

Animal-Assisted Interventions for Improving Social Communication and Social Skills in Children with Autism Spectrum Disorder

Narrative Literature Review

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Abstract: This narrative literature review examines evidence on animal-assisted interventions (AAIs) to improve social communication and social skills in children with autism spectrum disorder (ASD). The review synthesized peer-reviewed literature identified through Saybrook One Search, Google Scholar, and targeted reference searches, emphasizing studies published from 2019 through 2026 and earlier foundational sources as needed. Search terms combined autism, animal-assisted intervention or therapy, equine- and canine-assisted approaches, social communication, social skills, social engagement, and emotional regulation. We initially identified approximately 50 records; we screened titles and abstracts for relevance, removed duplicates and ineligible records, and retained 30 sources for narrative synthesis. Across intervention models, the literature suggests potential benefits for social communication, reciprocal interaction, engagement, and emotional regulation, but also substantial heterogeneity in samples, protocols, outcome measures, and methodological quality. Recent systematic reviews and meta-analytic evidence indicate improvements in some social-communication outcomes, though findings are not uniform across all social domains. Human-animal bond, attachment, and social learning perspectives offer complementary explanations for possible mechanisms, including emotional safety, motivation, modeling, and repeated opportunities for meaningful interaction. AAIs are best understood as complementary rather than replacement interventions. More rigorous randomized, longitudinal, and standardized research is needed to clarify which approaches are most effective, for whom, and under what conditions.

Keywords: Autism Spectrum Disorder; Animal-Assisted Interventions; Animal-Assisted Therapy; Social Communication; Social Skills; Human-Animal Interaction; Children

Introduction

Autism Spectrum Disorder is a complex neurodevelopmental condition marked by persistent differences in social communication and interaction, along with restricted or repetitive patterns of behavior, interests, or activities (American Psychiatric Association, 2022). According to the Centers for Disease Control and Prevention, ASD affects approximately 1 in 31 children in the United States, making it one of the most prevalent developmental disabilities among children (Shaw et al., 2025). Autism spans a broad spectrum of abilities and support needs. Interventions must be individualized to address each child's unique communication, behavioral, sensory, and social challenges (Centers for Disease Control and Prevention, 2023).

Among the defining characteristics of ASD, difficulties with social communication and social interaction often have the greatest impact on children's participation in everyday life (American Psychiatric Association, 2022). Social communication extends beyond spoken language and includes reciprocal conversation, interpreting verbal and nonverbal social cues, initiating and maintaining relationships, joint attention, and engaging meaningfully with others (American Psychiatric Association, 2022). These skills are foundational to academic success, emotional well-being, family relationships, and community participation (American Psychiatric Association, 2022). When children experience persistent challenges in these areas, they may be at increased risk for social isolation, anxiety, emotional dysregulation, and fewer opportunities to develop meaningful peer relationships (American Psychiatric Association, 2022).

A variety of evidence-based interventions, including speech-language therapy, occupational therapy, applied behavior analysis, and structured social skills training, have shown positive

outcomes for many children with ASD (American Psychiatric Association, 2022). Research suggests that communication gains in structured therapeutic settings do not always generalize to natural environments, such as home, school, and community settings (American Psychiatric Association, 2022). This recognition has prompted researchers and clinicians to explore complementary interventions that may enhance engagement, increase motivation, and provide meaningful opportunities to practice social communication in authentic contexts (Nieforth et al., 2023).

Animal-assisted interventions have emerged as a complementary approach. By intentionally incorporating trained animals into therapeutic, educational, and healthcare settings, AAIs aim to foster communication, emotional regulation, social engagement, and relationship development through structured human-animal interactions (Kilmer et al., 2025). Emerging evidence suggests that interactions with therapy animals may reduce anxiety, increase intrinsic motivation, encourage reciprocal social interactions, and create emotionally supportive environments that facilitate communication among children with ASD (Rehn et al., 2023). The body of research continues to grow, but findings remain fragmented because studies vary widely in intervention models, animal species, participant characteristics, outcome measures, and methodological quality. There is a need to synthesize current evidence on which interventions are effective and how and why they may influence social communication and social skill development.

This narrative literature review examines the current scholarly literature on animal-assisted interventions for children with autism spectrum disorder, with particular attention to their effects on social communication and social skills. Synthesizing existing evidence and analyzing the literature through the lenses of Human-Animal Bond Theory, Bowlby's Attachment Theory, and Bandura's Social Learning Theory, this review seeks to identify common findings, evaluate the strength of the current evidence, and provide recommendations for future research and interdisciplinary clinical practice.

Problem Statement

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder marked by persistent challenges in social communication and interaction, along with restricted or repetitive patterns of behavior. According to the Centers for Disease Control and Prevention (Shaw et al., 2025), approximately 1 in 31 children in the United States has been identified with ASD, making it one of the most prevalent developmental disabilities affecting children (Shaw et al., 2025). Difficulties with reciprocal communication, emotional regulation, and relationship development often interfere with participation in school, family life, and community activities, underscoring the need for effective interventions that support meaningful social engagement (American Psychiatric Association, 2022).

