and the strongest oxytocin responses occurred when individuals interacted with their own dog, suggesting that pre-existing attachment bonds amplify the physiological and emotional benefits of the interaction. This is particularly relevant in the context of CSA, where primary attachment relationships are often disrupted or damaged. The animal's capacity to form a stable and non-judgmental bond offers a unique opportunity for survivors to re-establish trust and experience secure attachment.

In this way, AAT not only regulates physiological stress but may also help restore the child's capacity for connection, forming the groundwork for deeper therapeutic engagement and recovery (Ensink et al., 2019).

From a biological perspective, this stress-buffering effect illustrates how AAT engages the body's parasympathetic nervous system to restore homeostasis and calm (Reilly et al., 2024), which is further noted by Kertes et al. (2016), who demonstrated that dogs provide social and emotional support during stressful events for children, thereby lowering levels of cortisol in response to petting their dog. Petting a dog can activate the parasympathetic nervous system, which induces relaxation (Arsovski, 2024).

Upon this foundation of safety, the core therapeutic work of emotional expression and communication can unfold. The animal's role as a secure base directly enables its function as a social bridge. This is vividly captured in sub-theme 1.3 (Facilitating Communication), where children who were previously unable to speak or make eye contact began to engage with adults once a therapy dog was present (Howell et al., 2021). The dog mitigates the perceived threat of authority figures, transforming the therapeutic environment.

This aligns with attachment theory, which proposes that children seek out an attachment figure during periods of distress or fear, gaining comfort and a sense of security from their presence (Jones, 2015). In the absence of this figure, children may experience distress or anxiety. Extending this idea, Melson (2000) suggested that when children develop a sense of security with animals, they may turn to them in similar ways, seeking comfort and reassurance during times of emotional upset.

This safe, enhanced communication then creates a channel for emotional expression (Sub-theme 1.2). Studies documented that children were more likely to disclose traumatic experiences or express emotions by projecting them onto the animal (Eggiman, 2006; Reichert, 1998; Signal et al., 2016). For example, a child could describe the dog’s imagined feelings or experiences, which symbolically represented their own distress. This aligns closely with psychodynamic principles of projection and symbolic play (Clarkson & Pokorny, 1994; Kegerreis, 2009), where indirect communication allows unconscious material to surface safely. In AAT, the dog becomes a transitional object that mediates communication between the child and the therapist, enabling the child to explore painful emotions without direct confrontation. This creates a gentler pathway crucial for CSA survivors who often struggle with avoidance (Murphy et al., 2013).

Ultimately, this integrated process, from establishing safety to enabling expression, is what drives the significant clinical outcomes documented in this review. The reduction in PTSD symptoms, such as hyperarousal and intrusive thoughts (Dietz et al., 2012; Hamama et al., 2011), can be directly linked to the physiological calming and sense of security AAT provides. Similarly, the improvements in internalising symptoms (e.g., anxiety, depression) and externalising behaviours (e.g., aggression) are the measurable results of children finally being able to express pent-up emotions within a safe and regulating relationship (Signal et al., 2016; Taylor et al., 2014).

However, the studies that integrated AAT within TF-CBT frameworks (Allen et al., 2021; Brown et al., 2024) reported mixed results. In these cases, although caregivers observed emotional improvement and greater engagement, the quantitative reduction in PTSD symptoms was comparable to or sometimes lower than standard TF-CBT. These variations suggest that AAT's efficacy depends largely on how intentionally and systematically it is embedded within the therapeutic model. As noted in Chapter 2, TF-CBT already demonstrates strong empirical support for reducing PTSD symptoms (Cohen et al., 2004; Deblinger et al., 2006). When AAT is incorporated without a defined therapeutic role for the animal, its unique benefits may be diluted. This will be further expanded and addressed below. Taken together, these findings suggest that AAT is successful in CSA trauma. The review therefore positively answered RQ1.

5.3.2 RQ2: The factors influencing the success or limitations of AAT interventions in CSA treatment

The findings of this review suggest that the success of AAT in addressing the effects of CSA depends on several interrelated factors. These include the level of structure and integration within the intervention, the training and competence of the therapist, and the

therapy's capacity to foster engagement and reduce avoidance. The following discussion explores each of these factors in turn, drawing on the evidence outlined in Theme 2 (Implementation Factors).

As Howell et al. (2021) pointed out, the animal itself is not the therapist. Instead, the animal forms part of the therapist's professional practice, supporting the client's therapeutic process. Thus, AAT should be viewed as a complementary method that fits within existing therapeutic models rather than as a standalone treatment (Chandler, 2012). This perspective helps explain why some studies have reported different outcomes. In interventions that incorporated therapeutic storytelling, psychoeducation, or progressive exposure where the dog was purposefully included as part of the therapeutic process, the results tended to be more positive (Dietz et al., 2012; Signal et al., 2016). In contrast, when the animal's role was present but not clearly defined, as seen in the TF-CBT + AAT studies, the outcomes remained positive but did not show any additional therapeutic advantage over traditional TF-CBT alone (Allen et al., 2021; Brown et al., 2024; Shenk et al., 2022). This suggests that the effectiveness of AAT depends less on the type of therapy and more on how thoughtfully the animal is integrated into the process. This idea is further supported by the definitions established by Pet Partners and the Delta Society, which describe AAT as a goal-directed intervention requiring clear objectives and professional facilitation (Fine, 2015; Howell et al., 2022).

