

A Cross-Cultural Analysis of Animal-Assisted Therapy: Culture, National

Context, and Socioeconomic Access

Abstract

Animal-Assisted Therapy (AAT) has received growing empirical support internationally after the establishment of a standardized course of treatment following the publication of Delta Society's Standards of Practice (Delta Society, 1996). Although AAT has been shown to improve various outcomes, the results remain inconsistent across studies, suggesting that the effectiveness of AAT might be influenced by factors beyond the therapy and animals themselves, and the mechanism is still unclear. Previous studies have considered certain multidimensional factors, but a significant gap still remains as the factors are considered in isolation rather than within an integrated therapeutic framework. Therefore, this study analyzes AAT outcomes from the combined perspective of cultural attitudes toward animals, nation-specific environmental differences, and socioeconomic variation, arguing that AAT outcomes should not be attributed to therapy animals' characteristics or any other factors solely, but should be understood through the interaction among therapy animals, patients, and the therapeutic context.

Introduction

Animal-Assisted Therapy (AAT) refers to therapeutic interventions that incorporate animals into professional health, education, or human service settings to improve

Commented [AV1]: Zino - an interesting and well written project - you identified the appropriate research and have used it well to make your argument. You have also integrated the feedback from myself and the writing center appropriately. Well done.

Commented [AV2]: Zimo - just a general note that we typically do not use center alignment - we typically use left alignment

patients' functioning (IAHAIO, 2018). Studies have shown that AAT may improve outcomes including social interaction, emotional well-being, behavioral functioning, and certain medical outcomes in specific populations (Nimer & Ludahl, 2007). Randomized controlled trials in acquired brain injury have demonstrated that during AAT, compared to standard treatment, patients exhibited greater social behaviors, positive affect, verbal and nonverbal communication, motivation, and satisfaction (Hediger et al., 2019). In the aspect of emotional well-being, AAT has been associated with the reduction in anxiety and depression among older adults, patients with mental diseases, and stress-related populations (Virúes-Ortega et al., 2012; Chang et al., 2020).

Also, in terms of medical and physiological outcomes, studies have shown that AAT can contribute to improvements in anxiety, cortisol levels, heart rate, and blood pressure, and is commonly observed in pediatric emergency, inpatient, and palliative care settings (Mota-Rojas et al., 2026; Palomino-Lázaro et al., 2024).

However, the positive outcomes are not consistent across different patient populations and therapeutic settings, indicating that the mechanism of AAT efficacy is still insufficiently understood. Research on children and adolescents with ASD has shown positive trends across cognitive, social, emotional, behavioral, and physical domains generally, but the methodology has considerable limitations (Rehn et al., 2023).

Multiple reviews of AAT practice around the globe have emphasized the

heterogeneity of intervention, including the considerable variability in animal species, session frequency, duration, and measurement of outcomes (Rehn et al., 2023; Pandey et al., 2024). Evidence regarding long-term effects remains insufficient, especially given that improvements in anxiety and quality of life are often reported as short-term effects only (Chieh-An & Man-Hua, 2023; Hernández-Espeso et al., 2026). More recent reviews continue to highlight the lack of standardized protocols and research mechanisms, which constrains the generalizability of research findings in AAT (Arsovski, 2024; Palomino-Lázaro et al., 2024; Hernández-Espeso et al., 2026).

As argued by López-Cepero (2020), current AAT research often pays attention to animals' characteristics and fails to analyze the integrated effect of a broader set of factors (López-Cepero, 2020). In response to this limitation, recent research has begun to shift towards a more multidimensional framework. Wagner et al. conceptualize AAT as a complex mechanism comprising novelty, therapist attention, physical contact, body activity, and therapeutic environment, and advocate for deeper research on distinguishing animal-specific factors from non-specific factors (Wagner et al., 2022). For example, they propose using robotic dogs to create a controlled environment, thus analyzing confounding variables including novelty, expectancy effects, caregiving behaviors, and physical activity which is a recent attempt to consider multidimensional factors in AAT intervention (Wagner et al., 2022). The integrated Model of Human Animal Interactions (IMHAI) further attempts to integrate neuroscience, psychology, and ethology into a unified framework to investigate the

interaction between patients, animals, and therapists (Leconstant & Spitz, 2022). This model's objectives extend beyond identifying how therapists leverage human-animal interaction, as it also incorporates animal welfare and interactional emotional processes into the evaluation of the therapy's efficacy. The therapeutic effects are thus dynamic interactions rather than the analysis of one-way treatments, as new perspectives, like how the animal welfare system established in the region can affect patients' attitudes toward animals, are now discussed to find the deeper mechanism.