Evidence-based interventions, including speech-language therapy, occupational therapy, applied behavior analysis, and social skills training, have shown positive outcomes for many children with autism (Rehn et al., 2023). Despite these interventions, many children still experience persistent deficits in social communication and interaction that limit their engagement in everyday settings (Rehn et al., 2023). These ongoing challenges have prompted growing interest in complementary therapeutic approaches that may enhance traditional interventions (Rehn et al., 2023).

Animal-assisted interventions (AAIs), including equine-assisted therapy, canine-assisted therapy, and other structured human-animal interactions, have emerged as promising complementary approaches to improving outcomes for children with autism (Rehn et al., 2023; Nieforth et al., 2023). Recent studies suggest that interacting with animals may increase motivation to communicate, reduce anxiety, encourage shared focus, and promote reciprocal social engagement (Cedeño-Bruzual et al., 2023). For example, Cedeño-Bruzual et al. (2023) reported improvements in prosocial behavior and emotional regulation among autistic children with varying levels of verbal ability after animal-assisted therapy. The existing literature suggests promising outcomes, but most research focuses on specific intervention models or individual animal species rather than on the

broader mechanisms through which AAIs support social communication and social skill development (Cedeño-Bruzual et al., 2023). The variability in intervention protocols, outcome measures, and sample characteristics has made it difficult to draw consistent conclusions about best practices (Brazdeikienė & Zukhbaya, 2024).

The problem addressed in this narrative literature review is the limited synthesis of current evidence on how and why animal-assisted interventions improve social communication and social skills in children with autism spectrum disorder. By examining the literature through theoretical frameworks, including Human-Animal Bond Theory, Bowlby's Attachment Theory, and Bandura's Social Learning Theory, this review seeks to identify common themes, evaluate the current evidence, and provide recommendations for future research and clinical practice.

Purpose Statement

This literature review examines current scholarly literature on animal-assisted interventions as a complementary therapeutic approach to improving social communication and social skills in children with autism spectrum disorder. This review identifies major themes in the literature, examines relevant theoretical frameworks that explain therapeutic outcomes, and synthesizes evidence-based recommendations for clinicians, educators, and researchers seeking to improve social communication interventions for autistic children.

Research Question

What evidence does the current literature provide regarding the effectiveness of animal-assisted interventions in improving social communication and social skills among children with autism spectrum disorder?

Search Strategy

A narrative literature review methodology was used to synthesize current evidence on animal-assisted interventions and their effects on social communication and social skills among children with autism spectrum disorder. Searches were conducted in August 2026 using Saybrook OneSearch and Google Scholar; the Centers for Disease Control and Prevention website was consulted for current epidemiologic and clinical background information rather than as a source of intervention trials. Saybrook OneSearch was used as the primary discovery platform because it searches across multiple scholarly collections available through the university. The review emphasized peer-reviewed literature published from 2019 through 2026 to reflect current evidence, while earlier publications were retained when they represented foundational theory, landmark AAI research, or necessary background literature. Because this was a narrative rather than a systematic review, the search was designed for breadth and conceptual synthesis rather than exhaustive database-by-database replication or meta-analysis.

Search terms were combined using Boolean operators and phrase searching. Core concepts included "autism spectrum disorder" OR autism; "animal-assisted intervention" OR "animal-assisted therapy" OR "animal-assisted activity"; equine-assisted OR therapeutic horseback riding; canine-assisted OR dog-assisted; and outcome terms such as "social communication," "social skills," "social interaction," "social engagement," "joint attention," and "emotional regulation." Example combinations included (autism OR "autism spectrum disorder") AND ("animal-assisted intervention" OR "animal-assisted therapy") AND ("social communication" OR "social skills"); autism AND equine-assisted therapy; and autism AND canine-assisted therapy. Reference lists of relevant reviews and empirical studies were also examined to identify additional sources.

Sources were considered for inclusion if they were peer-reviewed empirical studies, systematic or scoping reviews, or meta-analyses relevant to children or adolescents with ASD and to structured animal-assisted interventions, and if they addressed social communication, reciprocal

interaction, social skills, engagement, emotional regulation, or closely related developmental outcomes. Sources were excluded if they focused exclusively on adults, described pet ownership without a structured intervention, lacked identifiable scholarly provenance, or did not address outcomes relevant to the review question. Background sources on ASD diagnosis, prevalence, and established therapies were retained only for contextual statements and were not treated as evidence for AAI effectiveness.

The initial search yielded approximately 50 potentially relevant records. Titles and abstracts were screened first; duplicate records were removed, and clearly ineligible sources were excluded. Full texts of the remaining records were then reviewed for population, intervention type, relevance to social-communication outcomes, and identifiable publication information. Thirty sources were retained for the narrative synthesis. Study characteristics and findings were compared across animal species, intervention settings, communication and social outcomes, and methodological limitations. No formal risk-of-bias instrument or statistical meta-analysis was conducted; therefore, conclusions are presented as a narrative synthesis and are intentionally cautious when the evidence is heterogeneous or methodologically limited.