Dietz et al. (2012) further illustrate this point. Therapists in their study (Dogs No Stories) reported positive effects from incorporating therapy dogs into group sessions, noting that children appeared more comfortable and engaged. However, some therapists expressed uncertainty about how to connect the dog's presence to the therapeutic goals of the session or to the children's experiences of abuse. This uncertainty led the clinical director to implement

a more structured framework that clearly defined the dog's role within the therapy process (dogs with stories). Following these adjustments, the therapeutic focus and continuity of sessions improved, highlighting the importance of deliberate planning and consistency when implementing AAT.

Some clinicians received formal training in AAT prior to implementing the intervention, while others participated in preparatory workshops or had prior experience working with therapy animals (Allen et al., 2021; Dietz et al., 2012; Howell et al., 2021; Signal et al., 2016). Similarly, a few studies reported that therapists were trained or certified in TF-CBT before delivering AAT-integrated sessions (Allen et al., 2021; Brown et al., 2024; Shenk et al., 2022). Therefore, training ensured ethical and safe practice and maintained animal welfare standards, which aligns with professional guidelines outlined by Fine (2006) and the IAHAIO framework (Clark et al., 2020). Current evidence does not demonstrate a direct link between therapist training and improved clinical outcomes. However, such preparation could support greater consistency in intervention delivery. Therapists with training will be better equipped to integrate the animal purposefully and follow structured protocols, which can sustain a stable therapeutic environment across sessions.

A particularly notable finding was the remarkably low attrition rates in the AAT interventions. Of the six studies reporting on dropout rates, five of those studies recorded zero dropouts among participants (Allen et al., 2021; Brown et al., 2024; Dietz et al., 2012; Shenk et al., 2022; Taylor et al., 2014). In comparative studies, TF-CBT groups experienced minor dropout rates, whereas AAT groups did not. Even in cases where withdrawals occurred, the reasons were unrelated to the therapy itself (e.g., scheduling conflicts or illness) (Signal et al., 2016). Because children of sexual abuse often display avoidance and have difficulty engaging in talk therapy (Murphy et al., 2013), this can be seen as a significant advantage. The

inclusion of therapy animals may enhance engagement and motivation in attendance, likely because the animals contribute to a sense of comfort and positive anticipation before sessions. It can therefore be concluded that AAT is not just an intervention for symptom reduction but also a valuable complementary intervention to use for improving treatment adherence, which is a common challenge in child trauma work.

Additionally, across the structured and unstructured interventions (sub-theme 2.1 Intervention Features), session length and program duration across studies varied, ranging from brief 20–30-minute sessions to extended 3-hour group interventions. Despite these differences, consistent benefits were observed, which suggest that the therapeutic effects of AAT may not depend on the length of the session but rather on the quality and frequency of the interaction. This aligns with Odendaal's (2000) physiological findings, which demonstrated that significant decreases in cortisol and increases in oxytocin and dopamine could be achieved within 5 to 24 minutes of positive human–dog interaction.

In summary, the findings under this theme demonstrate that structured and intentional integration of animals, coupled with qualified and trained therapists, can significantly enhance the therapeutic process. The evidence supports that AAT's success is not random but depends on methodological structure, professional skill, and the quality of the human–animal relationship. In addition, near-zero attrition rates underscore AAT's strong potential to improve engagement and retention among CSA survivors who typically struggle to sustain participation in traditional therapy. These factors collectively explain why the effectiveness of AAT varies across the studies and, furthermore, highlight the importance of intentional, evidence-informed practice.

5.4 Limitations of the Review

The findings of this review must be interpreted in light of its limitations. The relatively small number of included studies (n = 14) and their concentration in Western contexts, primarily the United States, may limit the generalizability of the findings to other cultural and clinical settings. The inclusion of diverse study designs, ranging from case studies to randomised controlled trials, provided a rich and comprehensive overview of the field. However, this methodological heterogeneity also presents challenges for comparison and synthesis. Differences in study design, participant characteristics, intervention duration, and outcome measures make it difficult to draw definitive conclusions about the consistency of AAT's effects.

Furthermore, the current evidence base is characterised by a lack of long-term follow-up data, which limits understanding of AAT's durability over time. Many studies were limited by small sample sizes and non-standardized measures, reducing statistical power and replicability.

A further limitation concerns the classification of intervention structure. In this review, the researcher deemed several interventions to be unstructured, even when the broader therapeutic modality (such as TF-CBT or play therapy) was described by the original authors as structured. This interpretation was based on the observation that, in many of these studies, the therapy dog was not fully integrated into the structured therapeutic framework. Instead, the animal's role was largely passive or peripheral, meaning that the principles of AAT, such as goal-directed interaction and therapeutic purpose, were not consistently applied.

Although a structured and planned methodology was followed during the systematic review, several limitations may have impacted the findings. Firstly, during the sampling phase, only studies that could be easily accessed and downloaded without having to pay were

included. The Rhodes University database was the main source for articles, and some of the databases could not be accessed; for example, not all the EBSCO databases could be accessed, so there was limited access to some full-text studies. While efforts have been made to access all relevant literature, some studies remained inaccessible due to subscription restrictions or limited availability. Secondly, only studies that were in English were utilised; this would mean that a lot of other studies were potentially excluded as a result of that. This may have resulted in cultural and geographical bias, potentially limiting the transferability of findings to diverse cultural contexts and therapeutic traditions. In addition, because AAT consists of such a broad intervention with different types of animals being utilised, for example, horses, dolphins, and cats, only dogs were included in the study.

