MARCINIUK, Dominika, GŁOGOWSKA, Paulina, GRELA, Wiktor, NIEWIADOMSKA, Jagoda, GNIAŹ, Natalia, TULEJ, Dawid, MARKO, Natalia, DZIEDZIC, Alicja, FURTAK, Daria and GÓRSKA, Aleksandra. The Efficacy of Dog Assisted Therapy in depression and anxiety – a review. Journal of Education, Health and Sport. 2025;78:57658eISSN 2391-8306.
https://doi.org/10.12775/JEHS.2025.78.57658
https://apcz.umk.pl/JEHS/article/view/57658

The journal has had 40 points in Minister of Science and Higher Education of Poland parametric evaluation. Annex to the announcement of the Minister of Education and Science of 05.01.2024 No. 32318. Has a Journal's Unique Identifier: 201159. Scientific disciplines assigned: Physical culture sciences (Field of medical and health sciences); Health Sciences (Field of medical and health sciences).
Punkty Ministerialne 40 punktów. Załącznik do komunikatu Ministra Nauki i Szkolnictwa Wyższego z dnia 05.01.2024 Lp. 32318. Posiada Unikatowy Identyfikator Czasopisma: 201159. Przypisane dyscypliny naukowe: Nauki o kulturze fizycznej (Dziedzina nauk medycznych i nauk o zdrowiu); Nauki o zdrowiu (Dziedzina nauk medycznych i nauk o zdrowiu).
The authors declare that there is no conflict of interests regarding the publication of this paper.
Received: 08.01.2025. Revised: 28.01.2025. Accepted: 06.02.2025. Published: 12.02.2025.

The efficacy of Dog Assisted Therapy in depression and anxiety – review

Dominika Marciniuk [DM]

marciniukd@gmail.com

ORCID 0009-0000-0710-8485

Medical University of Lublin, Poland

al. Racławickie 1, 20-059 Lublin, Poland

Paulina Głogowska [PG]

glogowska.paulina1@gmail.com

ORCID 0009-0002-3003-4466

Medical University of Lublin, Poland

al. Racławickie 1, 20-059 Lublin, Poland

Wiktor Grela [WG]

grelawiktor@gmail.com

ORCID 0009-0000-5801-5756

Medical University of Lublin, Poland

al. Racławickie 1, 20-059 Lublin, Poland

Jagoda Niewiadomska [JN]

malwatexass@wp.pl

ORCID 0009-0003-2219-984X

Medical University of Lublin, Poland

al. Racławickie 1, 20-059 Lublin, Poland

Natalia Gniaź [NG]

natalia.gniaz55@gmail.com

ORCID 0009-0008-3329-9770

Medical University of Lublin, Poland

al. Racławickie 1, 20-059 Lublin, Poland

Dawid Tulej [DT]

dawid.tulej2000@gmail.com

ORCID 0000-0002-5711-3423

Medical University of Lublin, Poland

al. Racławickie 1, 20-059 Lublin, Poland

Natalia Marko [NM]

markonatalia26@gmail.com

ORCID 0009-0004-7815-4592

Medical University of Lublin, Poland

al. Racławickie 1, 20-059 Lublin, Poland

Alicja Dziedzic [AD]

alicja.dziedzic1109@gmail.com

ORCID 0009-0001-0460-4106

Medical University of Lublin, Poland

al. Racławickie 1, 20-059 Lublin, Poland 0001-046

Daria Furtak [DF]

dariafurtak@gmail.com

ORCID 0000-0003-0768-9800

Medical University of Lublin, Poland

al. Racławickie 1, 20-059 Lublin, Poland

Aleksandra Górska [AG]

ola.gorska6@gmail.com

ORCID 0009-0004-0141-2821

Medical University of Lublin, Poland

al. Racławickie 1, 20-059 Lublin, Poland

Abstract

Introduction:

Animal-assisted-therapy (AAT) is a form of psychotherapy where animals are used as a part of a therapeutic process. Most commonly chosen are dogs and horses, however, some research shows a positive impact in therapy with farm animals, cats, birds, rodents, and dolphins. AAT provides a comfortable environment which empowers patients to recall traumatic memories and

facilitates communication with their therapist. Furthermore, contact with therapeutic animals lowers blood pressure, heart rate and cortisol level. There have also been noted significant increases in beta-endorphin, oxytocyn, β-phenylethylamine and dopamine levels.

Purpose: The purpose of this article was to present the current state of knowledge regarding the influence of dog-assisted therapy in individuals of all ages experiencing depression or anxiety.

Material and methods: A review of the available literature was conducted by searching the PubMed, and Google Scholar databases using the keywords: adults, elderly, children, DAT, dog-assisted therapy, depression, anxiety. Included articles were published after the year 2000.