Theoretical Framework

This narrative literature review is guided by three complementary theoretical perspectives: *Human-Animal Bond Theory*, *Bowlby's Attachment Theory*, and *Bandura's Social Learning Theory*. Together, these frameworks provide a foundation for understanding how animal-assisted interventions may improve social communication, social engagement, and social skill development among children with autism spectrum disorder. Each theory offers a distinct yet interconnected explanation of how relationships with therapy animals may facilitate emotional, behavioral, and social development.

Human-Animal Bond Theory

Human-Animal Bond Theory holds that meaningful relationships between humans and animals foster emotional well-being, psychological security, and social connectedness by cultivating trusting, reciprocal bonds (Nieforth et al., 2023). In animal-assisted interventions, this theory suggests that interactions with therapy animals provide children with ASD with a nonjudgmental, emotionally supportive environment that encourages social engagement while reducing anxiety and stress (Nieforth et al., 2023). Unlike many human interactions, therapy animals offer predictable responses and unconditional acceptance, which may increase a child's willingness to initiate communication, participate in shared activities, and develop reciprocal social interactions (Nieforth et al., 2023). Human-Animal Bond Theory therefore provides an important conceptual framework for understanding how the therapeutic relationship itself may contribute to improvements in social communication and overall social functioning (Dnistrianska & Kuts, 2025).

Bowlby's Attachment Theory

Bowlby's Attachment Theory holds that secure attachment relationships foster emotional regulation, confidence, and healthy social development (Kilmer et al., 2025). Originally developed to explain caregiver-child relationships, the theory has since been extended to acknowledge that a secure emotional bond can also form between humans and animals (Brazdeikienė & Zukhbaya, 2024). In animal-assisted interventions, therapy animals may serve as emotionally supportive companions, providing children with ASD with a sense of safety and stability (Kilmer et al., 2024). This increased emotional security may reduce anxiety and create opportunities for children to engage more confidently in reciprocal communication and social interaction (Ang & MacDougall, 2022). As children become more emotionally regulated, they may be more willing to participate in conversations, cooperative play, and therapeutic activities that strengthen communication and social skills (Dolecheck et al., 2024).

Bandura's Social Learning Theory

Bandura's Social Learning Theory holds that learning occurs through observation, imitation, modeling, and reinforcement in social settings (Beavers et al., 2023). This perspective is especially relevant to animal-assisted interventions because therapy sessions offer repeated opportunities for children to observe, practice, and receive positive reinforcement for appropriate social behaviors (Beavers et al., 2023). Therapists often model communication strategies, turn-taking, emotional expression, and problem-solving as children interact with therapy animals (Beavers et al., 2023). Positive interactions with the animal serve as natural reinforcers, encouraging children to repeat desired communication and social behaviors (Beavers et al., 2023). Through repeated observation and practice, children may gradually develop greater confidence, social competence, and communication skills that generalize beyond the therapeutic setting (Rehn et al., 2023).

Integration of the Theoretical Framework

Together, Human-Animal Bond Theory, Bowlby's Attachment Theory, and Bandura's Social Learning Theory offer complementary explanations for the effectiveness of animal-assisted interventions. Human-Animal Bond Theory explains how trusting relationships with therapy animals promote emotional connection and engagement (Nieforth et al., 2023). Bowlby's Attachment Theory provides insight into how emotional security may reduce anxiety and support reciprocal social interaction (Ang & MacDougall, 2022). Bandura's Social Learning Theory explains how observation, modeling, and reinforcement facilitate the acquisition and maturation of communication and social skills (Xiao et al., 2024). Collectively, these perspectives provide a conceptual lens for interpreting the literature in this review and a framework for understanding the mechanisms that may contribute to improvements in social communication, social engagement, and social skill development among children with autism spectrum disorder.

Literature Review Themes

Theme 1: Animal-Assisted Interventions and Social Communication Outcomes

Social communication deficits are among the defining characteristics of autism spectrum disorder and remain a major barrier to successful participation in educational, family, and community settings (American Psychiatric Association, 2022). Communication underpins learning, relationship development, and emotional well-being. Improving social communication is a primary intervention goal for children with ASD (Centers for Disease Control and Prevention, 2023). Across the current literature, Animal-Assisted Interventions have emerged as a promising complementary approach for supporting social communication by providing motivating, emotionally supportive, and socially engaging therapeutic experiences (Kilmer et al., 2025). Intervention models vary considerably, yet reviews and individual studies report potential improvements in communication initiation, reciprocal interaction, joint attention, conversational engagement, and social participation following some animal-assisted interventions (Kilmer et al., 2025). The literature suggests that animal-assisted interventions offer unique opportunities for children with ASD to practice communication skills in authentic, relationship-centered environments that extend beyond traditional therapeutic instruction (Rehn et al., 2023).