5.5 Recommendations for Future Research

Future research should therefore aim to include more diverse populations to examine whether cultural factors influence the therapeutic mechanisms or outcomes of AAT. Specifically, there is a pressing need for studies conducted in the global south, including within African contexts, to determine the applicability and effectiveness of AAT in these settings. Future research should prioritise the development of standardised intervention frameworks for AAT in CSA contexts to enhance consistency and comparability across studies. Rigorous randomised controlled trials (RCTs) with larger and more diverse samples are needed to strengthen the evidence base and clarify causal relationships between AAT participation and psychological outcomes.

Longitudinal studies would be particularly valuable for assessing the sustainability of therapeutic gains and identifying which components of AAT contribute most to long-term recovery.

Additionally, including children's first-person perspectives could deepen understanding of the relational dynamics that make AAT effective. Finally, interdisciplinary research combining psychological, neurobiological, and physiological measures could provide a more comprehensive picture of the mechanisms underpinning AAT's impact.

Findings from this review suggest that when AAT is embedded inconsistently or the animal's role remains passive, the intervention's therapeutic impact may be reduced. Researchers should therefore ensure that the animal is meaningfully incorporated into each phase of the intervention, with clearly defined goals and therapeutic functions aligned to the overarching treatment model.

5.6 Conclusion

This qualitative narrative systematic review demonstrates that Animal-Assisted Therapy (AAT) can be an effective and meaningful intervention for children who have experienced sexual abuse. Across the reviewed studies, AAT consistently reduced trauma-related symptoms and fostered engagement through processes grounded in psychological safety, emotional regulation, and relational connection. The therapy animal's role as a source of nonverbal safety cues and emotional attunement appears central to facilitating trust, communication, and healing.

However, the review also highlights that AAT's success depends heavily on intentional implementation, therapist expertise, and ethical integration within structured therapeutic models. When designed and delivered purposefully, AAT offers not only symptom reduction but also a compassionate and accessible pathway for recovery in children whose experiences of abuse have disrupted their capacity for safety and trust.

Overall, these findings underscore AAT's potential as a complementary trauma-informed approach and provide a foundation for continued research into how

human-animal relationships can promote resilience and psychological healing in vulnerable populations.

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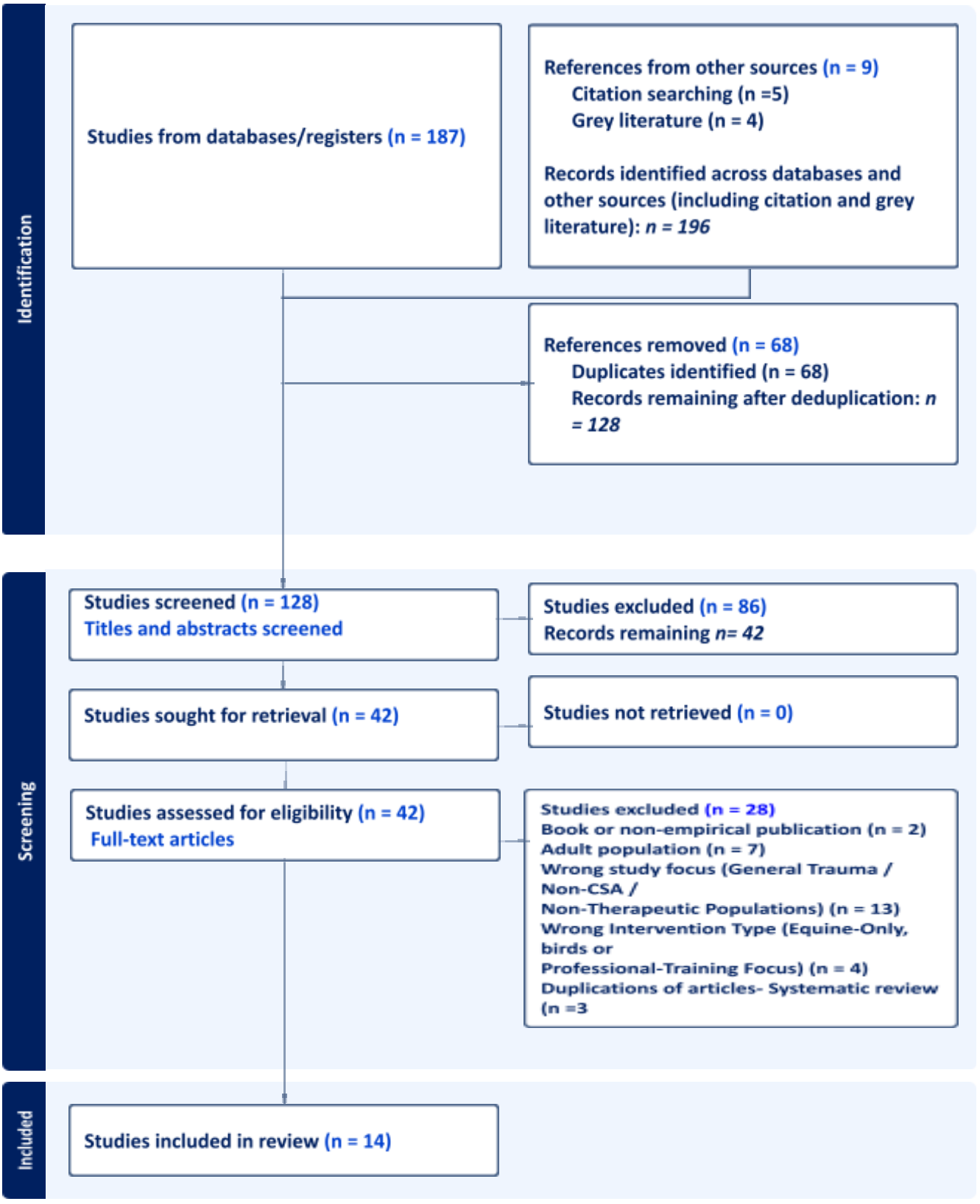
APPENDIX A