Results: The studies reviewed consistently demonstrate the potential benefits of dog-assisted therapy (DAT) for alleviating anxiety, depression, and enhancing overall well-being in various populations. In dental and hospital settings, DAT significantly reduced anxiety and physiological distress with notable improvements in heart rate and depression scores.

Conclusion: Dog-assisted therapy (DAT) effectively reduces anxiety and depression, demonstrating its potential as an engaging intervention for diverse populations. These findings support its broader integration into mental health programs.

Key words: adults, elderly, children, DAT, dog-assisted therapy, depression, anxiety.

Introduction

Animal-Assisted Intervention refers to a wide range of practices that incorporate animals into human care and support services to promote health, education, or well-being. These interventions can be informal, such as companionship visits, or formalized, as in therapeutic or educational programs.[1] A subset of AAI, Animal-Assisted Therapy is a structured and goal-oriented therapeutic approach where trained animals are incorporated into treatment plans to support physical, emotional, and psychological well-being. Guided by professionals, AAT is designed to improve specific outcomes such as reducing stress, enhancing social skills, or alleviating symptoms of anxiety and depression.[1] Within AAT, Dog-Assisted Therapy is a specialized form of AAT that specifically involves trained therapy dogs to achieve therapeutic goals.

Mental health conditions like depression and anxiety are among the most prevalent worldwide. According to WHO data from 2019, an estimated 280 million people worldwide experienced depression. In the same year, 301 million individuals were affected by anxiety disorders, making them the most common mental health condition globally. Both depression and anxiety can affect individuals of all ages.[5]

Therapeutic animals offer unwavering companionship, providing a comforting presence for individuals struggling with anxiety or depression. Their nonjudgmental nature creates a safe and accepting environment where people can freely express their emotions, fostering feelings of connection and self-worth.[30] For individuals facing anxiety, spending time with therapy animals can provide a calming, sensory experience that helps redirect attention from intrusive thoughts or overwhelming feelings. For individuals battling depression, these interactions often spark moments of happiness and instill a renewed sense of purpose, encouraging engagement with daily activities and enhancing emotional well-being.[2]

Physical contact with therapy dogs has been shown to have a profound impact on the body's physiological response to stress, providing immediate relief from anxiety. When people interact with therapy dogs, their cortisol levels decrease significantly. Elevated cortisol is commonly associated with chronic stress, anxiety, and even depression, and its reduction leads to a calmer state of mind. Futhermore, heart rate and blood pressure typically lower during interactions with therapy animals, which further alleviates the physical manifestations of anxiety and stress.[3] The calming effect of therapy dogs goes beyond just physical relaxation. Interaction with dogs also stimulates the release of oxytocin, a neuropeptide often referred to as the bonding hormone. Oxytocin is essential for forming connections and fostering feelings of security. When released during moments of companionship with a therapy dog, oxytocin not only strengthens the emotional bond between the individual and the animal, but it also helps alleviate feelings of anxiety, loneliness, and fear. [2,3] In addition to the emotional benefits, dopamine—a neurotransmitter associated with pleasure and reward—also plays a critical role. Interacting with therapy dogs can increase dopamine levels in the brain, which leads to improved mood and an enhanced sense of well-being.[4] For individuals experiencing depression, where pleasure is often diminished, this surge in dopamine can help combat anhedonia, the inability to feel pleasure. Increased dopamine also encourages a more positive outlook, aiding in overcoming the mental barriers that often accompany depressive symptoms.[36] β-endorphin—a neuropeptide involved in pain relief, feelings of euphoria and stress reduction— increases during DAT. Known for its role in learning, memory, and

emotional regulation, β-endorphin helps alleviate stress and promote relaxation.[4] Furthermore, β-phenylethylamine—a compound in the brain that promotes feelings of excitement and positivity—also rises with therapy dog interactions.[4]

State of knowledge:

1) Children
2) Research indicates that interactions with therapy animals enhance positive emotions and alleviate anxiety in children. Dogs provide unwavering acceptance, helping to reduce stress, ease physical discomfort, and encourage emotional resilience and social engagement. The therapeutic bond between humans and animals has been shown to improve mood, decrease anxiety, and enhance overall well-being. By offering tactile and visual comfort, therapy dogs foster feelings of safety and acceptance, helping children feel less distressed and more receptive.[6]
3) A randomized controlled trial conducted by Mohammad Tahan et al. (2022) examined the impact of animal-assisted therapy (AAT) on reducing anxiety in preschool-aged children. The study involved 20 children aged 5 to 7 years, who were randomly assigned to an experimental group receiving eight AAT sessions or a control group with no intervention. Anxiety levels were measured using the Spence Children Anxiety Scale for Parents (SCAS-P) and a structured DSM-V-based interview, administered before and after the intervention. Results showed a significant reduction in overall anxiety for the AAT group, with mean scores dropping from 67.90 to 55.30, reflecting a 12.60-point decrease. Moreover, AAT had notable effects on specific anxiety subtypes, including separation anxiety, generalized anxiety disorder, social phobia, and specific phobias, with effect sizes ranging from 0.30 to 0.53. A limitation of the study was the small sample size, which may restrict the generalizability of the findings. Despite this, the results suggest AAT's potential as an effective intervention for managing anxiety in young children, offering targeted relief across various anxiety subtypes.[7]
4) Research by Molly K. Crossman et. al (2018) underscores the efficacy of dog-assisted therapy (DAT) in mitigating anxiety and enhancing affect in children. Their study involved 78 children, aged 10 to 13, who participated in brief, unstructured interactions with unfamiliar dogs after exposure to a stressful task. Using the State portion of the State/Trait Anxiety Inventory for Children (STAI-C), the researchers assessed anxiety