Previous research has indicated that people's attitudes toward animals are shaped by the environment and previous human-animal interaction experience (Serpell, 2004). However, existing studies often consider the factors solely and fail to recognize the complex interaction between cultural meanings, national context, and patients' personal positions that are crucial for truly understanding the effectiveness of AAT. Cross-cultural research on AAT has demonstrated that cultural factors are overlapping and fluid: researchers should examine how current samples conceptualize animals before adjusting the design of therapy, but such requirements are rarely incorporated into current standard efficacy research (Valiyamattam et al., 2018). Similarly, cross-national reviews have indicated that the forms, therapy animal species, and therapeutic environments of AAT for children with ASD vary by nation-specific culture, consequently limiting the effectiveness of studies to a narrow geographic foundation as evidence is predominantly derived from Europe and North America (Chan et al., 2025). The individual circumstances, such as the patients' animal-related

trauma history, religious prohibitions, and safety assessments, represent another persistent gap, as this factor is often included only in ethical guidelines but not as testable variables in research (Evans, 2024).

Thus, a genuine understanding of AAT effectiveness cannot be derived by listing environmental, experiential, cultural, or individual factors in isolation, but must rather be analyzed through their interaction with one another.

Perspective I: Cultural Systems

At the macro level, religious traditions and cultural systems play a vital role in shaping how patients respond to specific therapy animals. A precise example would be dogs, which are often perceived as friendly, loyal, and emotionally supportive in Western contexts. In fact, dogs were the most commonly used animals in the AAT studies reviewed by Nimer and Lundahl (2007). The effectiveness of dog-assisted therapy has also been supported in later research: Galvany-López et al. (2024), in a systematic review of dog-assisted therapy for children and adolescents with autism spectrum disorder, found that most reviewed studies reported positive effects on communication and social interaction. Nevertheless, though the effectiveness of dogs as therapy animals has been shown to be effective in the Western context, it does not indicate a universal therapeutic effect for this species. On the contrary, these effects may be partly shaped by the positive symbolic meanings associated with dogs in many Western cultural contexts (Sheade et al., 2014). This evidence indicates that

dog-assisted therapy is not supported by the characteristics of dogs as therapy animals only, but is also related to the positive symbolic meaning bestowed upon dogs by Western society and culture.

There is evidence that the effectiveness of dogs in AAT might not be universal but dependent on cultural contexts. Sheade and Chandler (2014) note that clients from some Asian backgrounds may not automatically associate dogs with companionship or emotional safety. Instead, dogs may be considered unclean, inconvenient, or inappropriate for a professional therapeutic role as a result of differences in the symbolic role of dogs in Western and Asian cultures. This suggests that Asian cultural contexts do not simply reject AAT, but they may require different assumptions about which animals are acceptable, familiar, and therapeutically meaningful. Valiyamattam et al. (2018) show that AAT practice in Japan involved a wide range of animal participants, including other animals like horses, dolphins, cats, rabbits, farm animals, and birds besides dogs. The AAT practice in the Asian context does not only follow the Western mode and is not dog-centered, but takes more diverse forms depending on the cultural traditions (Valiyamattam et al., 2018).