PRISMA

Systematic Review on Animal-Assisted Therapy for Children Affected by Sexual Abuse



APPENDIX B

SEARCH KEYS

Search Keys

Animal-assisted therapy, or AAT

Dog-assisted therapy

Child sexual abuse and AAT

Comprehensive Search String

("animal-assisted therapy" OR AAT OR "canine-assisted therapy" OR "dog-assisted therapy" OR "therapy dog*" OR "therapeutic dog*" OR "pet therapy") AND ("child sexual abuse" OR CSA OR "childhood sexual abuse" OR "sexual trauma" OR "sexual victimization" OR "childhood trauma" OR "child abuse" OR incest OR maltreatment) AND (psychological OR "mental health" OR PTSD OR "post-traumatic stress" OR anxiety OR depression OR "trauma symptoms" OR "emotional regulation" OR recovery OR "therapeutic outcomes" OR "psychological impact") AND (child* OR adolescent* OR minor* OR youth)

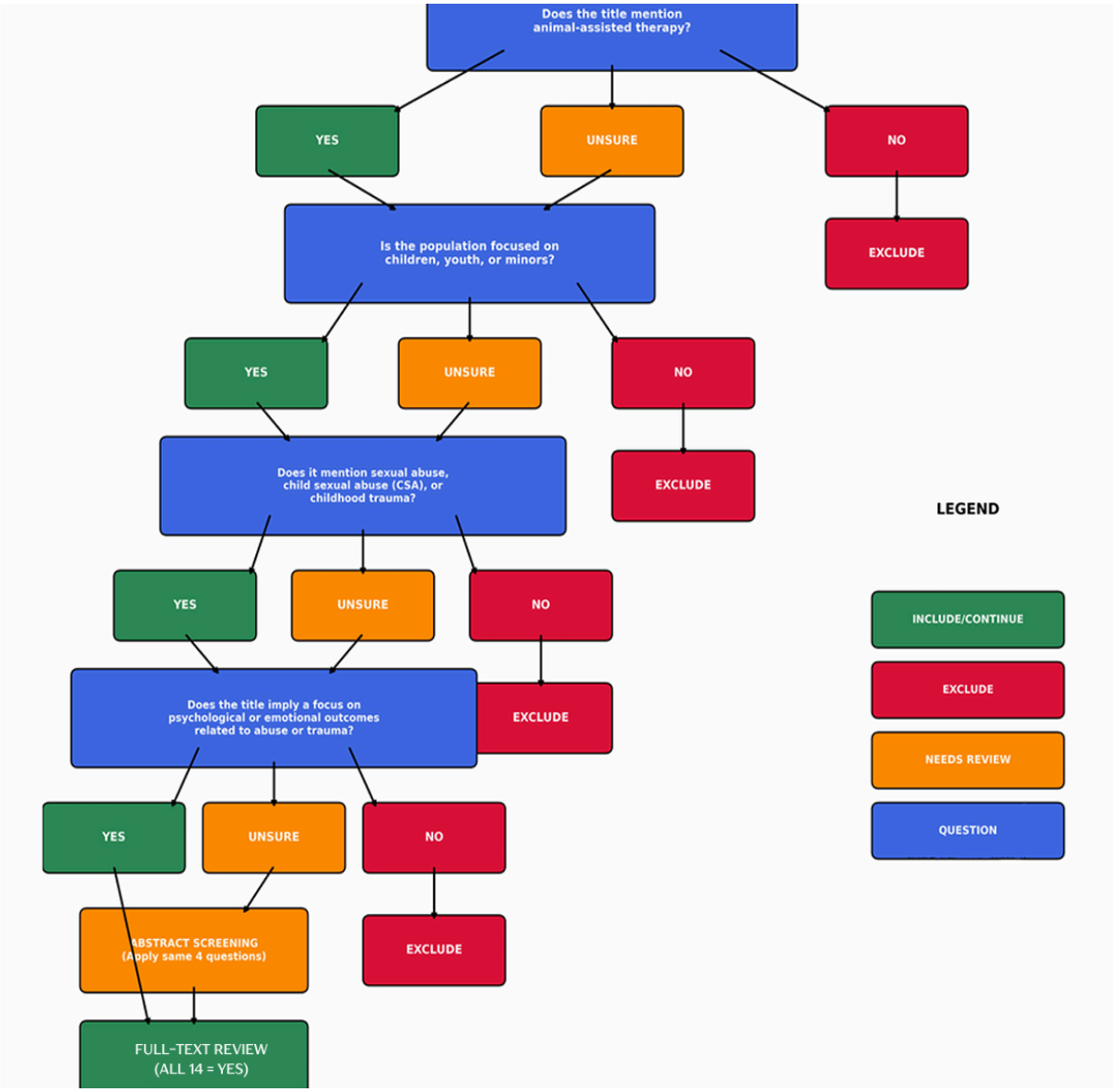
("animal-assisted therapy"[Title/Abstract] OR AAT[Title/Abstract] OR "Canine-assisted therapy"[Title/Abstract] OR "dog-assisted therapy"[Title/Abstract] OR "therapy dog*"[Title/Abstract] OR "pet therapy"[Title/Abstract])