levels before and after the intervention. Findings revealed that interactions with dogs moderately alleviated children's subjective experiences of anxiety and stress. Participants who interacted with dogs showed lower anxiety levels compared to those who waited without intervention, although the results were comparable to those who interacted with a soothing object. The study highlights that animal-assisted activities (AAAs), such as DAT, not only help alleviate the negative effects of stress but can also prevent stress-induced increases in anxiety and affect during challenging situations. However, the study evaluated only immediate changes in anxiety and affect, leaving questions about the long-term effects unanswered. Additionally, the participants were volunteers who likely had positive attitudes toward dogs, which limits the generalizability of the findings to individuals with neutral or negative perceptions of dogs.[8]

5) A study by George Kleftaras et al. (2024) explored the effects of a Dog-Assisted Activity (DAA) program on depression levels in elementary school students in Greece. The research sought to determine if interactions with a trained dog could reduce depressive symptoms, assessed through a self-reported questionnaire. The participants were divided into two groups: an experimental group (n = 19) that engaged with a trained dog and a control group (n = 25) that attended lectures on dog training. The program ran for approximately two months, with evaluations conducted before and after the intervention. Analysis of the data showed a significant decrease in depression scores among students in the experimental group ($p = .018$). However, the study's ability to generalize its findings is limited, as the research was conducted in a private school, which may not fully represent the broader Greek student population.[9]
6) A study by M.C. Stefanini et al. (2015) explored the impact of Animal-Assisted Therapy (AAT) compared to standard treatment protocols in children and adolescents hospitalized for acute mental health conditions, including depression, anxiety, eating disorders, and psychotic breakdowns. This randomized controlled trial (RCT) involved 34 participants aged 11 to 17, divided into treatment and control groups. Key outcomes assessed included global functioning (measured by the Children's Global Assessment Scale), duration of hospitalization, and ordinary school attendance. Results demonstrated significant benefits for the AAT group, including improved global functioning, reduced time spent in the hospital, and increased school attendance. Over the three-month intervention, participants in the AAT group also exhibited better social participation, stronger interaction skills with adults and colleagues, and greater

emotional connections with the therapy animals. These improvements persisted even three months post-intervention. The findings underscore the role of AAT in promoting adaptive social and relational integration in adolescents with severe psychiatric disorders, with animals acting as catalysts for engagement and creating a more relaxed therapeutic environment.[10]

7) Dog-assisted therapy has also proven to be a valuable tool for managing anxiety in hospitalized children and children undergoing dental treatment. Settings where fear and anxiety are common barriers to successful care.
8) A prospective multicenter cohort study by Maylos Rodrigo-Claverol et al. (2023) evaluated the impact of animal-assisted therapy (AAT) on adolescents aged 13 to 17 who were admitted to psychiatric inpatient units in Spain. The intervention involved two weekly, one-hour group therapy sessions with therapy dogs over two weeks. The study included 114 participants, with a mean age of 14.9 years, most of whom were female (84.2%). The primary diagnosis among participants included depression. Using the Center for the Study of Animal Wellness Pet Bonding Scale (CSAWPB), the study found that adolescents formed a positive perception of the therapy dogs and developed significant bonding and attachment in a short period. While the study did not establish whether a strong human-animal bond directly enhances AAT outcomes, it highlighted the potential of AAT as a complementary intervention to pharmacological treatments for managing mental health symptoms.[11]
9) A study by K. Hinic (2019) explored the effectiveness of pet therapy in reducing anxiety in hospitalized children. The research established that pet therapy can be a valuable complementary intervention to decrease anxiety in children receiving medical care. Notably, all parent participants reported that they would recommend pet therapy, highlighting the strong parental support for this intervention. This suggests that pet therapy not only alleviates anxiety in children but also garners positive feedback from families, further endorsing its potential in hospital settings.[12]
10) In a dental clinic, therapy dogs help create a calming and friendly environment that helps children relax and feel more at ease during procedures. Therapy dogs offer distraction and comfort, often allowing children to focus on the dog instead of the dental equipment or procedures that may trigger fear.[13,14] A study conducted in 2023 revealed that children who interacted with a dog during dental procedures experienced a significant decrease in heart rate (HR). In contrast, the control group showed no change in HR before, during, or after treatment. Furthermore, anxiety, as measured using Corah's