Current evidence shows that AAIs have been successfully integrated into a range of clinical, educational, and community settings as complementary interventions to enhance communication and social functioning (Xiao et al., 2024). Across systematic reviews, empirical studies, and interdisciplinary intervention studies, researchers have reported improvements in expressive and receptive communication, eye contact, turn-taking, shared attention, and social responsiveness among children participating in animal-assisted programs (Nieforth et al., 2023). Unlike traditional interventions that often rely on repeated skill practice in structured therapeutic settings, AAIs create naturally occurring opportunities for children to communicate as they interact with therapy animals,

therapists, caregivers, and peers (Dnistrianska & Kuts, 2025). These interactions encourage children to initiate conversations, interpret nonverbal cues, respond to social cues, and participate in reciprocal exchanges during meaningful activities (Cedeño-Bruzual et al., 2023). Researchers consistently describe therapy animals as highly motivating social partners whose presence increases children's willingness to communicate while reducing the performance anxiety often associated with traditional therapeutic environments (Nieforth et al., 2023).

The literature consistently reports positive communication outcomes, though the magnitude of improvement varies across intervention models. Equine-assisted interventions frequently demonstrate gains in joint attention, reciprocal communication, emotional regulation, and social responsiveness through structured activities such as riding, grooming, and caring for horses (Nieforth et al., 2023). Canine-assisted interventions have been associated with increased verbal communication, improved eye contact, greater conversational initiation, and higher levels of social engagement during therapeutic sessions (Nieforth et al., 2023). Emerging evidence also supports smaller companion animals and farm-based programs, where structured caregiving activities encourage collaboration, shared attention, empathy, and cooperative communication among children and their peers (Nieforth et al., 2023). Despite differences in animal species, intervention settings, and therapeutic activities, researchers consistently conclude that meaningful interactions with therapy animals create supportive contexts where children can practice communication skills naturally and reinforce them through positive social experiences (Nieforth et al., 2023).

A notable finding across the literature is that communication improvements extend beyond isolated language skills to broader social participation. Children participating in AATs frequently demonstrate increased confidence in initiating interactions, greater persistence in communication tasks, improved engagement with therapists and peers, and stronger participation in group activities (Xiao et al., 2024). These improvements suggest that successful communication depends not only on language ability but also on emotional safety, intrinsic motivation, and opportunities for authentic social interaction (Xiao et al., 2024). Researchers increasingly argue that the therapeutic value of AATs lies not in the presence of an animal but in creating environments that encourage children to engage socially without fear of criticism or failure. Such environments allow communication to develop through meaningful experiences rather than through repetitive drills alone, supporting the generalization of newly acquired skills across multiple settings (Rehn et al., 2023).

While the overall body of evidence is encouraging, researchers should consider important methodological limitations when interpreting these findings. Studies vary widely in participant characteristics, intervention protocols, treatment durations, session frequency, outcome measures, and the species of animal used in therapy. Many investigations have also relied on relatively small sample sizes, pilot study designs, or short-term interventions, limiting the ability to determine long-term treatment effectiveness and to compare outcomes across intervention models. The consistency of positive findings across diverse therapeutic settings strengthens confidence in the potential value of AATs as complementary interventions to improve social communication among children with ASD (Brazdeikienė & Zukhbaya, 2024). Rather than identifying a single superior intervention model, the current evidence suggests that common therapeutic characteristics, such as emotionally supportive relationships, meaningful engagement, and repeated opportunities for reciprocal interactions, account for the communication gains observed across animal-assisted interventions (Kilmer et al., 2025).

The findings presented throughout this theme closely align with the theoretical framework guiding this review. Human-Animal Bond Theory provides a foundation for understanding how trusting relationships with therapy animals promote communication by fostering emotional safety and social connection (Kilmer et al., 2025). Bowlby's Attachment Theory suggests that emotionally secure interactions reduce anxiety and increase children's willingness to engage with others, while Bandura's Social Learning Theory explains how communication skills develop through observation, modeling, reinforcement, and repeated social experiences (Nieforth et al., 2023). Together, these

complementary theories offer a framework for understanding why communication improvements are consistently reported across diverse animal-assisted intervention models, despite differences in therapeutic settings and intervention design.

Theme 2: Animal-Assisted Interventions as Complementary Therapeutic Approaches

The literature identifies animal-assisted interventions as complementary to established evidence-based interventions for children with autism spectrum disorder (Ang & MacDougall, 2022). As interest in interdisciplinary and relationship-centered treatment models has grown, researchers have increasingly examined the role of therapy animals in supporting communication, emotional regulation, adaptive functioning, and social participation (Kilmer et al., 2024). Unlike traditional therapeutic approaches that often focus on direct skill acquisition in structured clinical settings, AAIs integrate meaningful interactions with animals into therapeutic activities, creating motivating, emotionally supportive environments where communication skills can develop naturally (Beavers et al., 2023). Across the literature, researchers suggest that the therapeutic value of AAIs lies not only in the animal's presence but also in the unique social context created by interactions among the child, the therapist, and the therapy animal (Beavers et al., 2023).