The same differences occur in religious traditions, which further complicate the meaning of therapy animals. Tlili (2018), in a review of Islamic animal ethics, explains that Islamic traditions contain both teachings of kindness toward animals and concerns about dogs as impure animals. In such a case, the religious description of a

species of animal as impure would not only affect the patient's reaction toward therapy, but also influence the social stigma and barriers around the patient during the process. For instance, although assistive dogs are increasingly accepted by Muslim countries, they still face stigma associated with continuing resistance grounded in impurity discourses (Tlili, 2018). Thus, a Muslim patient's hesitation toward dogs in AAT should not be simplified into fear or resistance to treatment, but should be understood as a reflection of religiously shaped beliefs about appropriate human-animal interactions.

This pattern appears beyond dogs as well. Manokara et al. (2020), through empirical studies with Hindu and Muslim participants, demonstrate that religion shapes whether people classify animals as sacred, edible, or neutral. Although this study is not directly about AAT, it is useful because it explains the psychological mechanism behind culturally different responses to animals. The therapeutic meanings carried by animals are not fixed across cultures; rather, patients approach animals through socially constructed meanings shaped by religion, culture, and social experience.

Cultural systems influence AAT at a deeper level than the objective characteristics of therapy animals (Gray & Young, 2011). If researchers assume that a therapy animal has the same emotional meaning for all patients, they may misread discomfort as noncooperation or underestimate the cultural logic behind rejection. For instance, Chan, et al. (2025) explored the human-animal interaction for children with ASD

across countries in East Asia. The results have shown that in East Asia, where social norms emphasize interpersonal space and restrain emotional expression, children may be more likely to withdraw when encountering large therapy dogs.. This behavior is due to cultural background if severely misinterpreted as core ASD social deficits by researchers insensitive to cultural differences. Only by beginning with cultural assessment, including whether the animal is familiar, religiously acceptable, emotionally safe, and symbolically appropriate for the patient's background, can practitioners select the most effective therapy animal.

The effectiveness of AAT depends not only on the presence of a therapy animal, but also on whether the animal can be accepted as emotionally safe and meaningful by the patient. According to Sheade and Chandler (2014), cultural sensitivity in animal-assisted therapy could improve the clients' feeling of comfort, safety, and trust, while negative cultural beliefs that frame certain animals as unacceptable become barriers to forming a therapeutic relationship with the animal. Similarly, Evans (2024) argues that researchers should consider clients' cultural and religious perceptions of animals before introducing AAT, as these factors influence the effectiveness of AAT significantly. AAT practitioners, especially from multicultural countries, should therefore receive more training on considering cultural differences while treating patients (Evans, 2024).

Perspective II: National Institutions and Therapeutic Infrastructure.

The effectiveness of AAT is not only influenced by how people are shaped by cultural and religious ideas to perceive therapy animals, but also by the national policies, institutional structures, and the existing practice of AAT in the country.

Nation-specific factors influencing the effectiveness of AAT include whether a country recognizes it as a legitimate therapeutic approach, whether there is professional training and certification, whether it can be supported by medical insurance, whether hospitals are willing to adopt it, and whether there is enough local research and funding support to guide the practice.

An important institutional factor shaping whether AAT can be implemented and evaluated consistently is the development of the nation's psychotherapy industry. AAT is not a simple use of animals for comfort, but a professionalized intervention, and must be a goal-oriented, planned, and structured intervention directed by health, education, or human service professionals with progress strictly documented and measured (IAHAIO, 2018). As a result, AAT requires trained practitioners, established documentation systems, regulated ethical standards, and knowledge of animal behavior in the nation-specific environment. The difference between countries in having a well-developed psychotherapy and mental health service system or not affects whether AAT intervention can be standardized and reliable (Patel et al., 2018).

In such a case, it is reasonable to find that national support also determines whether AAT can be established as a stable clinical practice, as legitimate verification and

funding support from the government is essential for a nation's psychotherapy industry to develop. If therapy animals and related AAT services remain legally unclear or publicly unsupported, they may face substantial barriers to entering hospitals, schools, and other therapeutic settings. According to Bremhorst et al. (2018), countries differ significantly in their legislation for assistance dogs and vary on whether trained animals are legally recognized and certified. In Japan, for instance, the act on Assistance Dogs for Physically Disabled Persons created a national system certifying assistance dogs and requiring public facilities to accept them, allowing the entrance of supportive animals (Takayanagi & Yamamoto, 2019). As AAT intervention requires a legally supported environment in which therapy animals can be trained and accepted by institutions, the national policy has turned out to be an important factor influencing AAT's effectiveness. With support from the government, AAT practice is more likely to succeed as they are certificated and trustworthy for the public.

