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The role of animal-assisted therapy in natural healing and human rehabilitation (A literature review)

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ABSTRACT

Animal-assisted therapy is a type of therapy that involves interactions between patients and animals to improve overall human health and alleviate symptoms of various diseases. It is an interdisciplinary approach that combines elements of psychology, veterinary medicine, and social work. In recent years, the number of studies dedicated to the effects of interactions with animals has significantly increased. However, it still remains unclear how exactly animal-assisted therapy works and how important the presence of the animal itself is in the therapeutic process. This paper presents the results of a review of current literature sources and provides an analysis of the challenges associated with the therapeutic use of animals. The key question examined in this review is: how is the human–animal bond measured? As a result of searches on platforms such as PubMed, Cochrane Library, Scopus, Web of Science, Google Scholar and ResearchGate, only peer-reviewed primary studies reporting on indicators of human–animal interaction, relationships, and bonds were included in the analysis. Most of the selected studies contained information on what exactly was measured (interaction, relationship, or bond), which methods were used, and the general context (experimental settings involving therapy animals). In the majority of cases, behavioral analysis methods were applied to study the interaction between participants (recipients) and therapeutic animals. Additionally, the review summarized previously published hypotheses regarding the working mechanisms of animal-assisted therapy. Using content analysis, control conditions in the studies were categorized to distinguish between specific and non-specific factors influencing the effectiveness of animal-assisted therapy .

Keywords: animal-assisted therapy, emotional regulation, human–animal bond, therapeutic animals, psychology, zoopsychology

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Introduction

Mental health disorders affect millions of people worldwide and represent a serious public health concern. Conditions such as depression, anxiety, post-traumatic stress disorder (PTSD), and schizophrenia can significantly impair an individual's daily functioning and overall quality of life (NCCMH, 2011; Rodrigo-Claverol et al., 2023).

Animal-assisted therapy (AAT) is a complementary treatment that utilizes the benefits of human-animal interaction, activates

physiological and psychological mechanisms, and initiates positive metabolic changes that improve health. In recent years, this interaction has been increasingly used to treat psychological and psychiatric disorders such as stress, depression, loneliness, and common developmental disorders that negatively impact human health (Fennig et al., 2022; Wagner et al., 2022). AAT has been discussed for decades, and its use has been studied across various settings and populations (Bert et al., 2016).

The history of continuous interaction between humans and animals, and the use of animals for healing, dates back to the origins of humanity. Animal-based healing was intuitively practiced even by early humans (Bono et al., 2015; Fung et al., 2024).

Therapeutic interaction between humans and animals has been documented in both Indigenous and Western cultures around the world. In Ancient Greece, interaction with dogs was used for healing; in Ancient Egypt, cats were primarily used. In Ancient India, the singing of birds was considered medicinal. Hippocrates noted the beneficial effects of nature on human health and wrote about the therapeutic value of horseback riding. For example, in Belgium in 1790, rabbits and chickens were used to treat mental illness, and in England in 1792, animals participated in psychiatric therapy at the York Retreat (Labinskyi et al., 2019).

In 1867, in Germany, farm animals and horses were used to treat patients with epilepsy, and in 1942, at a rehabilitation hospital of the Air Force in New York, patients received relaxing therapy by working with farm animals (Lev, 2003; Karakaş and Juri, 2024).

Modern AAT is believed to have begun developing in the 1960s, primarily due to the work of American psychologist Boris Levinson. Levinson discovered the fact that animals have therapeutic effects on humans (Levinson, 1969; Levinson, 1972).

Today, interest in and the potential of this therapeutic approach - especially in the field of psychotherapy - remain high (Minienko and Kroshka, 2016; Oliinyk, 2023; Greenhough et al., 2024; Labinskyi et al., 2019; Patz et al., 2012; Szewczyk et al., 2023). Traumatic events are a widespread phenomenon globally and may result from war, natural disasters, pandemics, or interpersonal violence (Benjet et al., 2016). One of the most serious consequences of such events is the development of post-traumatic stress disorder (PTSD), which is estimated to affect approximately 3.6% of the global population (Kamioka et al., 2014). PTSD rates are particularly high among military personnel and veterans, with prevalence in this group reaching up to 30%, highlighting their heightened vulnerability to the psychological effects of trauma (Hoge et al., 2004; Nieforth and Leighton, 2024).