("child sexual abuse"[Title/Abstract] OR CSA[Title/Abstract] OR "sexual trauma"[Title/Abstract] OR "child abuse"[Title/Abstract])

(child*[Title/Abstract] OR adolescent*[Title/Abstract] OR youth [Title/Abstract])"dog-assisted therapy" OR "canine-assisted therapy" OR "therapy dog*" OR "therapeutic dog*" OR ("animal-assisted therapy" AND dog*) OR ("pet therapy" AND dog*)) AND ("child sexual abuse" OR CSA OR "childhood sexual abuse" OR "sexual trauma" OR "sexual victimization" OR "sexual violence" OR "childhood trauma" OR "child abuse" OR incest OR maltreatment) AND (child* OR adolescent* OR minor* OR youth)

APPENDIX C

INITIAL STAGE SEARCHING



APPENDIX D

EXTRACTION SHEET

Animal-Assisted Therapy Research Extraction: Comprehensive Analysis of 14 Studies

Research Focus: Animal-Assisted Therapy for Children with Sexual Abuse Histories

Total Studies Analyzed: 14 research papers

Study Overview

Geographic Distribution

- **USA:** 11 studies
- **Australia:** 2 studies
- **Israel:** 1 study

Study Design Distribution

- **Randomized Controlled Trials:** 3 studies
- **Quasi-experimental:** 3 studies
- **Case Reports/Clinical Experience:** 3 studies
- **Retrospective Analysis:** 1 studies
- **Comparative Studies:** 2 study
- **Qualitative Studies:** 1 study
- **Experimental Studies:** 1 study

Table A: Study Characteristics & Intervention Details

Study ID	Title	Author(s) and Year	Study Design	Theoretical Framework	Setting	Country
Study 1	Cognitive-Behavioral Therapy: A Case Report – Animal-Assisted Therapy	Janet Eggiman, BSN, MSN (2006)	Case Report	AAT integrated within CBT	Clinical/private practice	USA
Study 2	A preliminary study of group intervention along with basic canine training among traumatized teenagers	Hamama et al. (2011)	Mixed-methods longitudinal	Trauma recovery theory	High school setting	Israel
Study 3	Integrating Animal-Assisted Therapy Into TF-CBT for Abused Youth With PTSD	Allen et al. (2022)	Randomized controlled feasibility trial	TF-CBT with adjunctive AAT	Outpatient clinic	USA
Study 4	Evaluating Animal-Assisted Therapy in Group Treatment for Child Sexual Abuse	Dietz, Davis, & Pennings (2012)	Comparative study/controlled	AAT integrated into group therapy	Child Advocacy Center	USA
Study 5	Examining the Effects of a Service-Trained Facility Dog on Stress in Children	Krause-Parello et al. (2018)	Repeated measures design	Animal-assisted stress reduction	Child Advocacy Center	USA (Virginia)

Study 6	Forensic Interviews for Child Sexual Abuse Allegations	Krause-Parello & Gulick (2015)	Intervention vs control	Animal-assisted stress buffering	Forensic interview setting	USA
Study 7	Going to the dogs: A quasi-experimental assessment of AAT	Signal et al. (2017)	Quasi-experimental	Trauma recovery and skill transfer	RSPCA shelter and Phoenix House	Australia
Study 8	Integrating Facility Dogs into Legal Contexts	Howell et al. (2021)	Qualitative exploratory	Professional practice frameworks	Legal settings	North America
Study 9	Social Work, Animal-Assisted Therapies and Ethical Considerations	Taylor et al. (2016)	Quasi-experimental repeated-measure	Ethical animal welfare frameworks	RSPCA shelter and Phoenix House	Australia
Study 10	Individual Counseling for Sexually Abused Children: A Role for Animals and Storytelling	Elisabeth Reichert (1998)	Clinical experience report	AAT as adjunct to counseling	PASAAC clinic	USA (Tennessee)
Study 11	Play and Animal-Assisted Therapy: A Group-Treatment Model	Elisabeth Reichert (1994)	Group therapy model	Traumawork theory with AAT	Clinical setting	USA
Study 12	Respiratory Sinus Arrhythmia Change during TF-CBT	Shenk et al. (2022)	Randomized controlled feasibility	Autonomic nervous system regulation	Clinical setting	USA
Study 13	The influence of pretreatment RSA on TF-CBT outcomes	Brown et al. (2024)	Randomized controlled feasibility	Autonomic regulation assessment	Clinical setting	USA
Study 14	Emotional and Behavioral Sequelae of CSA	Karen N. Luley (2016)	Retrospective study	Trauma-focused with adjunctive interventions	Dallas Children's Advocacy Center	USA (Texas)

Table B: Population and Intervention Details

Study ID	Sample Size	Age Range	Gender Distribution	Primary Diagnoses	Abuse Characteristics
Study 1	N=1	10 years	Female	PTSD	Physical and sexual abuse by stepfather
Study 2	N=18	Ages 14-16	All female	Trauma with psychological distress	Physical/sexual abuse 3-4 years prior
Study 3	N=33	Ages 6-17 (M=11.79)	Mixed gender	PTSD	Physical/sexual abuse, witnessing violence
Study 4	N=153	Ages 7-17	88.3%-98.4% female	Validated CSA cases	CSA with various perpetrators
Study 5	N=51	Ages 4-16 (M=9.1)	22 males, 29 females	Sexual abuse allegations	Sexual abuse allegations
Study 6	N=42	Ages 5-14 (M=8.92)	95.2% female	Sexual abuse allegations	Various types of sexual assault
Study 7	N=20	Ages 5-12 (M=8.0)	12 males, 8 females	Sexual abuse with PTSD	Sexual abuse
Study 8	N=11 professionals	N/A	9 women, 2 men	N/A	Supporting SFV survivors
Study 9	N=20	Ages 5-12	11 boys, 9 girls	Sexual abuse survivors	Sexual abuse; 40% showing animal cruelty

