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Animal-Assisted Interventions: A Literature Review on Diverse Applications of Animal-Assisted Interventions in selected medical entities in different age groups

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Abstract

This literature review examines the therapeutic role of Animal-Assisted Interventions (AAIs) in promoting physical and mental well-being for diverse populations. AAIs have shown positive impacts on children and adults, benefiting individuals with neurodevelopmental disorders as well as ex-military personnel. The review emphasizes the growing support for AAIs, extending beyond traditional therapy and reaching diverse groups. Numerous studies back up the favorable effects of animal-assisted treatments on children's social connections, academic progress, and emotional and physical health.

Methods

A review of the literature was conducted with the use of keywords: animal-assisted therapy, autism, trauma, dementia, palliative care, pet ownership, therapeutic animals, and different combinations of those (and also its Polish translations) in medical and psychological databases such as Google Scholar, PubMed, ResearchGate, APA PsycNet. Also, other reference lists were used to find more adequate publications.

Aim of the study

This study aims to discuss the benefits and drawbacks that animals can give to particular groups of patients, mostly children and the elderly. We will demonstrate the advantages of AAT and AAA in healthcare and education of kids in general as well as kids with autism spectrum disorder (ASD), developmental disorders, attachment issues, chronic physical diseases, trauma, and struggling with loss. Also, we will focus on older people dealing with dementia, living in institutions, and receiving palliative care.

Keywords: Animals; animal-assisted therapy; autism; dementia; palliative care; children

Introduction

Nowadays, when humans often have limited exposure to nature, interacting with animals can potentially benefit mental well-being and overall quality of life of diverse groups of people. Two key types of animal-related activities are Animal Assisted Activities (AAA) and Animal Assisted Therapy (AAT), each serving distinct purposes and following different approaches. AAA focuses on facilitating physical activity and providing emotional support through informal interactions with animals, often conducted by volunteers. In contrast, AAT is a more structured therapeutic process with clearly defined goals, where animals play an integral role in supporting the treatment plan under the supervision of trained professionals. This distinction is crucial for understanding the specific applications and outcomes of these interventions, as explored in this review. [1, 2]

For instance, Occupational Therapy (OT) with the incorporation of AAA & AAT may be utilized in the children's recovery process following sickness or accident. Numerous studies have found that animal therapy can help kids who have autism, epilepsy, tumors, handicap, and other chronic diseases, particularly those associated with chronic pain. The contact of even schizophrenic patients with therapy animals has a good influence on anhedonia symptoms. It is clearly shown through scientific research that animal-assisted therapy is a viable and active option for young people, adults, and seniors suffering from a variety of psychiatric problems. [3, 4, 5, 6]

Overview of particular populations and clinical entities

Children in general

Pets are frequently used by parents as a tool for raising their children, giving them the chance to teach their kids responsibilities by taking care of them and educating them on basic biological concepts as well as larger perspectives on mortality and life. The act of keeping pets enables children to develop nurturance and responsibility through their care. Pets serve as vehicles for enhancing their psychological growth. In many cases, pets fill in for missing parents and siblings, giving kids a way to express their feelings, live out their imaginations, and work through conflicts and aspirations. Children frequently engage in conversations with their pets as though they were human companions, further emphasizing the significant role these animals play in their lives. [3, 4, 7]

Children can benefit greatly from pet-facilitated therapy in terms of their minds, bodies, and social interactions. In terms of mental health, pets offer consolation, and amusement, and help alleviate anxiety. In terms of the body, they help to improve blood pressure and cholesterol levels, encourage physical activity, lessen discomfort, and perhaps lessen the need for medication. Socially, animals reduce feelings of isolation and solitude, provide accepting company without passing judgment, and boost self-esteem, especially in juveniles who are struggling. Distraction strategies are successful in diverting children's attention away from the stressor in instances when children suffer anticipatory anguish resulting in increased physiological arousal. It has been suggested that pairing a companion dog with a toddler in an unsettling or hazardous environment may reduce the tension and build a feeling of intimacy and security. Children often mention their pets as the ones they would turn to when facing troubling issues, highlighting the unique bond and support they find in their animal companions. [3, 8, 9]