International conferences and seminars are held to discuss human-animal interaction and therapeutic methods involving animals (Correale et al., 2022). Researchers highlight several factors that contribute to the positive therapeutic effect, including the animal's personality traits, physical contact, shared physical activity, emotional distraction, and enhanced social interaction with other people (Narvekar and Ghani, 2025; Yachniuk et al., 2023; Holder et al., 2020).

Medical and social workers, as well as psychologists, are involved in AAT programs. At the level of the World Health Organization (WHO), the overall benefits of living beings that are close to us have been officially recognized (Patz et al., 2012).

Animal-assisted therapy is often used in everyday life, as for many people, interaction with pets improves mood, brings joy, and generally helps stabilize the psycho-physical state. Most commonly, AAT is used as an adjunctive treatment for arterial hypertension, cardiovascular diseases, stroke risk, cerebral palsy, autism, Down syndrome, depression, and other mental and neurological disorders (Surma et al., 2022; Hawkins et al., 2019; Siddiqui et al., 2024). Animal-assisted therapy are used in various contexts, including oncology and palliative care, and can improve mood, quality of life, and overall well-being (Correale et al., 2022; Diniz Pinto et al., 2021; Tak et al., 2016). Interaction with animals helps reduce the level of cortisol, the main stress hormone. This, in turn, helps decrease stress and anxiety levels, promoting an overall sense of calm. Petting and playing with an animal activate the parasympathetic nervous system, which promotes relaxation and prevents stress responses (Meints et al., 2022).

Methods

The search strategy was designed to include all relevant studies published up to 2024. A thorough review of the literature was done using the keywords: animal-assisted therapy, felinotherapy, human-animal bond, therapeutic animals, and any combination of those in online databases such as Google Scholar, PubMed, and ResearchGate. The reference lists of original articles were used to identify additional publications. Boolean operators,

truncation, and wildcard symbols were added to capture variations of the search terms, and filters were applied to limit the results to studies published in English. In addition, manual searches of the reference lists of relevant articles and reviews were conducted to ensure the inclusion of all pertinent studies.

Several types of animal therapy are distinguished (Mittly et al., 2024):

1. Directions of animal influence on humans:

- Unstructured Animal-Assisted Therapy. This process occurs on a subconscious level, without a specific therapeutic goal. It takes place during everyday interactions with domestic animals, which have a positive impact on a person - helping to distract from problems, creating a sense of comfort, calming the individual, and lifting their mood (Matchock, 2015);

- Structured Animal-Assisted Therapy. This type is conducted purposefully based on medical indications with therapeutic goals. It involves specially trained animals and takes place within sessions organized according to specialized psychotherapeutic programs (Kamioka et al., 2014; Mittly et al., 2024).

2. Types of animal impact on humans:

- Direct Impact. Physical contact with real animals can promote the production of substances (pheromones) that improve emotional well-being and provide feelings of joy and calm. This contact may include playing with animals, visual and auditory interaction, petting, and more. In this type of therapy, patients interact with specially trained animals or household pets. For example, dogs undergo both obedience training and specialized therapy training under the guidance of organizations such as Pet Partners (formerly the Delta Society), which sets standards and maintains registries. Training topics include understanding the needs of specific client groups, client confidentiality, and interpersonal communication skills (LaRoche, 1995; PP, 2012).

However, this type of therapy also has certain limitations. For example, a patient may be allergic to specific animals, there is a potential risk of aggression from the animal, or the possibility of contracting parasitic diseases (Brodie et al., 2002; Meers et al., 2022; Luksaite et al., 2022). The animal itself is a complex stimulus with various characteristics, which can affect the predictability of the therapeutic outcome. Additionally, there may be no consistent access to the necessary animals, and the cost of services in specialized centers can be quite high. (Marino, 2012).