Dental Anxiety Scale (CS), significantly increased in the control group compared to pre- and post-treatment scores, while no such increase was observed in the AAT group.[13] Similarly, another study conducted on 102 children aged 5–10 years, where anxiety levels were evaluated using pulse rate and the Revised Modified Faces version of the Modified Child Dental Anxiety Scale (MCDASF), also demonstrated a reduction in anxiety following interactions with therapy dogs.[14]

2). **Adults**

Student mental health has garnered increasing attention in recent years, as many university students face significant stress and anxiety due to the demands of academic life. Therapy animals, particularly dogs, have emerged as a potential intervention to help mitigate these challenges. Dog-assisted therapy (DAT) has shown promise in improving psychological well-being, offering students a natural and effective way to cope with anxiety and stress.[15]

A 2017 study by Grajfoner et al. explored the effects of a brief, 20-minute dog-assisted intervention on student well-being, mood, and anxiety. While categorized as an intervention, this study provides valuable insights into the therapeutic potential of dog-assisted therapy (DAT). The study involved 132 university students (mean age = 21.6 years), who were assigned to one of three groups: an experimental condition with both dogs and their handlers, and two control groups—one with only the dog and the other with only the handler. Participants completed a series of assessments, including the Warwick–Edinburgh Mental Well-Being Scale, the State-Trait Anxiety Inventory, and the UWIST Mood Adjective Checklist, both before and after the intervention. The results indicated that interactions with the dog led to significant improvements in mood and well-being and a notable reduction in anxiety. Interestingly, the presence of the handler alongside the dog was associated with a negative impact on mood, as greater positive shifts were observed in the group that interacted only with the dog. These findings support the idea that even short, structured interactions with therapy dogs—a cornerstone of DAT—can effectively improve student mood and reduce anxiety.[15]

Another study on students, conducted by Hall in 2018, explored the long-term effects of a therapy dog on anxiety and depression symptoms in nursing students. The study involved 109 participants, with 77 completing the study. The students, aged 21 to 56 years, were assigned to either a control group or a treatment group. Over a 16-week semester, those in the treatment group interacted with a registered therapy dog, while

the control group did not. Both groups completed the Hospital Anxiety and Depression Scale at the beginning and end of the semester. While there was no significant change in depression symptoms, the results showed that students in the treatment group experienced a notable reduction in anxiety symptoms by the end of the semester. The findings suggest that having a therapy dog on campus can effectively alleviate anxiety in nursing students, a group often faced with high levels of stress due to the demanding nature of their studies. This intervention may help students manage anxiety and potentially improving their success.[16]

In 2017, Phung, Angela et al. conducted a study examining the effects of animal-assisted therapy (AAT) on anxiety in adult inpatients at a hospital in Illinois. Using a quasi-experimental design, the researchers evaluated changes in anxiety levels through pre- and post-intervention assessments. Data was collected from patients across various units, including general medicine, general surgery, medical and cardiac ICUs, medical neurology, oncology, and rehabilitation. All participants were adults aged 18 and older and rated their anxiety using a Likert scale. The findings showed a reduction in anxiety levels following AAT, suggesting its potential to provide temporary relief in acute care settings. However, the study did not include control groups or comparative interventions, making it challenging to assess AAT's effectiveness compared to conventional treatments.[17] Another research, conducted in 2020 in the emergency department (ED), further highlighted the benefits of therapy dogs. Among 97 patients, reductions were observed in pain (43%), anxiety (48%), depression (46%), and well-being (41%). Strong responders to the intervention (i.e., those experiencing >50% reduction) were noted for each of these metrics, reinforcing AAT's potential to alleviate distress in high-stress medical environments.[21]

In 2009, Andreas O.M. Hoffmann et al explored the effects of dog-assisted therapy on anxiety in hospitalized patients diagnosed with major depression. The study utilized a pre- and post-treatment-controlled crossover design and assessed anxiety levels using the State-Trait Anxiety Inventory (STAI). Twelve patients (six male, six female, average age 40.5 ± 10 years) with similar disease onset and hospitalization histories participated. Each patient engaged in two 30-minute sessions: the treatment session included interaction with a therapy dog and a research assistant, while the control session involved discussing personal experiences with pets and the patient's history with the same research assistant. The results indicated a significant decrease in

STAI scores following the dog-assisted session. However, no significant change was observed after the control session.[18] Supporting these findings, a related study found that dog-assisted therapy reduced anxiety in patients awaiting electroconvulsive therapy (ECT). In this study, 35 patients alternated between a 15-minute therapy session with a dog and its handler and a standard condition involving reading magazines. Anxiety and depression were measured using visual analog scales. The findings showed an 18% reduction in anxiety after dog-assisted therapy, though no effect on depression was observed.[19]