Study 10	Clinical experience	Sexually abused children	Mixed	Sexual abuse	Sexual abuse
Study 11	Multiple groups	Ages 9-13	All female	Sexual abuse	Sexual abuse
Study 12	N=33 (N=29 with ECG)	Ages 6-17 (M=11.79)	67% female	PTSD	Physical/sexual abuse, witnessing violence
Study 13	N=33 (N=22 with ECG)	Ages 6-17 (M=11.79)	66.7% female	PTSD	Physical/sexual abuse, witnessing violence
Study 14	N=205	Ages 3-17	Mixed gender	Sexual abuse with forensic confirmation	Sexual abuse

Table C: Animal and Intervention Details

Study ID	Animal Type	Training Level	Key Characteristics	Session Format
Study 1	Standard Poodle	Delta Society certified	3-year-old poodle named Kotter	Structured sessions with storytelling
Study 2	Canines	Basic training as intervention	Companion animals providing acceptance	3-hour weekly group sessions
Study 3	Labrador Retrievers	Retired service dogs	Five separate Labradors	Dogs present for all treatment sessions
Study 4	Therapy Dogs	Trained with handlers	Various breeds	Monthly visits with therapeutic stories
Study 5	Service-trained facility dog	Canine Companions training	Labrador/Golden Retriever mix	Single forensic interview support
Study 6	Therapy canines	Nationally certified	Golden Retriever, Newfoundland	Forensic interview comfort
Study 7	RSPCA shelter dogs	Behaviorally assessed	Three assessed therapy dogs	Initial animal interaction + skill transfer
Study 8	Facility dogs	ADI accredited or pet trained	Calm, bomb-proof temperament	Court and pre-court support
Study 9	RSPCA shelter dogs	Behaviorally assessed	Three assessed dogs	Shelter visits + social worker sessions
Study 10	Part Dachshund	Not specified	4½-year-old named Buster	Individual counseling support
Study 11	Part Dachshund	Not specified	4-year-old Buster, therapist's dog	Three-phase group treatment
Study 12	Service dogs	Local organization training	Retired/breeding dogs	TF-CBT session support
Study 13	Service dogs	Local organization training	Retired/breeding dogs	TF-CBT treatment support
Study 14	Therapy dogs	Not specified	Various characteristics	Individual or group AAT