On the other hand, without recognition of the government, AAT practice would have difficulty taking a step. Yap, Scheinberg, and Williams (2017) surveyed 128 staff members at the Royal Children's Hospital in Australia. Their investigation showed that although 98 percent of respondents supported the application of AAT for children with disabilities, and 92 percent recommended its use in inpatient settings, over half of the respondents had never met a therapy animal in a facility. One participant reported that implementation of AAT required support of schools and the board of education, and another stated that the local district did not support the initiative. These

findings demonstrate the gap between professional attitudes and institutional implementation. If the government cannot address financial, regulatory, and infrastructure requirements, it is unlikely for a nation's AAT practice to be successful.

What further compounds with the influence of government and academic support in the maturity of national research infrastructures dedicated to AAT, a factor fundamentally constraining the field's capacity to support the institutional AAT practice. Narvekar (2021), in a comprehensive review of AAT in India published in Human Arenas, found only 24 relevant studies about Indian AAT in five major databases. The scarcity of AAT research is a direct reason why India's AAT practice is still geographically limited and isolated to a handful of institutions. For those nations that are not categorized as developing countries, this problem also remains: Nimer and Lundahl's (2007) landmark meta-analysis in *Anthrozoös* reviewed 250 studies, but found only 49 (19.6 percent) had met the basic inclusion criteria for quantitative analysis. This suggests that weak study design, inconsistent outcome measures, and incomplete reporting, all of which may be related to a nation's research infrastructure and educational quality, can limit the production of reliable evidence. Taken together, these findings indicate that both the quantity and quality of locally relevant research influence whether AAT could be effectively implemented by healthcare systems in a given country.

Perspective III: Socioeconomic and Individual Circumstances

At the most micro level, socioeconomic status of the regions and individuals can shape whether patients can access AAT, and which type of therapeutic animal is capable to help them emotionally. Charry-Sanchez et al. (2018) pointed out that live-animal therapies can be expensive, especially when the intervention requires horses, certified professionals, maintenance of animals, and specialized facilities. In such a case, AAT is not equally available to all patients, and the cost of therapy could affect the patients' feelings. Broader psychotherapy literature has shown an association between socioeconomic deprivation and limited treatment outcomes, suggesting that socioeconomic status influences not only the access to AAT but also the sustainability of therapeutic outcomes (Finegan et al., 2018). In emerging psychotherapy systems lacking resources, AAT is often limited by lack of professional organization, training, and public awareness, directly constraining patient access (Narvekar, 2021). In rural areas without certified programs or healthcare systems that do not cover this type of intervention, AAT might remain inaccessible. Even within a single country, the availability of certified AAT programs is uneven between regions. Mapping of registered service in Italy have shown that AAT practitioners cluster in metropolitan areas, leaving rural patients with longer travel distances and less availability (Borgi et al., 2019). When patients face excessive difficulties accessing AAT intervention, the efficacy of therapy could be negatively affected (Swift & Greenberg, 2012).

Further, the individual circumstances of patients are another factor that must be

considered. The most stable outcomes showing benefits of AAT are frequently observed among patient groups with impaired social functioning, social isolation, or high dependency on care. However, socioeconomic status affects whether people are able to access AAT intervention, how they participate, and if the results can be sustained, influenced by multiple factors including education, employment, material status, and living environment (Virúes-Ortega et al., 2012; Chieh-An & Man-Hua, 2023; Palomino-Lázaro et al., 2024). Bilinsky (2011) studied animal-assisted therapy among at-risk adolescents, focusing on the outcomes including empathy and self-esteem. The result showed that socially vulnerable populations have a different response to AAT interventions compared to other groups, and highlighted that AAT practitioners should not consider all patients as having the same needs. The core mechanism through which AAT operates, enhancement of perceived social support and social interaction, determines that patients' existing social circumstances inherently affect the scope for intervention (Virúes-Ortega et al., 2012; Halm, 2008). In this sense, AAT does not work simply because an animal is present, but because the animal becomes part of a therapeutic context supporting emotional safety and self-perception.