Mallon in 1994 conducted a study where children used animals from the farm as compassionate and confidential therapists. They would talk freely while seeing the animals and thereafter reported feeling better. Hugging the animals also felt physically comforting as it was also noted. Furthermore, the positive impact of animal-assisted therapy extends beyond the farm animals studied by Mallon. Geist in 2011 discovered that during activities like reading aloud or standard medical tests in juveniles, the presence of a peaceful and responsive dog reduced stress reactions more successfully than the company of an adult or a supporting human friend. In a different study examining physiological stimulation and behavioral distress in kids between two and six years old undergoing physical examinations, it was found that the presence of a therapy dog significantly reduced behavioral distress assessed with an OSBD (Observation Scale of Behavioral Distress) compared to the control group. However, physiological variables did not show significant differences between the groups but it was discovered that these data were poor indicators of physiologic arousal in this age range. With an animal around, the therapeutic environment as a whole becomes friendlier and less intimidating, which promotes patient tranquility and relaxation. Elmaci and Cevizci (2015) assessed the effectiveness of canine-assisted AAT and AAA in the recovery process of kids suffering from cerebral palsy and other mental or physical disabilities, concluding that such interventions can be a valuable technique in standard treatment techniques. Animal therapy is beneficial for various groups of children, including those with autism, physical and mental disabilities, and emotional and behavioral disturbances. [6, 10, 11, 12, 13, 14]

Children with chronic diseases and cancer

Research consistently demonstrates the positive impact of animal-assisted therapy (AAT) on children undergoing medical treatments. Bouchard (2004) observed a decrease in stress levels among pediatric cancer patients receiving chemotherapy when comparing treatment groups with and without AAT. Similarly, studies by Gagnon et al. found that the availability of therapy animals lowered stress and pain and promoted acceptance among hospitalized pediatric cancer patients. Children with chronic illnesses who get animal-assisted intervention may benefit mentally, emotionally, and physiologically by receiving the proper attention, relaxation, and excitement. Tsai in 2007 discovered that AAT actually can decrease physiological arousals, such as blood pressure (BP), heart rate (HR), and cortisol in the saliva levels, in hospitalized children. It also positively affected the level of anxiety and fear assessed by relevant scales. Douglas in 2016 also found a positive connection between AAA and fear levels among kids with chronic illnesses. Moreover, Carew-Lyons in 2016 demonstrated that having a dog visit young, hospitalized patients (aged 3-12 years old) boosted mood and reduced anxiety. These findings highlight the potential of AAT to alleviate stress and improve the well-being of children in healthcare settings. [8, 14, 15, 16]

Children in acute pain

Some studies have shown that animal-assisted therapy is successful in treating children's pain. In research by Sobo et al. (2006), which involved 25 children after surgery (aged 5 to 18 years) who were experiencing acute pain, it was discovered that regular visits of animals were successful in reducing their pain levels by diverting their attention. A study titled "Animal-Assisted Therapy as a Pain Relief Intervention for Children" focused on pediatric patients between 3 and 17 years old in the acute care unit. The findings showed that compared to the control group, the group receiving AAT intervention experienced much less pain. This data highlights the positive impact of animal visits and AAT on pediatric pain management, showcasing the potential of animals as effective complementary interventions in alleviating pain and improving the well-being of children in healthcare settings. [17, 18]

Autism Spectrum Disorder

In the most recent edition of the DSM V, the diagnosis of Asperger's syndrome is no longer considered a separate disorder. Instead, it is now included within the broader category of autistic spectrum disorder (ASD), which encompasses a range of related conditions. Additionally, sensory disorders have been included as one of the diagnostic criteria within this category. It is worth noting that other diagnostic manuals, such as the ICD-10, still maintain the distinction of Asperger's syndrome as an independent entity, but for the purposes of this discussion, we will not differentiate them. [19, 20]

Animal-assisted therapy has a significant impact on students with Autism Spectrum Disorder (ASD). A study conducted by Siewertsen et al. in 2015 specifically examined and highlighted the effectiveness of pet therapy for individuals with ASD. Even in 1989 Redefer and Goodman observed that a group of 12 autistic kids displayed fewer undesirable behaviors and more pro-social ones. Similar improvements in language usage and social skills were seen by Sams, Fortney, and Willenbring in 2006 in a sample of 22 autistic kids. [21, 22, 23, 24]

Difficulties in pragmatics, such as challenges in initiating and maintaining conversations, using appropriate language, understanding figurative speech, and a tendency to engage in monologues, contribute to a greater sense of comfort and desire to interact with animals. Unlike humans, animals do not mind when a person on the autism spectrum makes conversational mistakes, addresses them inaccurately, or struggles with figurative language that they themselves do not comprehend. They do not take offense if a person engages in monologues about their favorite topic or does not adhere to the conventional rules of human conversation. As a result, being in the company of animals tends to be easier and more enjoyable for individuals on the autism spectrum compared to interactions with humans. [25]