- Indirect Influence. Treatment of a person through images of animals, drawings, photographs, and toys (Luksaite et al., 2022). The advantages of this type of therapy include constant access to animal imagery, such as videos and pictures available on the internet. According to the results of numerous studies, it has been found that videos featuring animals have a positive effect on a person's emotional state.

3. Types of therapy depending on the animal species:

Equine-assisted therapy (EAT) - (horse therapy, therapy with the use of horses) is a new specialized rehabilitation approach, conducted by accredited medical professionals and horse specialists using specially trained horses. The therapy utilizes the movement of horses to stimulate key pathways for physical, mental, and social reinforcement, and is synergistic with rehabilitation and supportive therapy (Viruega et al., 2023; Dawson et al., 2023; Letsoalo et al., 2024; Wood et al., 2021). EAT is beneficial for conditions such as: dementia, cerebral palsy (CP), autism (in early stages), developmental delays in children, neuroses, depressive states, eating disorders, , cardiovascular diseases, traumatic brain injuries, atherosclerosis, scoliosis, and more (Fennig et al., 2022; Karakaş and Juri, 2024; Kulick, 2017);

Dolphin-assisted therapy (DAT) - uses communication with dolphins to develop social skills, relieve stress, and reduce nervousness. The therapeutic effects are achieved through play-based activities and tactile communication with dolphins (Chuprikov et al., 2022; Perttula and Kreivinienė, 2014).

Canine-assisted therapy (CAT) - the interaction between humans and dogs serves as a working tool to achieve therapeutic, educational, and recreational goals through dog-assisted interventions (Krempa et al., 2024; Berns et al., 2017; De Santis et al., 2024). Walking with a dog reduces the likelihood of cardiovascular diseases, heart attacks, and other heart and vascular diseases. As social animals, dogs, through their loyalty to humans, help individuals overcome many psychological difficulties, loneliness, and improve the condition of children with autism, Down syndrome, cerebral palsy, and elderly individuals with dementia (Ambrosi et al., 2019; Harper et al., 2015; Holder et al., 2020; Lindström Nilsson et al., 2020; Lundqvist et al., 2017).

Feline-assisted therapy (FAT) - involves using cats to treat individuals, providing significant support in cases of mental disorders, heart conditions, brain injuries, and during recovery from alcohol and drug addiction. Just like dogs, cats help alleviate loneliness, soothe, and reduce blood pressure (Romanenko and Pomytkina, 2021; Goleman et al., 2013; Dawson et al., 2022).

Apitherapy - is practiced in some parts of the world, benefiting both healthy individuals and patients. Apitherapy involves the use of bees or bee products as therapeutic or preventive agents to avert diseases or manage their progression. Bees produce a variety of substances rich in biologically active components, such as honey, propolis, royal jelly, beeswax, and bee venom, which have been used for centuries by different civilizations to treat a range of ailments. (Sidashova et al., 2022; Warwick et al., 2023).

Many animals are capable of having a positive impact on a person's psychological health, but each animal exerts this influence to a different degree. In AAT, various animals may be involved depending on the patient's condition, age, mobility, gender, pet care requirements, and need for support. For example, dogs, cats, birds, and rabbits can be used, as they can be adapted to suit different medical conditions and individual patient characteristics (Karakaş and Juri, 2024).

Over the past decades, many European countries have actively developed the use of agriculture as a tool for healthcare and social integration (Leck et al., 2014). One of the directions in this field has been AAT involving farm animals. Most specialists note the positive impact of such animals on patients' emotional and psychological states - reducing anxiety, improving mood, and enhancing social interaction (Berget et al., 2008).

In particular, pigs demonstrate a high level of intelligence and emotional sensitivity, which makes them promising candidates for therapeutic interventions, especially when working with children or patients with special needs (Siddiqui et al., 2024).

In Africa, treatment is conducted with the help of elephants, however, therapy involving dangerous animals must be carried out under strict supervision by specialists (Satiansukpong et al., 2016).

Briefly highlighting the functions of animal-assisted therapy, the following aspects can be distinguished (Smith, 1991; Viruega et al., 2023):

1. Interaction with animals has a psychophysiological effect: it helps reduce stress levels, normalizes the functioning of the nervous system and mental state overall, and activates positive psychosomatic processes in the body (Nepps et al., 2014).