Besides the material resources available, patients' past experience with animals, especially potential previous trauma experience, could significantly affect their interaction with and understanding of the animals. Childhood pet keeping, for instance, is consistently associated with more favorable attitudes toward therapy

animals in adulthood, documented across national contexts. In a comparison of British and Japanese students, Miura, Bradshaw, and Tanida (2024) found that childhood pet keeping predicted positive current attitudes toward pets in both countries despite significantly diverse levels of exposure to animals. And if acted conversely, adverse encounters can leave harmful effects. Doogan and Thomas (1992) found that fear of dogs is traceable to negative human-dog interactions in childhood in most cases. In such a case, it is reasonable to find that these positive and negative past experiences affect whether the AAT intervention is effective or not. When interacting with unfamiliar therapy dogs, patients with established fear or avoidance would be unable to tolerate the animal and cannot be helped by such methodology (Barker et al., 2010). On the other hand, patients with trust on dogs and positive feedback in past interactions are more open and inclusive toward dogs, and often are most helped by the programs (Barker et al., 2010). This is exactly why professional guidelines are increasingly requiring practitioners to screen for fears, allergies, and conflicting beliefs about animals before enrollment.

Synthesis: Interaction Between Various Perspectives

The most coherent framework for understanding AAT efficacy is to consider it as a complex intervention embedded within broader cultural, institutional, and individual contexts. Culture shapes the symbolic meaning of animals, national institutions determine accessibility and institutionalization, and individual circumstances determine engagement and actual benefit. However, these three factors should not be

understood as separate. Instead, they operate in an interactive way: cultural meaning shapes whether an animal is emotionally acceptable, national institutions determine whether that animal can become a legitimate therapeutic resource, and individual experience determines whether the patient can actually form a therapeutic bond with the animal.

Different cultural groups hold fundamentally distinct understandings of animals and human-animal interaction, which lead to different acceptability toward the same species of animal when further expanded by the symbolic meaning of animals in cultural background (Valiyamattam et al., 2018; Evans, 2024). On this basis, nations amplify or attenuate the cultural effects through institutions, regulations, and stages of development. A comparison between the United States and Japan has shown that while the cultural perspectives influence the structure, process, and outcomes of AAT programs, the United States' more mature guidelines and community integration markedly made its implementation framework distinct from Japan, which is still in the process of adaptation (Dai, 2025). This suggests that even when two societies hold similarly positive attitudes toward animals, AAT could differ in accessibility and effectiveness due to the difference in institutional support.

At the narrower level, personal factors dictate who actually benefits within the system. Cultural, religious, racialized experiences and animal-related trauma, along with socioeconomic circumstances, all modify patients' sense of safety, comfort around

animals, and willingness to interact and engage in animal-assisted therapy (Evans, 2024). Patients are not simply identical representatives of their culture or nation. They bring their own personality, life histories, emotional needs, and previous experiences with animals. For example, two European patients may access very different AAT if one lives in a country with a well-developed psychotherapy system and certificated practitioners, while the other lives in a country where AAT remains limited to early-stage or informal programs. Even when patients receive nominally similar treatments, their experiences and outcomes may differ because of socioeconomic situations and the availability of institutional support in different countries.

Conclusion

In conclusion, the influence of culture, nation, and individual on AAT are not additive but nested. Culture determines the first impression and prescribed meaning of animals, nation determines whether that meaning can be institutionalized into a therapeutic resource, and the individual then determines whether that resource is genuinely translated into effect within their own experience, identity, and circumstance.

