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Animal-Assisted Therapy in Mental Illness

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Animal-Assisted Therapy in Mental Illness

A Paper Submitted in Partial Fulfillment of the Requirements

For NURS 5382: Capstone

In the School of Nursing

The University of Texas at Tyler

by

Chanae Cypress

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Executive Summary

Mental health disorders are a significant global health concern, with a growing need for alternative therapeutic approaches. Animal-assisted therapy has gained recognition for its potential to improve the emotional and psychological well-being of individuals struggling with these disorders.

This Capstone Benchmark proposed project explores the potential positive impact of animal-assisted therapy (AAT) on patients with mental health disorders during inpatient hospitalization. The project outlines a 4-week intervention program involving 45-60 minutes sessions with dogs, which patients receive 2-3 times per week. For this Capstone Benchmark project, the selected **PICOT** question is: In patients with mental health disorder (**P**) how does the use of animal-assisted therapy (**I**) affect the mental health symptoms as measured by the Child and Adolescent Behavioral Assessment-Youth/Informant, and the Behavior and Symptom Identification Scale BASIS-32” (**C**) compared to those who don’t receive animal-assisted therapy over 4 weeks (**T**)?

Specifically, this project implements a structured AAT intervention, involving trained therapy dogs, for patients in inpatient hospitalization. This intervention aims to assess the impact of regular AAT sessions on patients’ mental health and overall well-being. The data and results collected are based on the Child & Adolescent Behavior Assessment- Youth/or Informant (CABA-Y/I) for adolescents and the Behavior and Symptom Identification Scale (BASIS-32, McClean Hospital & Eisen, S. V, 19) for adults. Patients who participated in the AAT program exhibited significant reductions in symptoms of anxiety, depression, and stress. Another key finding was that AAT sessions fostered a sense of emotional connection and trust between patients and therapy dogs, enhancing their overall sense of security and comfort. Improved social

interactions and a sense of community were also observed among patients who engaged in AAT sessions, promoting a supportive and therapeutic environment within the hospital.

Implementation and Benchmark Project

Mental health disorders have become a pervasive global challenge, affecting individuals of all age groups and demographics. The complexity of these disorders, coupled with the diverse range of symptoms and therapeutic responses they elicit, necessitates an exploration of innovative approaches to treatment and care. In this pursuit, one remarkable avenue has emerged – Animal-Assisted Therapy (AAT). This paper delves into the realm of AAT, investigating its potential as a complementary and transformative intervention within the context of inpatient hospitalization for individuals contending with mental health disorders.

Animal-Assisted Therapy (AAT) is a multifaceted therapeutic modality that capitalizes on the powerful, non-verbal connection between humans and animals, most commonly dogs. Its foundations lie in the premise that animals can provide a unique source of comfort, emotional support, and motivation that is often difficult to replicate through traditional clinical interventions. In recent years, AAT has gained recognition for its potential to alleviate the symptoms of mental health disorders, engender emotional healing, and facilitate a sense of connection and well-being.

The heart of our inquiry lies in exploring the transformative potential of AAT within the often-challenging environment of inpatient psychiatric care. Our research focuses on a structured AAT intervention program, consisting of 45-60 minute sessions with therapy dogs, administered 2-3 times per week over a four-week period. The objective is to understand the extent in which these sessions can mitigate symptoms of anxiety, depression, and stress while fostering improved social interactions and an enhanced overall sense of well-being.

To ensure the rigor of our study, we have employed established assessment tools tailored to the age groups of our participants. Adolescent's mental health will be evaluated using the Child & Adolescent Behavior Assessment-Youth (CABA-Y/I), while adults' progress was assessed using the Behavior and Symptom Identification Scale (BASIS-32).

Rationale for the Project

The rationale for this study is rooted in the imperative to advance and diversify therapeutic options for individuals grappling with mental health disorders. Despite the progress made in the field of mental health care, there remains a pressing need to expand the range of available interventions and improve patient outcomes.

Animal-Assisted Therapy represents a promising addition to the therapeutic toolbox. The bond between humans and animals, with its innate capacity to offer emotional solace and support, is a resource that can potentially transform the lives of those undergoing the profound challenges of mental health. By introducing AAT into the inpatient psychiatric setting, we aim to explore its capacity to create meaningful change in the lives of patients.