Through their own encounters with animals and by seeing others' interactions with animals, children develop concepts, patterns, and beliefs about typical behaviors and human connections. Animals are also essential for guiding kids through social situations and lowering their nervousness. Particularly when kids are dealing with overwhelming sensory inputs, they act as a focus of attention and encourage calm and relaxation. Furthermore, compared to the limited sensory response frequently associated with autism, animals offer strong multisensory stimulation. These stimuli include loud, clear repetitions of noises, vivid visual pictures, a distinctive and specific scent, and enjoyable touch. With the help of this unique sensory interaction, animals may build distinct nonverbal relationships with autistic children that have a favorable effect on their responses and general conduct. [22, 26]

Therapy dogs can be effectively utilized in classroom settings to enhance social communication and support students diagnosed with emotional/behavior disorders and autism spectrum disorder. Their presence has been found to promote a better understanding of emotions and feelings among students, making them a valuable resource for creating a conducive learning environment. [21]

According to Martin and Farnum's research, children with autism spectrum disorders who participated in psychological therapy in the presence of a dog displayed higher levels of engagement, focus, and attentiveness compared to those who were allowed to play with a ball or stuffed dog. The dog's presence seemed to positively impact the children's willingness to play and their overall responsiveness during the therapy sessions. In specific cases, a 1:1 service dog may be necessary for facilitating a child's success with ASD. [21, 25]

Research has indicated that when dogs are utilized in conjunction with students who have ASD and emotional or behavioral issues, there is a noticeable increase in their sense of self-esteem, social abilities, and language proficiency. [27]

A service dog may be given varied responsibilities to assist children with autism, claims the 2008 book "Animal-Assisted Intervention for People with Autism" by Pavlides. Stopping the young person from escaping or wandering off is one of the service dog's important duties. When their sensory sensitivity is awakened, children with ASD frequently experience dread, which can cause them to escape without recognizing potentially harmful circumstances. To take essential precautions or to protect the child's safety, the service dog might be trained to anticipate such sensory experiences. Furthermore, it has been shown that a service dog's presence alone can reduce tantrums and help a child to sleep better. The service dog can provide calming deep pressure by lying on the child, akin to using a weighted blanket, which helps the child relax and maintain a sense of calm. [28]

Children have the chance to take on the role of caregiver when they interact with therapy animals. Law and Scott (1995) discovered that when children with autism or persistent developmental delay (PDD) interact with small animals like hamsters or rabbits, they grow more socially adept, build a feeling of responsibility, and enhance their receptive and expressive language abilities. By taking on the role of the nurturer of an animal, the kid can use this opportunity to communicate and resolve any areas of relationship they have with their current caregiver that they may feel are lacking. [29]

In research by Aaron et al. in 2013, scientists aimed to demonstrate that equine-

assisted therapy is the best therapy option for children with ASD. Building upon prior research by Macauley and Gutierrez and their own results, Aaron and colleagues investigated hormones like cortisol in saliva. The increase in their concentration, associated with oxytocin, indicated that hippotherapy positively influenced the child's social attitudes, not only affecting the physical aspect. The children's progress with the therapy horse involved the continuous development of a reliable and consoling relationship, as reflected in their hormone concentration in saliva. This offers proof in favor of the idea that hippotherapy can be an effective treatment choice for people with autism. [30]

Given her personal experience as a diagnosed person on the autistic spectrum, Temple Grandin, a well-known animal science expert, professor at the University of Colorado, and author of multiple best-selling books, has underlined the tremendously beneficial influence animals have on people with autism. She frequently emphasizes the special viewpoint autism gives her to see the world from animals' perspectives. [31]

In contrast, O'Haire (2013) conducted a literature review on the effects of animal-assisted interventions on individuals with Autism Spectrum Disorder (ASD) and found that studies in this area are limited in number and suffer from methodological shortcomings. These studies are typically conducted on small groups of patients and are mostly limited to North America. Additionally, none of the studies to date have compared the effects of different animal species, nor have they explored the impact on adults with autism. [32]

While more data on this subject has been accumulated over time, as of 2024, there is still a significant need for more comprehensive and professional research to understand better the role of animals in positively affecting individuals with ASD across different age groups.