Similar to the positive effects observed in children, dog-assisted therapy has also been shown to reduce anxiety in adults undergoing dental procedures. A 2019 study involving 12 adults utilized the Corah Dental Anxiety Scale (CDAS) to measure anxiety levels. Of the participants, 91.7% were women, and 8.3% were men, with a mean age of 31.25 years. Physiological parameters, including pulse and blood pressure, were recorded at three intervals: before, midway through, and at the end of the intervention. Results indicated that being accompanied by a dog during the procedure decreased discomfort and contributed to relaxation. Pulse and blood pressure measurements consistently declined from the beginning to the midpoint of the intervention. However, a slight increase was observed at the end of the procedure, likely due to participants physically reactivating as they prepared to leave the chair.[20]

3). **Elderly**

Dog-assisted therapy has been shown to be helpful in reducing symptoms of depression in elderly individuals, especially in environments like nursing homes or assisted living facilities where isolation and loneliness tend to be prevalent. [23,37] Studies indicate that engaging with therapy dogs not only enhances mood and offers a feeling of companionship but also fosters social interactions. These interactions can create a sense of belonging and community, which has been associated with improved mental health outcomes. Furthermore, actions like petting, feeding, or simply being around a dog help elderly people feel purposeful and emotionally connected, reducing signs of apathy and sadness. This aligns with broader findings that pets can fill the emptiness of the house and reduce feelings of loneliness, ultimately improving overall well-being. [2,22]

Randomized controlled trials have highlighted the benefits of dog-assisted therapy (DAT) for institutionalized elderly populations. In 2009, Le Roux et al. found that animal-assisted activities (AAA), consisting of visits from a qualified dog and handler, positively impacted depression levels among residents in long-term care facilities, though no significant changes in anxiety levels were observed. The Beck Depression Inventory (BDI) and the Beck Anxiety Inventory (BAI) were used pre- and post-intervention to measure these effects. The study involved 16 participants, and the researchers suggested that the non-significant changes in anxiety scores for the AAA group might be attributed to the small sample size, emphasizing the need for further research with larger groups. [23] A decade later, Ambrosi et al. (2019) demonstrated that DAT effectively reduced symptoms of depression in institutionalized elderly individuals but similarly reported no significant impact on anxiety. The study involved 31 participants, and the Geriatric Depression Scale-15 (GDS-15) and the Generalized Anxiety Disorder 7 (GAD-7) were utilized before and after the 10 weeks of DAT. The authors highlighted the need for further investigation into potential correlations between anxiety, emotional memory patterns, and broader constructs like alexithymia in the context of aging. [24] More recently, Parra et al. (2022) found that dog-assisted therapy (DAT) significantly improved emotional, behavioral, and cognitive outcomes in elderly patients with dementia, suggesting potential benefits for mood-related disorders, including depression and anxiety.[25] Furthermore, Olsen et al. (2016) conducted a trial to examine the effects of a 12-week animal-assisted activity (AAA) program on nursing home residents with cognitive impairments or dementia. Depression levels were assessed using the Cornell Scale for Depression in Dementia (CSDD), and the findings highlighted the potential of AAA to alleviate depressive symptoms. Particularly, participants with severe dementia demonstrated significant improvements in depression during the post-intervention period, underscoring the intervention's efficacy for this subgroup.[27]

In a broader context, a meta-analysis conducted by Marta Borgi et al. in 2020 reviewed 10 studies to evaluate the impact of dog-assisted interventions on depressive symptoms among older adults, both institutionalized and noninstitutionalized. The analysis included 328 participants across 7 randomized controlled trials (RCTs) and 3 quasi-randomized controlled trials. All studies implemented periodic animal-assisted intervention (AAI) sessions, typically twice per week, with session durations ranging

from 30 to 90 minutes and intervention lengths spanning 6 weeks to 8 months. The findings confirmed the potential value of dog visits in reducing depressive symptoms in older adults, supporting previous research highlighting AAIs as promising complementary programs for preserving and enhancing emotional and behavioral functioning in aged individuals. However, the analysis identified substantial heterogeneity among the included studies, reflecting variability in methodologies, participant demographics, and intervention protocols. Despite these limitations, the results underscore the therapeutic potential of AAIs, particularly dog-assisted visits, as an adjunctive treatment for depression in older populations.[26]

Conserns and challanges:

Zoonotic risk

1). Therapy dog programs carry potential zoonotic risks, involving the mutual transmission of infections between humans and animals. Humans may face exposure to pathogens like Salmonella spp., Clostridium spp., and Listeria spp., as well as other risks such as allergies, bites, and fleas. Dogs, especially those on raw meat diets, can shed harmful bacteria, creating additional risks for individuals with weakened immune systems. Preventative strategies such as routine veterinary care, vaccinations, parasite prevention, and maintaining proper hygiene, including bathing dogs before visits, are critical to minimize these risks. Factors like environmental cleanliness and materials used in facilities also influence the likelihood of zoonotic transmission. To safeguard both dogs and participants, experts emphasize the importance of clear health protocols, thorough risk assessments, and qualified handlers to oversee these interactions. [28,29,31]