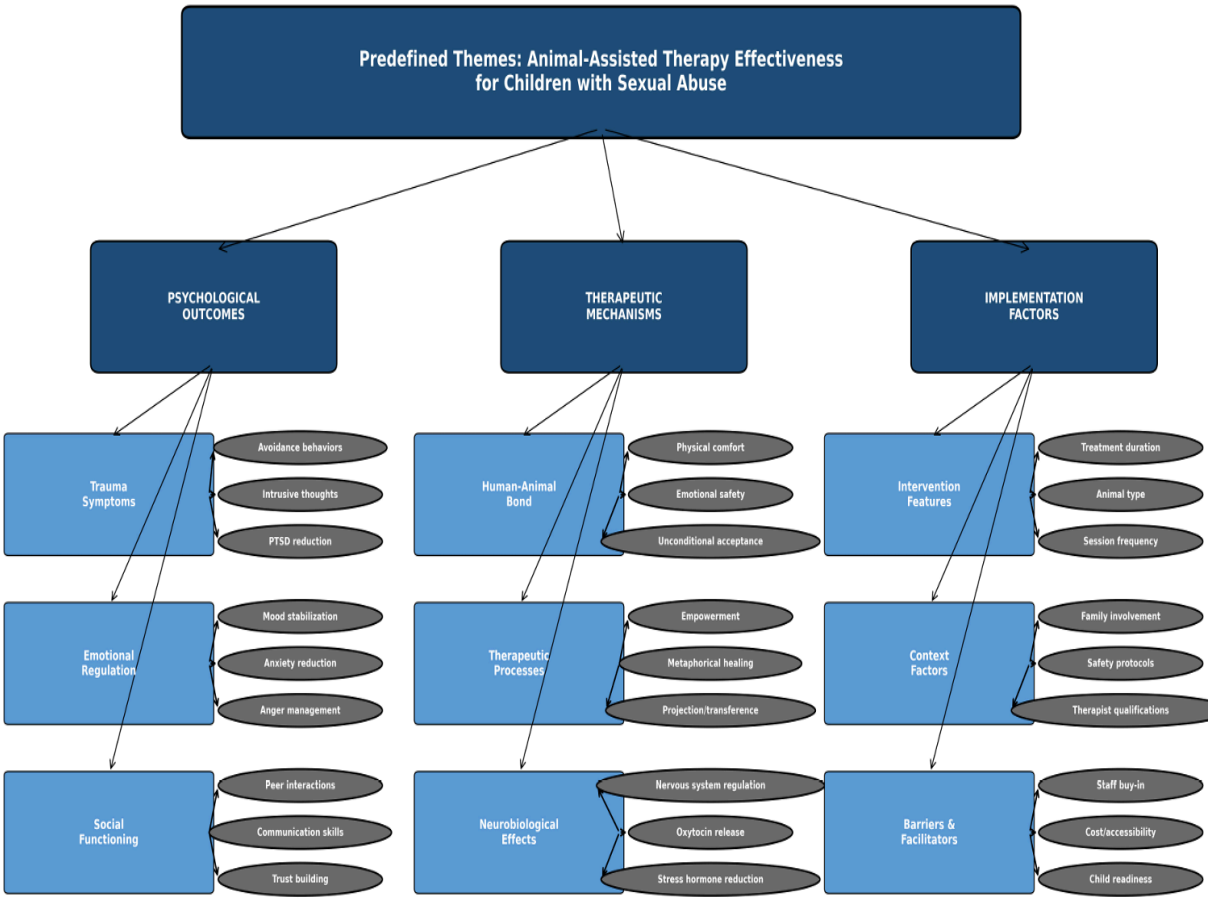
Table D: Outcomes and Main Findings

Study ID	Assessment Tools	Key Findings	Mechanisms Identified	Study Strengths	Limitations	Appraisal
Study 1	Behavioral observations	Dramatic behavioral improvement, increased disclosure	Animal provided safety and acceptance	Case report - qualitative insights	Relied on observational data and caregiver report; no standardized outcome measures	High
Study 2	PCL-C, SCESD, well-being scales	Significant PTSD symptom reduction (p=0.018)	Canine assistance builds control and mastery	Validated tools with statistical analysis	Small sample size and potential selection bias.	High
Study 3	UCLA PTSD,	AAT did not enhance PTSD improvement	AAT may reinforce avoidance behaviors	RCT following CONSORT guidelines	Small sample size, recruitment challenges, limited generalizability, AAT not fully integrated	Moderate

	SDQ, MFQ, SCARED				into treatment; clinicians were not the dogs' handlers.	
Study 4	TSCC (trauma symptoms)	Dogs With Stories showed greatest improvement	Structured stories facilitate therapy transition	Comparative study with validated instruments	Nonrandomized design, absence of a no-treatment control group, baseline group differences, and limited control over intervention variables.	High
Study 5	Physiological biomarkers, self-report	Significant HR and BP decreases in AAI condition	Dog presence reduces physiological stress	Repeated measures with objective biomarkers	Small exploratory sample; single-site study; use of a single facility dog; limited generalizability.	High
Study 6	Salivary cortisol, cardiac measures	Lower HR and cortisol in intervention group	Canine acts as stress buffer	Pre-post comparison with physiological measures	Small sample size, limited intervention control, and potential volunteer-related bias.	High
Study 7	PTSD symptoms (three timepoints)	87% adherence, significant PTSD improvement	Skill transfer from animal to human interactions	Quasi-experimental with multiple timepoints	Small, gender-biased sample; potential nonresponse bias; limited cultural generalizability; no longitudinal follow-up.	High
Study 8	Semi-structured interviews	Dogs improve testimony reliability, reduce burnout	Dogs help survivors feel safe to disclose	Qualitative exploratory with inductive analysis	Handler-reported qualitative data from a single geographic context.	High
Study 9	CBCL, CSBI measures	Significant decrease in animal cruelty behaviors	Increased empathy and skill transfer	Quasi-experimental with methodological limitations	Small sample size; limited measurement sensitivity; no longitudinal follow-up; animal outcomes not assessed.	Moderate
Study 10	Clinical observations	Facilitates disclosure and expression	Animal as nonjudgmental bridge	Clinical experience without formal assessment	Descriptive clinical article based on practitioner experience; no empirical evaluation, control group, or standardized outcome measures	Moderate
Study 11	Therapeutic observations	Group cohesiveness, victim-to-survivor transition	Animal eases tension, facilitates disclosure	Clinical model without empirical validation	Program description based on clinical practice; no formal evaluation or outcome data; small, gender-specific group	Moderate
Study 12	RSA via ECG, UCLA PTSD-RI-5	No AAT advantage; RSA regulation predicts outcomes	RSA regulation indicates treatment engagement	RCT with physiological measures	Small feasibility sample, single site, and limited statistical power. Animal not inter	Moderate
Study 13	RSA via ECG, UCLA PTSD-RI-5	Higher resting RSA predicts better outcomes	Pretreatment RSA indicates treatment sensitivity	RCT with pretreatment physiological assessment	Small exploratory sample with limited power and missing outcome data	Moderate
Study 14	CBCL (Child Behavior Checklist)	Individual AAT superior to group AAT	Individual AAT benefits attention problems	Retrospective analysis with standardized measures	Small sample, nonrandomized design, caregiver-reported outcomes, and limited generalizability.	Moderate

APPENDIX E

PRE-DEFINED CODING



PREDEFINED CODING STRUCTURE LEGEND

- Predefined Main Themes (3 primary categories)
- Predefined Subthemes (9 secondary categories)
- Predefined Individual Codes (specific data elements)