Attachment issues, developmental disorders

The presence of animals provides a comforting and reassuring environment for children, alleviating any anxiety they may experience in challenging situations. Moreover, these animals play a vital role in fostering proper attachment bonds, especially for kids who may not have had such opportunities. Research indicates that nearly 70% of children communicate and share their feelings with animals, forming a strong bond. [21]

For children who have endured abuse and exploitation, AAT has proven to be a beneficial treatment strategy. In recent times, cats have been increasingly employed as

companions for children with developmental disorders. These feline friends contribute to creating a sense of comfort and familiarity for the children, enabling them to navigate the world around them more confidently. [17, 27]

Overall, animal-assisted interventions have shown positive effects on children facing behavioral and emotional problems, helping them to find solace and support in their animal companions. Children with these types of disorders often struggle also with communication problems, mood disorders, aggressiveness, impulsivity, depression, and anxiety. Children with emotional and behavioral problems have shown encouraging benefits from equine-assisted therapy, which provides a straightforward but effective distraction from their own difficulties. As caretakers for the therapy horse, these children must focus on the necessities of the animal, such as cleaning, nutrition, and training, which allows them to shift their attention away from their own issues [14, 21]

Because animals can live in the present, children understand their body language and predict what they require more easily, which helps them develop compassion. Human-animal relationships teach people to empathize, which they may subsequently use in their relations with other people. The attention to the external world favors kids to become more conscious of their surroundings. [33]

Trauma, loss

Animal-assisted therapy has proven to be useful in bringing comfort, lowering anxiety and tension, improving relational insights, and assisting the therapeutic process by fostering verbalization and building trust. Despite these encouraging results, this therapeutic strategy is currently underappreciated in grieving and loss work, where it has demonstrated its critical function in facilitating access to feelings of loss and enabling recovery. Numerous theories, research, and interventions suggest that individuals with a history of trauma could potentially truly benefit from AAT. [14, 34]

It has been discovered that using animals in therapy makes it easier to form a therapeutic bond. Herman (1997) emphasizes that relationships must be present for psychological trauma recovery to take place, while Perry (2009) underlines the importance of relationships for trauma healing, especially in children. The silent yet attentive presence of animals offers a unique form of communication, filling a void that human attachments may not fully address. A key component of psychotherapy for abused children may involve

including animals in the therapeutic environment. It makes it even easier for the therapist as it lowers the cortisol level and facilitates going through the traumatic experience with the patient. [7, 26]

Elderly in general

Cat therapy, introduced into nursing homes, has been found to have several positive effects on residents. Studies have shown that contact with cats has a calming effect and reduces stress among elderly residents. Additionally, interaction with cats stimulates residents to engage in exercise, encourages them to develop new interests, and facilitates the formation of new relationships within the nursing home community. Pet ownership has been found to have several benefits in maintaining or slightly improving the index of Activities of Daily Living among the elderly. The reduction of social isolation and apathy is also among the advantages that animals provide for seniors' mental health. [35, 36, 37]

Activities undertaken involving therapy animals motivate patients to make more physical effort and practice self-care regularly. Their dedication to the therapeutic process is strengthened and motivated by the strong attachment that develops between the patient and the animals. Exposure to animals alters the biochemistry in the senior's brain, leading to the production of neurotransmitters elevating mood, inducing relaxation, and reducing anxiety. These modifications are successful in lowering depressive symptoms in older institutionalized patients, enhancing verbal contact, promoting social connection, and evoking pleasant emotional reactions. [38, 39]

Also, apart from psychological benefits, intense stroking of a cat, whose normal body temperature is about 38°C, can have a warming effect on cold hands. This mutually beneficial interaction pleasures the animal and relief to the caregiver, especially those suffering from conditions like rheumatoid arthritis (RA), as it offers plenty of manual exercise for their hands. [35]

Dementia

Numerous small unblinded studies have shown that when patients with dementia receive therapy in the company of animals, their behavior improves. In the later stages of the disease, patients with dementia often withdraw from their surroundings and

social environment, becoming isolated and severely limiting their motions and activities. However, it has been noted that having a therapy animal around acts as their last functioning communication link to the world outside. According to research, demented patients who receive AAT had improved their social and communicative abilities. Patients frequently find that communicating with animals is easier than with humans around them. This interaction with animals serves as a catalyst and motivational factor, promoting involvement and reducing the sensation of isolation brought on by the illness. Not only domesticated pets but also interventions with farm animals could provide additional profits in mental health recovery. [10, 37, 40]