Allergies

2). DAT also carries a potential risk for individuals with pet allergies. Common allergens found in dogs such as dander, saliva, hair and urine can trigger allergic reactions including rhinitis, conjunctivitis [38], allergic bronchial asthma, and skin irritations.[39] To minimize these risks routine cleaning procedures should be carried out following each session and therapy dogs should be bathed frequently. [40]

Risk of Aggressive or Unpredictable Behavior

Even well-trained animals may display signs of stress in certain situations, which can impact their ability to provide effective therapy. Therapists and handlers must closely observe the behavior of the animal and take into account the unique circumstances of each patient. Handlers should be trained to recognize subtle signs of stress in dogs, such as pacing, panting, excessive yawning, or withdrawal, and remove the animal from potentially overwhelming situations. It is crucial to monitor dogs for any behavioral signs of stress that could potentially escalate to aggression. It's important to ensure dogs are not overworked and have adequate rest. [32,34]

Avoiding Exploitation

The use of animals in therapy should not place financial profit or public exposure above the well-being of animals and patients. Ethical programs prioritize genuine therapeutic outcomes.[33]

Addressing these issues, it is essential to find a balance between compassionate care for patients and therapy animals, with careful protocols to guarantee safety, transparency, and mutual benefit in therapeutic interactions.

Conclusion:

This research highlights the effectiveness of dog-assisted therapy (DAT) in alleviating anxiety and depression symptoms. DAT demonstrated measurable improvements in psychological well-being and provided participants with a unique and engaging form of stress relief. It highlighted its potential to enhance motivation and emotional resilience. The intervention proved valuable across demographics. These results support the integration of DAT into broader mental health programs as an accessible therapeutic approach. Future research should explore long-term effects and develop standardized guidelines for implementing DAT across various settings to ensure consistent and reliable outcomes. This includes establishing criteria for selecting and training therapy dogs as well as implementing safety protocols to mitigate hazards like allergies and zoonotic diseases.

Disclosure:

Authors contribution:

Conceptualisation: Dominika Marciniuk, Paulina Głogowska, Natalia Marko

Methodology: Dawid Tulej, Aleksandra Górska

Formal analysis: Daria Furtak, Wiktor Grela

Investigation: Natalia Marko, Natalia Gniaź, Jagoda Niewiadomska

Writing-Rough Preparation: Dominika Marciniuk, Alicja Dziedzic, Wiktor Grela, Natalia Gniaź

Writing-Review and Editing: Dominika Marciniuk, Jagoda Niewiadomska, Aleksandra Górska, Paulina Głogowska

Visualisation: Daria Furtak, Alicja Dziedzic, Dawid Tulej

All authors have read and agreed with the published version of the manuscript.

Conflicts of Interest: The authors declare no conflicts of interest.

Funding Statement: No external funding was received to perform this review.

Board Statement: Not applicable–this review included ananalysis of the available literature.

Statement of Informed Consent: Not applicable.

References:

1. Jones MG, Rice SM, Cotton SM. Incorporating animal-assisted therapy in mental health treatments for adolescents: A systematic review of canine assisted psychotherapy. *PLoS One*. 2019;14(1):e0210761. Published 2019 Jan 17. doi:10.1371/journal.pone.0210761
2. Beetz A, Uvnäs-Moberg K, Julius H, Kotrschal K. Psychosocial and psychophysiological effects of human-animal interactions: the possible role of oxytocin. *Front Psychol*. 2012;3:234. Published 2012 Jul 9. doi:10.3389/fpsyg.2012.00234
3. Miller, S. C., Kennedy, C. C., DeVoe, D. C., Hickey, M., Nelson, T., & Kogan, L. (2009). An Examination of Changes in Oxytocin Levels in Men and Women Before and After Interaction With a Bonded Dog. *Anthrozoös*, *22*(1), 31–42. https://doi.org/10.2752/175303708X390455
4. Odendaal JS, Meintjes RA. Neurophysiological correlates of affiliative behaviour between humans and dogs. *Vet J*. 2003;165(3):296-301. doi:10.1016/s1090-0233(02)00237-x