Animal-assisted interventions encompass a diverse range of therapeutic models that incorporate horses, dogs, guinea pigs, rabbits, farm animals, and other companion animals into structured intervention programs (Dolecheck et al., 2024). Equine-assisted and canine-assisted therapies remain the most extensively studied, and emerging evidence suggests that multiple animal species may offer meaningful opportunities to improve social communication and engagement (Ang & MacDougall, 2022). Intervention models vary widely in their goals, therapeutic activities, duration, and settings. Equine-assisted interventions frequently emphasize horseback riding, grooming, and leading, activities that integrate communication with sensory and motor experiences. By contrast, canine-assisted interventions often focus on structured play, emotional support, and reciprocal interaction in schools, clinics, and community settings (Kilmer et al., 2024). Smaller companion animals and farm-based programs similarly encourage communication through shared caregiving activities, observations, and cooperative problem-solving (Dolecheck et al., 2024). The literature consistently identifies meaningful human-animal interaction as the common therapeutic element across intervention models (Dolecheck et al., 2024).

A consistent finding across the literature is that therapy animals increase children's motivation and willingness to participate in therapeutic activities (Kilmer et al., 2024). Research repeatedly describes animals as nonjudgmental social partners who provide immediate, predictable, and emotionally supportive feedback during interactions (Ang & MacDougall, 2022). This characteristic appears to reduce the social demands many children with ASD experience in traditional therapy while increasing opportunities for spontaneous communication, shared attention, and reciprocal interactions (Brazdeikienė & Zukhbaya, 2024). Children frequently demonstrate greater engagement, sustained attention, increased verbalization, and improved participation when therapy animals are incorporated into intervention sessions (Kilmer et al., 2025). These findings suggest that motivation itself may be a critical therapeutic component rather than merely a positive by-product of interacting with animals (Kilmer et al., 2025). AAIs encourage children to practice communication skills more frequently and with greater confidence than in highly structured therapeutic exercises alone, thereby creating enjoyable and meaningful learning experiences (Dolecheck et al., 2024).

Rather than functioning as a stand-alone intervention, Animal-Assisted Interventions (AAIs) are consistently supported in the literature as part of comprehensive, interdisciplinary treatment programs. Occupational therapists, speech-language pathologists, psychologists, educators, physical therapists, and behavior specialists have increasingly incorporated therapy animals into existing intervention plans to reinforce communication goals and increase participation across therapeutic settings (Rehn et al., 2023). Research suggests that therapy animals provide natural opportunities for

children to practice turn-taking, initiate conversations, follow directions, interpret nonverbal communication, and develop reciprocal social interaction within authentic contexts (Rehn et al., 2023). These meaningful experiences may help children generalize communication skills beyond structured therapy sessions into everyday interactions with peers, family members, educators, and community members (Rehn et al., 2023). The literature, therefore, suggests that the greatest strength of AAIs lies in their ability to complement traditional interventions by creating socially engaging environments where communication skills are practiced naturally.

The current evidence supporting AAIs is encouraging, but the literature also identifies several methodological limitations that prevent definitive conclusions about intervention effectiveness. Studies vary substantially in participant characteristics, therapy animal species, intervention protocols, treatment duration, session frequency, outcome measures, and therapeutic settings, making cross-study comparisons difficult. Many studies rely on small sample sizes, pilot designs, or short intervention periods, limiting generalizability and long-term interpretation of findings. While systematic reviews generally report positive outcomes, researchers consistently emphasize the need for additional randomized controlled trials, standardized intervention protocols, and longitudinal investigations to determine which intervention components yield the greatest improvements in communication and social functioning. These methodological limitations do not diminish the promise of AAIs; instead, they underscore the need for continued scientific investigation to strengthen the evidence base (Brazdeikienė & Zukhbaya, 2024).

Theme 3: Comparative Effectiveness of Animal-Assisted Intervention Models

Animal-assisted interventions encompass a range of therapeutic approaches. The literature suggests that multiple intervention models may improve social communication and social skill development among children with autism spectrum disorder. Equine-assisted therapy, canine-assisted interventions, and programs involving smaller companion and farm animals each offer distinct therapeutic experiences (Rehn et al., 2023). Researchers increasingly report common outcomes across these interventions, including increased communication intention, improved reciprocal interactions, enhanced emotional regulation, and greater participation in social activities. Rather than identifying a single intervention model as universally superior, the literature suggests that meaningful human-animal relationships, structured therapeutic activities, and opportunities for authentic social engagement are the shared characteristics most strongly associated with positive communication outcomes (Cedeño-Bruzual et al., 2023).

Equine-assisted interventions remain among the most extensively researched forms of animal-assisted therapy for children with ASD (Dnistrianska & Kuts, 2025). Across the literature, researchers consistently report improvements in social responsiveness, communication, emotional regulation, and prosocial behaviors after participating in structured equine programs (Dnistrianska & Kuts, 2025). Therapeutic activities such as horseback riding, grooming, leading horses, and stable management naturally require children to communicate with therapists, instructors, and the horse while practicing verbal communication, interpreting nonverbal cues, following directions, and engaging in cooperative problem-solving (Dnistrianska & Kuts, 2025). These interactions occur within meaningful, real-world activities that encourage children to communicate for authentic purposes (Beavers et al., 2023). Research suggests that the rhythmic movement associated with horseback riding may enhance sensory regulation, helping children remain emotionally regulated and engaged for longer periods during intervention sessions.