In a study involving 15 demented persons residing in a nursing facility, a three-week AAI was conducted. According to the findings, patients' negative conduct significantly decreased as their social engagement increased. Additionally, Yakimicki et al. in 2018, found that individuals with dementia benefit from AAI in terms of their social behaviors, exercise levels, dietary plans, restlessness, aggression, and general quality of life. Further evidence also confirms that animals improve mostly the patient’s social actions, such as laughing or talking. Care facilities residents benefit from providing contact with pets by forming deep relationships with them and finding joy and comfort in their presence. Patients with dementia may also express their individuality while communicating with animals, helping them keep their sense of self in care facility settings and making them feel that they are somewhere where they belong, almost like at home. [37, 41, 42, 43]

Taking part in activities linked to animal care might be useful for older people who are suffering a steady deterioration in cognitive abilities, such as recalling, self-care, proper cleanliness, and self-hygiene. It increases motivation and sharpens memory, making conversations about self-care during therapy sessions more comfortable when an animal is present. It boosts motivation and stimulates memory, making discussions on self-care issues more comfortable in the presence of an animal during treatment sessions. Additionally, AAT has been shown to alleviate a variety of neuropsychiatric symptoms such as hallucination, despair, disengagement, euphoria, and abnormal motor activity. The benefits of AAT appear to be noticeable during the few initial therapy sessions. [26,40]

Some researchers with a more critical approach point out that although there is minor evidence of a slight reduction in depressive symptoms in patients with dementia thanks to AAT, there is not enough strong evidence of its effects on other outcomes, and the reliability of the data ranges from very low to average. Additionally, they underline that there is no data

on the safety of the animals involved. Therefore, it is now premature to make firm conclusions about the general advantages and dangers of AAT in dementia patients. Additional well-designed randomized controlled trials are required to increase certainty in scientific research. Future research studies should attempt to establish blinding of endpoint examiners, fully record assignment procedures, and contain significant patient-related goals including affect, social and emotional performance, standard of life, complications, and results for the included animals. [44]

It is worth noting that the literature has shown that AAT can have protective and curative outcomes on dementia, significantly lowering its typical damaging symptoms such as violence, disorientation, psychotic behavior, frustration, and depressive habits. To properly comprehend and confirm these impacts, though, additional thorough study is needed. [40]

Palliative care

The evidence base for animal-assisted therapy in palliative care and hospices is currently weak. Chinner and Dalziel performed an extensive study with the participation of 14 terminally ill patients, 15 hospice employees, and a resident tiny poodle. The dog was found to simplify personnel-patient interactions, enhance team and patient optimism, facilitate patient-visitor relationships, and increase patient and staff relaxation. [45, 46]

In another study at a day hospice in the UK, two cocker spaniels were brought in for visits. A Phear survey of employees and patients looked at their attitudes toward these visits, and the results noted benefits like patient relaxation, mood improvement, affection-sharing, and social enhancement without the responsibility and possible stress of pet ownership. But drawbacks included worries about sanitary conditions, barking, allergies, and the possibility of stumbling over the dogs. [47]

In research by Muschel, pets (infant and adult dogs and cats) were brought to a hospice care facility in New York to observe the impact of animal contact on patients with terminal cancer. According to the findings, interactions with the animals reduced stress and hopelessness, aided in the process of letting go of previous relationships, allowed patients to provide care for a different being, and sped up their process of mourning via acceptance of mortality. Despite these encouraging results, further study is still required to improve the quantity of knowledge in this area. [48]

Conclusions

In the healthcare realm, AAT and AAA have been found to have positive effects, complementing traditional medicine for the holistic treatment of individuals. These approaches have proven beneficial in occupational therapy and learning, particularly for children with special needs, aiding in social and educational development but also in minimalizing procedure-induced anxiety in kids. However, there is a need to expand and strengthen the research on the involvement of AAT and animal-assisted psychotherapy in psychiatric diseases, overcoming its current deficiencies and inadequacies. The field's insufficient funding for studies and the majority of clinicians, rather than researchers, being invested in the research may be responsible for the current scarcity of research, especially according to AAP. Nonetheless, the overall potential of AAT and AAA remains promising for enhancing well-being and care across various domains of human life. [8, 9, 14, 26, 39]

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