5. https://www.who.int/news-room/fact-sheets/detail/mental-disorders (01.12.2024)
6. Wu, A., & Wei, R. (2023). The Benefits of Dog-Assisted Therapy for Children With Anxiety. *Psychotherapy and Counselling Journal of Australia*, *11*(2). https:/ / doi.org/ 10.59158/ 001c.84856
7. Tahan M, Saleem T, Sadeghifar A, Ahangri E. Assessing the effectiveness of animal-assisted therapy on alleviation of anxiety in pre-school children: A randomized controlled trial. *Contemp Clin Trials Commun*. 2022;28:100947. Published 2022 Jun 11. doi:10.1016/j.conctc.2022.100947
8. Crossman MK, Kazdin AE, Matijczak A, Kitt ER, Santos LR. The Influence of Interactions with Dogs on Affect, Anxiety, and Arousal in Children. *J Clin Child Adolesc Psychol*. 2020;49(4):535-548. doi:10.1080/15374416.2018.1520119
9. Kleftaras, G. and Diamantakos, E. (2024) Dog Assisted Activities and Their Effect on the Depression of Elementary Students. *Psychology*, **15**, 1-15. doi: 10.4236/psych.2024.151001.
10. Stefanini MC, Martino A, Allori P, Galeotti F, Tani F. The use of Animal-Assisted Therapy in adolescents with acute mental disorders: A randomized controlled study. *Complement Ther Clin Pract*. 2015;21(1):42-46. doi:10.1016/j.ctcp.2015.01.001
11. Rodrigo-Claverol M, Manuel-Canals M, Lobato-Rincón LL, et al. Human-Animal Bond Generated in a Brief Animal-Assisted Therapy Intervention in Adolescents with Mental Health Disorders. *Animals (Basel)*. 2023;13(3):358. Published 2023 Jan 20. doi:10.3390/ani13030358
12. Hinic K, Kowalski MO, Holtzman K, Mobus K. The Effect of a Pet Therapy and Comparison Intervention on Anxiety in Hospitalized Children. *J Pediatr Nurs*. 2019;46:55-61. doi:10.1016/j.pedn.2019.03.003
13. Pinheiro SL, Silva C, Luiz L, et al. Dog-assisted therapy for control of anxiety in pediatric dentistry. *J Clin Pediatr Dent*. 2023;47(6):38-43. doi:10.22514/jocpd.2023.080
14. Thakkar TK, Naik SN, Dixit UB. Assessment of dental anxiety in children between 5 and 10 years of age in the presence of a therapy dog: a randomized controlled clinical study. *Eur Arch Paediatr Dent*. 2021;22(3):459-467. doi:10.1007/s40368-020-00583-1
15. Grajfoner D, Harte E, Potter LM, McGuigan N. The Effect of Dog-Assisted Intervention on Student Well-Being, Mood, and Anxiety. *Int J Environ Res Public Health*. 2017;14(5):483. Published 2017 May 5. doi:10.3390/ijerph14050483

16. Debby Hall,Nursing Campus Therapy Dog: A Pilot Study,Teaching and Learning in Nursing,Volume 13, Issue 4,2018,Pages 202-206,ISSN 1557-3087,https://doi.org/10.1016/j.teln.2018.05.004.
17. Phung, Angela MSN; Joyce, Colleen MSN; Ambutas, Shirley DNP, RN, CNS; Browning, Melissa DNP, APRN, CCNS; Fogg, Louis PhD, RN; Christopher, Beth-Anne MSN, RN, CNL; Flood, Suzanne MSN, RN, ANP. Animal-assisted therapy for inpatient adults. Nursing 47(1):p 63-66, January 2017. | DOI: 10.1097/01.NURSE.0000504675.26722.d8
18. Andreas O.M. Hoffmann, Ah Hyung Lee, Florian Wertenauer, Roland Ricken, Joanna J. Jansen, Juergen Gallinat, Undine E. Lang, Dog-assisted intervention significantly reduces anxiety in hospitalized patients with major depression,European Journal of Integrative Medicine,Volume 1, Issue 3,2009,Pages 145-148,ISSN 1876-3820,https://doi.org/10.1016/j.eujim.2009.08.002.
19. Barker SB, Pandurangi AK, Best AM. Effects of animal-assisted therapy on patients' anxiety, fear, and depression before ECT. *J ECT*. 2003;19(1):38-44. doi:10.1097/00124509-200303000-00008
20. Cruz-Fierro N, Vanegas-Farfano M, González-Ramírez MT. Dog-Assisted Therapy and Dental Anxiety: A Pilot Study. *Animals (Basel)*. 2019;9(8):512. Published 2019 Jul 31. doi:10.3390/ani9080512
21. Carey B, Dell CA, Stempien J, et al. Outcomes of a controlled trial with visiting therapy dog teams on pain in adults in an emergency department. *PLoS One*. 2022;17(3):e0262599. Published 2022 Mar 9. doi:10.1371/journal.pone.0262599
22. Hui Gan GZ, Hill AM, Yeung P, Keesing S, Netto JA. Pet ownership and its influence on mental health in older adults. *Aging Ment Health*. 2020;24(10):1605-1612. doi:10.1080/13607863.2019.1633620
23. LE ROUX, M.C. and KEMP, R. (2009), Effect of a companion dog on depression and anxiety levels of elderly residents in a long-term care facility. Psychogeriatrics, 9: 23-26. https://doi.org/10.1111/j.1479-8301.2009.00268.x
24. Ambrosi C, Zaiontz C, Peragine G, Sarchi S, Bona F. Randomized controlled study on the effectiveness of animal-assisted therapy on depression, anxiety, and illness perception in institutionalized elderly. *Psychogeriatrics*. 2019;19(1):55-64. doi:10.1111/psyg.12367