Canine-assisted interventions have likewise shown promising outcomes across clinical and educational settings. Researchers consistently describe therapy dogs as highly motivating social partners that increase children's willingness to initiate communication, sustain conversations, maintain eye contact, and participate in therapeutic activities (Polak-Passy et al., 2024). Therapy dogs can be integrated into schools, outpatient clinics, hospitals, counseling programs, and community settings; they often offer greater flexibility than equine-assisted programs while

maintaining comparable communication outcomes (Nieforth et al., 2023). Investigators have also reported reductions in physiological stress and anxiety during interactions with therapy dogs, suggesting that emotionally supportive relationships with animals may increase children's readiness to engage socially (Xiao et al., 2024). The literature further suggests that therapy dogs provide immediate, nonjudgmental feedback that encourages children to practice communication without fear of failure or criticism. These findings support the growing consensus that emotionally supportive therapeutic environments significantly contribute to communication development (Xiao et al., 2024).

Emerging evidence suggests that smaller companion animals and farm-based programs may yield many of the same communication benefits (Dolecheck et al., 2024). Interventions involving guinea pigs, rabbits, goats, chickens, alpacas, and other domesticated animals have shown promising outcomes in social engagement, empathy, communication, and peer interaction (Dolecheck et al., 2024). These programs often include structured caregiving activities that naturally foster conversation, cooperation, joint attention, and shared problem-solving among children, therapists, educators, and peers (Dolecheck et al., 2024). Researchers suggest that smaller animals may seem less intimidating than larger species, increasing children's willingness to approach, interact, and communicate during therapeutic activities. Although the evidence supporting these interventions is less extensive than that for equine- and canine-assisted therapy, the available literature consistently shows communication gains across a variety of animal species, indicating that therapeutic outcomes are not limited to a single animal type.

One of the most important findings is that communication improvements are remarkably consistent despite substantial differences in intervention design (Kilmer et al., 2024). Across studies, researchers report increased communication initiation, greater reciprocal interaction, improved social responsiveness, enhanced emotional regulation, stronger peer engagement, and increased participation, regardless of whether children interact with horses, dogs, or smaller companion animals (Rehn et al., 2023). Important methodological differences remain. Intervention protocols vary in duration, session frequency, therapeutic goals, participant characteristics, and outcome measures, making direct comparisons among studies difficult. Many investigations also rely on relatively small samples or pilot study designs, limiting the ability to determine which intervention model is most effective or which children are most likely to benefit. Current evidence suggests potential benefit across multiple animal-assisted intervention models while highlighting the need for standardized research methodologies that can compare intervention approaches more directly. The literature suggests that the effectiveness of animal-assisted interventions depends less on the specific animal species involved and more on the therapeutic experiences created through structured human-animal interaction.

Theme 4: Mechanisms of Change: How Animal-Assisted Interventions Promote Social Communication

A growing body of evidence supports the effectiveness of Animal-Assisted Interventions in improving social communication among children with autism spectrum disorder. Researchers have increasingly shifted their focus from determining whether these interventions work to understanding how they produce meaningful developmental change (Kilmer et al., 2025). The literature consistently suggests that positive outcomes are not attributable solely to the presence of an animal; rather, the interplay of psychological, emotional, behavioral, and social mechanisms creates optimal conditions for learning. Many intervention models identify emotionally supportive relationships, reduced anxiety, increased intrinsic motivation, observational learning, and repeated opportunities for authentic social interaction as the primary mechanisms that mark therapeutic change. These interconnected processes provide a comprehensive explanation for why communication gains are consistently observed across a variety of animal-assisted intervention models.

One of the most consistently reported mechanisms in the literature is the development of a trusting human-animal bond. Researchers suggest that therapy animals create emotionally safe environments characterized by predictability, acceptance, and the absence of social judgment (Nieforth et al., 2023). For many children with ASD, interactions with peers and adults can be emotionally demanding because they require interpreting complex verbal and nonverbal social cues (Nieforth et al., 2023). Therapy animals reduce these expectations, allowing children to communicate more freely and with greater confidence (Nieforth et al., 2023). This emotionally supportive relationship appears to encourage children to initiate conversation, sustain interactions, and participate more fully in therapeutic activities. These findings strongly support Human-Animal Bond Theory, which posits that meaningful relationships between humans and animals foster emotional security, trust, and social connectedness. The literature suggests that the therapeutic relationship itself may be one of the most influential contributors to communication development (Rehn et al., 2023).

Emotional regulation and stress reduction are closely linked to the human-animal bond. Researchers consistently report that many children with ASD show reduced anxiety, fewer stress-related behaviors, and improved emotional self-regulation during animal-assisted intervention sessions (Xiao et al., 2024). Emotional dysregulation often interferes with communication by limiting children's ability to attend to social information, interpret environmental cues, and participate in reciprocal interactions (Nieforth et al., 2023). Positive interactions with therapy animals appear to reduce physiological and emotional arousal, creating conditions that allow children to remain engaged in therapeutic activities for longer periods. Several investigators have proposed that interactions with animals may influence biological processes associated with stress regulation, including reductions in cortisol and increases in oxytocin, both of which are linked to emotional well-being and social bonding (Brazdeikienė & Zukhbaya, 2024). These physiological mechanisms warrant further investigation; the current evidence consistently suggests that emotional regulation plays a central role in facilitating communication development during AAI.