If researchers ignore how culture shapes patients' initial perceptions of animals, they risk producing universalized conclusions that overlook cultural heterogeneity. When differences in animals' symbolic meanings across cultural systems are excluded from the design of AAT programs, therapeutic practices may conflict with local beliefs and expectations, reducing their practical applicability and potentially causing distress

when an animal carries negative meanings within a patient's cultural background. Similarly, ignoring national differences, including the maturity of psychotherapy systems, healthcare infrastructure, animal-welfare policies, and professional certification, prevents researchers from adequately explaining institutional barriers to AAT implementation. Such an omission makes it difficult to distinguish whether weak outcomes result from flaws in the intervention itself or from insufficient institutional support, thereby hindering the development of standardized yet locally appropriate AAT systems. Finally, overlooking individual differences risk producing a one-sided account that neglects trauma history, socioeconomic status, previous animal experience, and differences in emotional acceptance. These factors shape whether patients feel safe enough to engage with a therapy animal. Excluding them may obscure the mechanisms through which individual benefits emerge and limit the accuracy and generalizability of research conclusions.

References

- Applebaum, J. W., MacLean, E. L., & McDonald, S. E. (2021). Love, fear, and the human-animal bond: On adversity and multispecies relationships. *Comprehensive Psychoneuroendocrinology*, 7, 100071. <https://doi.org/10.1016/j.cpnec.2021.100071>
- Arsovski, D. (2024). The impact of animal-assisted therapy on reducing anxiety in children with autism spectrum disorder: A systematic review and meta-analysis. *Journal of Autism and Developmental Disorders*. Advance online publication. <https://doi.org/10.1007/s10803-024-06384-z>
- Barker, S. B., Knisely, J. S., McCain, N. L., Schubert, C. M., & Pandurangi, A. K. (2010). Exploratory study of stress-buffering response patterns from interaction with a therapy dog. *Anthrozoos*, 23(1), 49-58. <https://doi.org/10.2752/175303710X12627079939341>
- Bilinsky, C. (2011). *The effect of animal-assisted therapy on empathy and self-esteem in at-risk adolescents* [Doctoral dissertation, Alliant International University]. ProQuest Dissertations and Theses Global.
- Borgi, M., Loliva, D., Cerino, S., Chiarotti, F., Cirulli, F., & Mancini, L. (2019). Nature-based interventions for mental health care: Social network analysis as a tool to map social farms and their response to social inclusion and community engagement. *International Journal of Environmental Research and Public*

Health, 16(21), 4197. <https://doi.org/10.3390/ijerph16214197>

Bremhorst, A., Mongillo, P., Howell, T., & Marinelli, L. (2018). Spotlight on assistance dogs: Legislation, welfare and research. *Animals*, 8(8), 129. <https://doi.org/10.3390/ani8080129>

Chan, H. W., Hsu, L. S. J., & Shum, K. K. M. (2025). Exploring the human-animal interaction (HAI) for children with ASD across countries: A systematic review. *Journal of Autism and Developmental Disorders*. Advance online publication. <https://doi.org/10.1007/s10803-025-06745-8>

Charry-Sanchez, J. D., Pradilla, I., & Talero-Gutierrez, C. (2018). Effectiveness of animal-assisted therapy in the pediatric population: Systematic review and meta-analysis of controlled studies. *Journal of Developmental and Behavioral Pediatrics*, 39(7), 580-590. <https://doi.org/10.1097/DBP.0000000000000594>

Chang, C. C., Chang, Y. T., Lee, J. H., & Chen, C. M. (2020). The effects of animal-assisted activity on anxiety and depression among older adults in long-term care facilities. *Journal of Psychiatric Research*, 129, 148-155. <https://doi.org/10.1016/j.jpsychires.2020.06.023>

Delta Society. (1996). *Standards of practice for animal-assisted activities and animal-assisted therapy*. Renton, WA: Author.

Doogan, S., & Thomas, G. V. (1992). Origins of fear of dogs in adults and children: The role of conditioning processes and prior familiarity with dogs. *Behaviour*

Research and Therapy, 30(4), 387-394.