25. Parra EV, Hernández Garre JM, Pérez PE. Impact of Dog-Assisted Therapy for Institutionalized Patients With Dementia: A Controlled Clinical Trial. *Altern Ther Health Med*. 2022;28(1):26-31.
26. Borgi M, Collacchi B, Giuliani A, Cirulli F. Dog Visiting Programs for Managing Depressive Symptoms in Older Adults: A Meta-Analysis. *Gerontologist*. 2020;60(1):e66-e75. doi:10.1093/geront/gny149
27. Olsen C, Pedersen I, Bergland A, Enders-Slegers MJ, Patil G, Ihlebaek C. Effect of animal-assisted interventions on depression, agitation and quality of life in nursing home residents suffering from cognitive impairment or dementia: a cluster randomized controlled trial. *Int J Geriatr Psychiatry*. 2016;31(12):1312-1321. doi:10.1002/gps.4436
28. McDowall S, Hazel SJ, Cobb M, Hamilton-Bruce A. Understanding the Role of Therapy Dogs in Human Health Promotion. *Int J Environ Res Public Health*. 2023;20(10):5801. Published 2023 May 12. doi:10.3390/ijerph20105801
29. Menna LF, Santaniello A, Todisco M, et al. The Human-Animal Relationship as the Focus of Animal-Assisted Interventions: A One Health Approach. *Int J Environ Res Public Health*. 2019;16(19):3660. Published 2019 Sep 29. doi:10.3390/ijerph16193660
30. Hunt, M. G., & Chizkov, R. R. (2014). Are Therapy Dogs Like Xanax? Does Animal-Assisted Therapy Impact Processes Relevant to Cognitive Behavioral Psychotherapy? *Anthrozoös*, *27*(3), 457–469. https://doi.org/10.2752/175303714X14023922797959
31. Serpell JA, Kruger KA, Freeman LM, Griffin JA, Ng ZY. Current Standards and Practices Within the Therapy Dog Industry: Results of a Representative Survey of United States Therapy Dog Organizations. *Front Vet Sci*. 2020;7:35. Published 2020 Feb 7. doi:10.3389/fvets.2020.00035
32. Hatch, A. (2007). The View from All Fours: A Look at an Animal-Assisted Activity Program from the Animals' Perspective. *Anthrozoös*, *20*(1), 37–50. https://doi.org/10.2752/089279307780216632
33. McDowall S, Hazel SJ, Cobb M, Hamilton-Bruce A. Understanding the Role of Therapy Dogs in Human Health Promotion. *Int J Environ Res Public Health*. 2023;20(10):5801. Published 2023 May 12. doi:10.3390/ijerph20105801
34. Ng,Zenithson and Svensson,Laurence and Souza,Marcy and Albright,Julia, hai.2024.0011, Human-Animal Interactions, doi:10.1079/hai.2024.0011, CABI, Describing adverse events in an animal-assisted intervention organization: Recommendations for prevention and management, (2024)

35. Hunjan U. G, Reddy K. J. Psychoneuroimmunological Perspective of Animal-Assisted Therapy. Biomed Pharmacol J 2024;17(3).
36. Nestler EJ, Carlezon WA Jr. The mesolimbic dopamine reward circuit in depression. *Biol Psychiatry*. 2006;59(12):1151-1159. doi:10.1016/j.biopsych.2005.09.018
37. Banks MR, Banks WA. The effects of animal-assisted therapy on loneliness in an elderly population in long-term care facilities. *J Gerontol A Biol Sci Med Sci*. 2002;57(7):M428-M432. doi:10.1093/gerona/57.7.m428
38. Brodie SJ, Biley FC, Shewring M. An exploration of the potential risks associated with using pet therapy in healthcare settings. *J Clin Nurs*. 2002;11(4):444-456. doi:10.1046/j.1365-2702.2002.00628.x
39. Meers LL, Contalbrigo L, Samuels WE, et al. Canine-Assisted Interventions and the Relevance of Welfare Assessments for Human Health, and Transmission of Zoonosis: A Literature Review. *Front Vet Sci*. 2022;9:899889. Published 2022 Jun 17. doi:10.3389/fvets.2022.899889
40. Bert F, Gualano MR, Camussi E, Pieve G, Voglino G, Siliquini R. Animal assisted intervention: A systematic review of benefits and risks. *Eur J Integr Med*. 2016;8(5):695-706. doi:10.1016/j.eujim.2016.05.005