Attachment Theory offers another explanation for these findings, emphasizing that emotionally secure relationships foster exploration, confidence, and social development (Dnistrianska & Kuts, 2025). Bowlby's Attachment Theory has increasingly been applied to therapeutic human-animal relationships, in which therapy animals provide consistent, accepting, and emotionally supportive interactions (Dnistrianska & Kuts, 2025). The literature suggests that children who feel emotionally safe are more likely to communicate, try unfamiliar social behaviors, and participate in reciprocal interactions with therapists, peers, and caregivers (Nieforth et al., 2023). Therapy animals may serve as transitional social partners, helping children gradually extend communication skills developed in therapeutic settings to relationships with others (Nieforth et al., 2023). Rather than replacing human attachment relationships, therapy animals appear to strengthen children's confidence and readiness to engage socially, providing an important bridge toward broader interpersonal development.

Bandura's Social Learning Theory explains how communication skills develop during animal-assisted interventions through observation, modeling, reinforcement, and repeated practice. Across intervention settings, therapists intentionally model appropriate communication strategies as children engage in meaningful activities such as grooming, feeding, leading, or caring for therapy animals (Nieforth et al., 2023). These activities naturally prompt children to ask questions, follow directions, interpret nonverbal cues, initiate conversations, and solve problems collaboratively. Positive interactions with the therapist and therapy animals reinforce successful communication attempts, increasing children's confidence and motivation to continue engaging socially (Dnistrianska & Kuts, 2025). The literature consistently suggests that repeated opportunities to practice communication in meaningful, emotionally rewarding contexts facilitate skill acquisition more effectively than isolated drills alone (Dnistrianska & Kuts, 2025). These findings closely align

with Bandura's proposition that learning is strengthened through repeated observation, reinforcement, and successful social experiences.

A final mechanism consistently identified across the literature is the role of intrinsic motivation and meaningful participation. Researchers frequently report that children show greater enthusiasm, sustained attention, and active engagement when therapy animals are incorporated into intervention sessions (Xiao et al., 2024). Unlike many traditional therapeutic activities, interactions with animals are perceived as enjoyable, purposeful, and rewarding (Cedeño-Bruzual et al., 2023). This increased motivation encourages children to participate more fully, communicate more frequently, and remain emotionally invested throughout therapy sessions. Rather than viewing communication as an isolated therapeutic task, children experience it as a natural part of meaningful interaction with the therapy animal, the therapist, and the surrounding environment (Cedeño-Bruzual et al., 2023). These findings suggest that motivation serves as both an outcome of animal-assisted interventions and a mechanism that further strengthens communication development by increasing opportunities for practice and social engagement.

Recommendations for Practice, Education, and Future Research

The literature reviewed in this narrative synthesis consistently demonstrates that Animal-Assisted Interventions offer meaningful opportunities to improve social communication, emotional regulation, social engagement, and adaptive functioning among children with autism spectrum disorder. Many intervention models have been reported to yield positive outcomes, yet they also exhibit important methodological limitations that warrant continued investigation. The following recommendations are grounded in the collective findings of this review and informed by Human-Animal Bond Theory, Bowlby's Attachment Theory, and Bandura's Social Learning Theory.

Recommendations for Clinical Practice

The evidence supports treating Animal-Assisted Interventions as complementary components of comprehensive autism services rather than as stand-alone treatments. The literature indicates that therapy animals enhance existing evidence-based interventions by increasing motivation, supporting emotional regulation, and creating authentic opportunities for communication and reciprocal social interactions. Occupational therapists, speech-language pathologists, psychologists, behavioral specialists, physical therapists, counselors, and other professionals should consider incorporating animal-assisted interventions into individualized treatment plans when appropriate (Cedeño-Bruzual et al., 2023). Rather than replacing traditional interventions, AAIs should reinforce established communication goals and provide meaningful contexts for children to practice newly acquired skills. Individualized intervention planning that considers each child's developmental profile, communication abilities, sensory preferences, family goals, and personal interests is likely to maximize therapeutic outcomes (Nieforth et al., 2023).

Recommendations for Educational Settings

The literature also supports expanding animal-assisted interventions in educational settings (Nieforth et al., 2023). Schools provide natural opportunities for children to practice communication, collaboration, emotional regulation, and social participation throughout the school day. Researchers suggest that incorporating therapy animals into classroom instruction, counseling services, reading programs, and social skills groups may increase student engagement and reduce anxiety related to learning and peer interaction (Nieforth et al., 2023). Educational programs should collaborate closely with families and related service providers to ensure that intervention goals remain consistent across home, school, and community settings. Expanding school-based animal-assisted programs may further improve access for children who face financial, geographic, or transportation barriers to clinic-based services and promote greater inclusion in educational settings.