2. Many therapeutic animals (for example, walking and training large dogs) require regular physical activity. This encourages people to engage in physical activities such as walking or playing, which can have additional benefits for mental health, including improved mood and increased energy levels (MacMartin et al., 2014; Marino, 2012; Tkatch et al., 2021).

3. Human–animal interaction can also serve a psychotherapeutic function: by enhancing socially acceptable personal characteristics (such as peacefulness, kindness, empathy, sociability, and adequacy), it significantly reduces conflict, harmonizes interpersonal relationships, and improves people's attitudes toward animals (Rossetti and King, 2010).

4. For many people with disabilities, interaction with animals serves as an additional channel for engaging with the outside world. It facilitates social adaptation, as well as psychological and social rehabilitation - thus providing a rehabilitative function (Rosada et al., 2024).

5. Communication with animals helps satisfy the need for competence - one of the most important human social needs - which is often expressed through the belief: "I can" (Cirulli et al., 2011).

6. The need to realize one's inner potential and to feel significant to others - that is, the need for self-actualization (one of the highest-level social needs) - can also be fulfilled through human–animal interaction (Kulick, 2017).

7. Finally, animals in their interaction with humans serve the function of communication partners; for many lonely individuals and people with limited health abilities, pets replace a conversation partner (O'Haire et al., 2015).

Thus, for humans as social beings, the function of communication is realized through animals - one of the most vital life functions in the world of both humans and animals. It is also clear that, as a form of specific medical assistance, this method, alongside its indications, has its own particularities and challenges of use, limitations, and even contraindications. Let's take a closer look at these aspects. The challenges of using animal therapy include the following:

1. This method is still insufficiently structured and lacks methodological standardization. This is likely due to the fact that most theoretical and practical attention is focused on its benefits. There is evidently a lack of scientific research dedicated to the challenges and specifics of preparation for such therapy, as well as studies examining the methodological aspects of applying the approach and preparing different animals to work with various categories of clients (Domínguez-Oliva et al., 2023).

2. Descriptions of AAT most often take the form of literature reviews of foreign studies or include an overview of the method's history along with a list of exclusively positive outcomes of its application (Fine et al., 2019).

3. Much of what is practiced in AAT is not scientifically substantiated or is applied within a narrow scope without fully revealing the essence of this branch of psychotherapy (Maoz et al., 2021).

4. Animal-assisted therapy is often integrated into a broader set of treatment and rehabilitation methods, making it difficult to quantitatively assess its specific significance and contribution (Mittly et al., 2024).

5. Animal-assisted therapy is sometimes identified with ecotherapy, which clearly narrows the essence of the latter, as the ecological aspect encompasses the entire set of natural healing factors - not just human interaction with animals (Berry, 2023; Ortmeyer and Katzel, 2020).

6. The division of AAT into different types (such as structured and unstructured) also appears to be not entirely justified. The main limitations in its application are related to potential adverse effects, contraindications in certain medical conditions (e.g., allergies, risk of parasitic infections, etc.), as well as problematic situations that may arise during human–animal interaction (such as fear, aggressive behavior of animals, and others) (Cruz et al., 2017; Rodrigo-Claverol et al., 2023; Tak et al., 2016; Wagner et al., 2022). In any case, the selection of an animal assistant for therapy should be made with the involvement of a specialist, taking into account the patient's health condition and individual characteristics.

Conclusion

Therefore, it is important to emphasize that the success of AAT depends on many factors, particularly the realism of the goals and the individual's willingness to improve their well-being.

However, the key strength of this method lies in its natural appropriateness, especially in the context of global urbanization and the increasing technocratization of humanity. When applied with an individualized approach and adherence to professional recommendations, this method is safe and poses no harm to the patient. The principle of "do no harm" - one of the oldest and most important in medical ethics - is fully aligned with the essence of animal-assisted therapy.

Animal-assisted therapy has a long history and is scientifically proven to have a positive impact on both physical and mental health. This form of treatment plays an important role in improving the quality of life for many individuals, thanks to the caring nature of animals and the special bond they develop with humans.

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