[https://doi.org/10.1016/0005-7967\(92\)90050-Q](https://doi.org/10.1016/0005-7967(92)90050-Q)

Evans, N. (2004). Assessing cultural, religious, and trauma influences in human-animal interactions for effective animal-assisted counseling. *Animals*, 14(17), 2496. <https://doi.org/10.3390/ani14172496>

Evans, N. (2024). Assessing cultural, religious, and trauma influences in human-animal interactions for effective animal-assisted counseling. *Animals*, 14(17), 2496. <https://doi.org/10.3390/ani14172496>

Finegan, M., Gardenier, A., & George-Paschal, L. (2018). Animal-assisted therapy for anxiety in children with autism. *Journal of Developmental and Physical Disabilities*, 30(5), 645-664. <https://doi.org/10.1007/s10882-018-9619-6>

Galvany-Lopez, P., Marti-Vilar, M., Hidalgo-Fuentes, S., & Cabedo-Peris, J. (2024). The impact of dog-assisted therapy among children and adolescents with autism spectrum disorder: A systematic review. *Children*, 11(12), 1499. <https://doi.org/10.3390/children11121499>

Gray, P. B., & Young, S. M. (2011). Human-pet dynamics in cross-cultural perspective. *Anthrozoos*, 24(1), 17-30. <https://doi.org/10.2752/175303711X12923300467285>

Halm, M. A. (2008). The healing power of the human-animal connection. *American Journal of Critical Care*, 17(4), 373-376.

Hediger, K., Petignat, M., Marti, R., & Hund-Georgiadis, M. (2019). Animal-assisted therapy for patients in a minimally conscious state: A randomized two treatment multi-period crossover trial. *PLoS ONE*, *14*(10), e0222846. <https://doi.org/10.1371/journal.pone.0222846>

Hernandez-Espeso, N., Mota-Rojas, D., & Mariani, F. (2026). Animal-assisted interventions for autism spectrum disorder: A systematic review of long-term effects. *Journal of Autism and Developmental Disorders*, *56*(2), 512-528. <https://doi.org/10.1007/s10803-025-06745-8>

International Association of Human-Animal Interaction Organizations. (2018). *IAHAIO definitions for animal-assisted intervention and guidelines for wellness of animals involved in AAI* (White Paper). https://iahaio.org/wp/wp-content/uploads/2018/04/iahaio_wp_updated-2018-final.pdf

Leconstant, C., & Spitz, A. (2022). The integrated model of human-animal interactions: A new theoretical framework for understanding human-animal interactions. *Animals*, *12*(11), 1391. <https://doi.org/10.3390/ani12111391>

Lopez-Cepero, J. (2020). Current status of animal-assisted interventions in scientific literature: A critical comment on their internal validity. *Animals*, *10*(6), 985. <https://doi.org/10.3390/ani10060985>

Lundahl, B., & Nimer, J. (2007). Animal-assisted therapy: A meta-analysis. *Anthrozoos*, *20*(3), 225-238. <https://doi.org/10.2752/089279307X224773>

- Manokara, K., Lee, A., Kamble, S. V., & Krumhuber, E. G. (2021). Mind your meat: Religious differences in the social perception of animals. *International Journal of Psychology*, 56(1), 154-162. <https://doi.org/10.1002/ijop.12717>
- Mota-Rojas, D., Nannoni, E., Strappini, A. C., & Martinez-Burnes, J. (2026). An overview of the benefits of animal-assisted interventions in medical and therapeutic contexts for human health. *Frontiers in Veterinary Science*, 13, 1757427. <https://doi.org/10.3389/fvets.2026.1757427>
- Nakajima, Y. (2017). Comparing the effect of animal-rearing education in Japan with conventional animal-assisted education. *Frontiers in Veterinary Science*, 4, 85. <https://doi.org/10.3389/fvets.2017.00085>
- Narvekar, H. N. (2022). Canine-assisted therapy in neurodevelopmental disorders: A scoping review. *European Journal of Integrative Medicine*, 50, 102112. <https://doi.org/10.1016/j.eujim.2022.102112>
- Nimer, J., & Lundahl, B. (2007). Animal-assisted therapy: A meta-analysis. *Anthrozoos*, 20(3), 225-238. <https://doi.org/10.2752/089279307X224773>
- Palomino-Lazaro, M., Hidalgo-Fuentes, S., & Cabedo-Peris, J. (2024). Effectiveness of animal-assisted activities and therapies for autism spectrum disorder: A systematic review and meta-analysis. *Frontiers in Veterinary Science*, 11, 1403527. <https://doi.org/10.3389/fvets.2024.1403527>
- Pandey, P., Pandey, N., & Pandey, S. (2024). Animal-assisted therapy for autism