Recommendation for Interdisciplinary Collaboration

A consistent theme throughout the literature is the importance of interdisciplinary collaboration in implementing animal-assisted interventions. Successful programs require communication among therapists, educators, healthcare providers, families, animal handlers, and community partners to ensure that intervention goals remain developmentally appropriate and evidence-based. Researchers emphasize that therapy animals are most effective when integrated into coordinated treatment plans that address communication, emotional regulation, adaptive functioning, and participation simultaneously. Interdisciplinary collaboration also supports continuity of care by increasing opportunities for communication skills developed during intervention sessions to generalize across multiple environments. Strengthening collaboration among professionals may therefore improve both intervention quality and long-term functional outcomes.

Recommendations for Professional Education and Training

As interest in Animal-Assisted Interventions continues to grow, the literature indicates a need for standardized education and professional training. Researchers continue to report considerable variability in practitioners' preparation, intervention design, and implementation procedures, limiting both treatment fidelity and research comparability. Comprehensive training should extend beyond animal handling to include autism characteristics, communication development, sensory processing, trauma-informed practice, ethical considerations, and evidence-based intervention planning. Standardized competency expectations for professionals implementing AAIs may strengthen intervention quality while ensuring the safety and well-being of both children and therapy animals (Beavers et al., 2023).

Recommendations for Future Research

The current evidence supporting Animal-Assisted Interventions is encouraging. Researchers consistently identify key methodological limitations that prevent definitive conclusions about intervention effectiveness. Investigations should prioritize larger randomized controlled trials, multi-site collaborations, standardized intervention protocols, validated outcome measures, and long-term follow-up studies to improve the reliability and generalizability of findings. Research is also needed to compare intervention models across animal species, determine which children benefit most from specific approaches, and examine the long-term maintenance of communication and social skill gains after intervention. Researchers should continue investigating the mechanisms of change identified in this review, including emotional regulation and the human-animal bond, to better understand how these factors interact to support communication development.

Conclusion

This narrative literature review examined the current evidence on the effectiveness of Animal-Assisted Interventions (AAIs) in improving social communication and social skills among children with autism spectrum disorder. The collective findings suggest that AAIs are a promising complementary approach that may enhance communication, emotional regulation, social engagement, and overall participation across clinical, educational, and community settings. Intervention models vary by animal species, therapeutic activities, treatment duration, and outcome measures. The literature consistently reports meaningful improvements in communication initiation, reciprocal interaction, joint attention, social responsiveness, and relationship development. Rather than identifying a single intervention model as universally superior, the evidence suggests that positive outcomes are consistently associated with therapeutic environments that foster emotional safety, meaningful engagement, and authentic opportunities for social interaction.

A major contribution of this review is synthesizing findings across diverse intervention models to identify the common therapeutic processes that appear to support communication development.

The literature indicates that the effectiveness of AAIs extends beyond the presence of a therapy animal alone. Communication gains appear to result from interactions among complementary mechanisms, including developing trusting human-animal relationships, improving emotional regulation, increasing intrinsic motivation, providing opportunities for observational learning, and repeatedly practicing communication skills in meaningful social contexts. These findings align closely with Human-Animal Bond Theory, Bowlby's Attachment Theory, and Bandura's Social Learning Theory, each of which provides a valuable framework for understanding how emotionally supportive relationships and authentic social experiences promote learning and communication. Together, these theoretical perspectives offer a comprehensive explanation for the consistent communication gains reported across multiple intervention approaches.

While the overall body of evidence is encouraging, this review also highlights important limitations in the current literature. Considerable variability exists across intervention protocols, participant characteristics, therapy animal species, treatment settings, session frequency, and outcome measures, making direct comparisons across studies challenging. Many investigations rely on relatively small sample sizes, pilot study designs, or short-term interventions, limiting the generalizability of findings and the ability to evaluate long-term outcomes. These methodological differences underscore the need to develop standardized intervention protocols, larger randomized controlled trials, multisite collaborations, and longitudinal research capacity to strengthen the evidence base supporting animal-assisted interventions.

Despite these limitations, the consistency of positive findings across diverse studies suggests that Animal-Assisted Interventions hold significant potential as complementary approaches within comprehensive autism services. The evidence indicates that therapeutic animals offer unique opportunities to increase motivation, reduce anxiety, strengthen emotional regulation, and create meaningful environments where children can develop communication and social skills through authentic interaction. As healthcare providers, educators, therapists, and researchers increasingly recognize the value of relationship-centered and interdisciplinary approaches to intervention, AAIs may become an increasingly important component of individualized supports for children with ASD (Rehn et al., 2023).

Improving social communication extends far beyond increasing verbal language or teaching isolated social behaviors. Effective communication enables children to build relationships, participate more fully in their families and communities, succeed in educational settings, and develop greater independence throughout their lives. Animal-Assisted Interventions offer a unique opportunity to support these outcomes by creating therapeutic environments characterized by trust, connection, motivation, and meaningful social participation. Continued investment in rigorous research, interdisciplinary collaboration, and evidence-informed clinical practice will be essential to deepen understanding of the mechanisms through which AAIs promote communication and to ensure that children with autism spectrum disorder and their families have access to safe, effective, and compassionate interventions. As the field continues to evolve, Animal-Assisted Interventions cannot only complement existing evidence-based practices but also enrich the lives of children with ASD by building communication, confidence, and meaningful human connection.

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