APPENDIX F

FINAL THEMES

Predefined Themes	Initial Subthemes / Codes (from a priori framework)	Refinement Process (merging, renaming, or discarding)	Final Themes and Subthemes (as presented in Results Chapter)
1. Psychological Outcomes	Trauma symptoms; Emotional regulation; Depression; Anxiety; PTSD; Self-esteem; Guilt; Shame; Confidence	Codes such as *self-esteem* and *confidence* were merged into *emotional regulation* and *empowerment* to reflect improved self-perception through therapy. PTSD, anxiety, and depression were grouped under broader trauma symptom reduction.	**Theme 3: Clinical Outcomes: PTSD and Associated Symptoms**• PTSD Symptom Reduction • *Cluster A: Internalizing Symptoms* (anxiety, depression, shame, guilt, emotional regulation) • *Cluster B: Externalizing Symptoms* (aggression, conduct issues, inappropriate sexual behavior)
2. Behavioral / Social Outcomes	Trust; Social skills; Empathy; Relationship building; Social connection; Prosocial behavior	Trust and relationship building were reclassified under *Therapeutic Mechanisms* as they described relational processes within therapy rather than outcomes. Prosocial behavior and empathy were folded into *Clinical Outcomes* as signs of improvement.	**Theme 1: Therapeutic Mechanisms and Healing Processes**• Providing Comfort and Safety• Facilitating Communication• Enabling Emotional Expression
3. Therapeutic Mechanisms	Safety; Attachment; Trust; Comfort; Emotional expression; Communication; Projection; Empathy; Physiological calming	Overlapping codes (*comfort*, *safety*, *trust*) were combined into the subtheme *Providing Comfort and Safety.* Emotional expression and projection merged under *Enabling Emotional Expression.* Physiological calming led to a separate subtheme on stress regulation.	**Theme 1: Therapeutic Mechanisms and Healing Processes**• Providing Comfort and Safety• Enabling Emotional Expression• Facilitating Communication• Physiological Stress Reduction• Physical Contact
4. Implementation Factors	Therapist qualifications; Structure of sessions; Type of animal; Animal behavior; Attrition; Duration and frequency of sessions; Setting	Codes *structure of sessions* and *duration/frequency* were merged under *Intervention Features (Structured and Unstructured).* Therapist skills and animal behavior became separate subthemes. *Setting* was excluded due to limited recurrence.	**Theme 2: Implementation Factors**• Intervention Features (Structured and Unstructured)• Characteristics of Animals• Therapist Qualifications• Attrition Rates
5. Neurobiological Mechanisms	Oxytocin; Cortisol; Heart rate; Stress hormones; Physiological arousal	Because physiological indicators were frequently reported as mechanisms of comfort and safety, these were integrated under *Physiological Stress Reduction* rather than kept as an independent category.	**Theme 1: Therapeutic Mechanisms and Healing Processes**• Physiological Stress Reduction

6. Cognitive Processes	Insight; Self-awareness; Problem-solving; Emotional understanding	These codes overlapped with *emotional regulation* and *empowerment*, so they were integrated into broader internal changes reflected under *Clinical Outcomes – Internalizing Symptoms.*	**Theme 3: Clinical Outcomes: PTSD and Associated Symptoms•** Cluster A: Internalizing Symptoms
7. Relational Factors	Human–animal bond; Attachment to therapist; Sense of belonging	Merged with *Therapeutic Mechanisms*, as the bond and attachment aspects formed part of *Providing Comfort and Safety* and *Facilitating Communication.*	**Theme 1: Therapeutic Mechanisms and Healing Processes•** Providing Comfort and Safety• Facilitating Communication
8. Emotional Outcomes	Empowerment; Hope; Motivation; Positive affect	Combined with *Psychological Outcomes*, as these reflect recovery markers. Specifically, *empowerment* and *hope* were reinterpreted as components of emotional regulation and trauma symptom improvement.	**Theme 3: Clinical Outcomes: PTSD and Associated Symptoms•** Cluster A: Internalizing Symptoms
9. Environmental / Contextual Factors	Therapeutic setting; External support; Program design	Due to low frequency and limited empirical detail, these were collapsed under *Implementation Factors* where relevant, or discarded if peripheral.	**Theme 2: Implementation Factors•** Intervention Features (Structured and Unstructured)

APPENDIX G

ETHICAL CLEARANCE LETTER

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RESEARCH ETHICS DECLARATION

To be included in the Appendices of research papers / dissertations / theses submitted for postgraduate examination where research did not involve interaction with human participants, or the use of animal subjects, and therefore did not require research ethics approval.

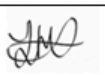
Candidates whose research did require ethics clearance must include their ethics approval letter in the Appendix of their examination submission.

Name of Candidate:	Lizaan Humphrys
Name of Supervisor:	Jan Knoetze
Degree:	Master of Arts in Clinical Psychology
Title of research:	Systematic Review on Animal-Assisted Therapy for Children Affected by Sexual Abuse

DECLARATION

I declare that my research did not require ethical clearance because (tick all that apply):

I did not collect data from human participants or animal subjects	
I used previously collected data that had already received ethics clearance.	
I analysed documents / open-access digital texts that are freely available in the public domain.	
I did a literature review/analysis of theoretical or secondary material only.	☒
I used human datasets of non-sensitive information that are either anonymous (identifiers were never collected) or have been deidentified (identifiers have been completely removed).	
I used commercially produced human biological material (e.g. established human cell lines).	
I observed people in public spaces and natural environments where they had no reasonable expectation of privacy and I did not interact with them or intervene in any way.	
I used non-living animal materials (eg bones of already deceased organisms or fossils) while complying with any custody and/or jurisdiction requirements.	
I did a content analysis of public media (newspapers, advertisements, and social media posts).	
I did a simulation study with no real-world consequences and does not involve disturbing or distressing content.	
I observed flora, fauna, and ecosystems without interfering with or disturbing their natural state while complying with any jurisdiction requirements.	
Other (Please provide details):	

Signature of Candidate: 

Date: 10/11/25

Signature of Supervisor: Jan Knoetze

Date: 10/11/25