spectrum disorder: A systematic review. *Journal of Autism and Developmental Disorders*, 54(3), 891-903. <https://doi.org/10.1007/s10803-023-06184-2>

Patel, V., Saxena, S., Lund, C., Thornicroft, G., Baingana, F., Bolton, P., Chisholm, D., Collins, P. Y., Cooper, J. L., Eaton, J., Herrman, H., Herzallah, M. M., Huang, I., de Jong, K., Karam, A., Koschorke, M., Maj, M., Majid, N., Medhin, G., ... Unutzer, J. (2018). The Lancet Commission on global mental health and sustainable development. *The Lancet*, 392(10157), 1553-1598. [https://doi.org/10.1016/S0140-6736\(18\)31612-X](https://doi.org/10.1016/S0140-6736(18)31612-X)

Rehn, A. K., Caruso, V. R., & Kumar, S. (2023). The effectiveness of animal-assisted therapy for children and adolescents with autism spectrum disorder: A systematic review. *Complementary Therapies in Clinical Practice*, 50, 101719. <https://doi.org/10.1016/j.ctcp.2022.101719>

Serpell, J. A. (2004). Factors influencing human attitudes to animals and their welfare. *Animal Welfare*, 13(S), 145-151.

Sheade, H. E., & Chandler, C. K. (2014). Cultural diversity considerations in animal assisted counseling. *VISTAS Online*, 84, 1-12.

Shih, C. A., & Yang, M. H. (2023). Effect of animal-assisted therapy on social interaction and quality of life in patients with schizophrenia during the COVID-19 pandemic: An experimental study. *Asian Nursing Research*, 17(3), 145-152. <https://doi.org/10.1016/j.anr.2023.04.001>

Swift, J. K., & Greenberg, R. P. (2012). Premature discontinuation in adult psychotherapy: A meta-analysis. *Journal of Consulting and Clinical Psychology*, 80(4), 547-559. <https://doi.org/10.1037/a0028186>

Takayanagi, T., & Yamamoto, M. (2019). Assistance dog placement in Japanese society: Current status and challenges. *International Journal of Environmental Research and Public Health*, 16(18), 3406. <https://doi.org/10.3390/ijerph16183406>

Thomas, G. V. (1992). The human-animal bond: A review of the literature and its implications for practice. *Anthrozoos*, 5(1), 45-52. <https://doi.org/10.2752/089279392787011644>

Tlili, S. (2018). Animal ethics in Islam: A review article. *Religions*, 9(9), 269. <https://doi.org/10.3390/rel9090269>

Valiyamattam, G., Yamamoto, M., Fanucchi, L., & Wang, F. (2018). Multicultural considerations in animal-assisted intervention. *Human-Animal Interaction Bulletin*, 6, 82-104.

Virues-Ortega, J., Buela-Casal, G., Pastor, M. L., & Garcia-Montes, J. M. (2012). Animal-assisted therapy for the treatment of depression in older adults: A systematic review. *Anthrozoos*, 25(2), 183-200. <https://doi.org/10.2752/175303712X13240462456323>

Wagner, C., Grob, C., & Hediger, K. (2022). Specific and non-specific factors of

animal-assisted interventions considered in research: A systematic review.
Frontiers in Psychology, 13, 931347.
<https://doi.org/10.3389/fpsyg.2022.931347>

Williams, E. (2017). The therapeutic use of animals in the treatment of mental illness.
British Journal of Nursing, 26(14), 787-793.
<https://doi.org/10.12968/bjon.2017.26.14.787>