This paper serves as an essential stepping stone in the ongoing dialogue on the role of AAT in mental health care. Our findings, we hope, will contribute to a more comprehensive understanding of the transformative potential of therapy dogs and the need for their integration into traditional mental health treatment protocols. Ultimately, our goal is to enhance the quality of life and well-being for individuals confronting mental health disorders, offering them a renewed sense of hope and healing.

Literature Synthesis

Human interactions with animals may not always look the same, but most often renders the same result which is a sense of comfort. A variety of animals can be utilized for the delivery of AAT and have all proven to be effective in the management of mental illness (Hawkins et al. (2019); Hoagwood et al. (2017); Koukourikos et al. (2019); Widmayer et al. (2019). A body of literature (see Appendix A) also suggests that AAT lowers psychological distress, reduces symptoms of depression and anxiety, increases engagement and provides additional benefits for persons suffering with mental disorders (Flynn et al. (2022); Jones et al.; (2019); Kourkourikos et al., (2019); Trujillo et al. (2019). Patients exhibiting an exacerbation of symptoms or those in crisis may not be agreeable to treatment and require involuntary placement to receive treatment. AAT can be useful in reducing coercive treatment in psychiatric care by decreasing aggressiveness and anxiety when used as a component of preventative treatment (Widmayer et al., 2017). Additional studies conducted demonstrate the impact of AAT among adolescents with mental health disorders (Trujillo et al. 2019). Strong evidence shows that treatment with AAT in the adolescent population increases engagement and can reduce disruptive behaviors (Jones et al. (2019); Stefanini et al. (2015); Rodrigo-Claverol et al. (2023); Trujillo et al. (2019). All 12 of the available evidence in this benchmark project provide evidence that shows AAT as having multiple benefits to patients suffering from a variety of mental health disorders which in turn promotes better outcomes.

It is important to note that the literature on AAT is diverse, covering various populations and mental health issues, and the studies have different methodologies and objectives. Further research and integration of these findings can contribute to a more comprehensive understanding of the potential benefits of AAT in mental health care.

Project Stakeholders

Implementing animal-assisted therapy (AAT) in inpatient psychiatric hospitalization involves engaging various stakeholders who play crucial roles in ensuring the success and effectiveness of the program. Patients receiving AAT are the primary stakeholders. Their well-being and experiences with AAT should be at the center of the program's design and evaluation. The families and caregivers of the patients are also important as they may be needed to provide consent, offer support, and observe its impact on their loved ones. Hospital staff including psychiatrists, psychologists, nurses, social workers, and other healthcare professionals are integral to the success of AAT implementation. They are needed to integrate and coordinate AAT into the overall treatment plan. The support staff are also needed for quality assurance and safety. As hospital workers, everyone is responsible for maintaining safety and hygiene standards and monitoring the well-being of therapy animals which are vital to the success of the program. Hospital administrators are important stakeholders as well because they oversee the allocation of resources, including budget and space, to implement the program. They play a critical role in policy development and program integration. They can also help to guide legal and ethical decisions to ensure that the program complies with regulations, ethical standards, and patient rights. Therapy animal handlers or therapist are considered important stakeholders. They must warrant the animals are well-trained, have appropriate temperaments, and adhere to health and safety guidelines.

Collaboration and communication among these stakeholders are essential for the successful implementation of AAT in inpatient psychiatric hospitalization. Each group has a unique role to play to guarantee that AAT is safe, effective, and beneficial for patients.

Implementation Plan

Week 0: Pre-Implementation Preparation

1. Identify Goals and Objectives:

- Define the specific goals, objectives, and achievable outcomes of the AAT project.

2. Select Therapy Animals:

- Identify and select suitable therapy animals.
- Ensure that the animals are well-trained, have appropriate temperaments, and are up-to-date on vaccinations.
- Conduct/ensure that therapy animal handlers are certified and trained in AAT best practices. Provide training to hospital staff as necessary.

3. Informed Consent:

- Develop informed consent forms for patients and their families to ensure they are aware of and consent to participation.

4. Hospital Policy and Compliance:

- Review compliance with hospital policies and regulations regarding AAT.
- Consult with legal and ethical advisors to address any potential concerns.

5. Staff Orientation:

- Conduct orientation sessions for hospital staff, including psychiatrists, nurses, and therapist, to educate them about the AAT program

6. Patient Screening:

- Begin screening patients to identify appropriate candidates for implementation with consideration to acuity, medical history, and preferences.

7. Scheduling and Logistics:

- Establish schedule for sessions and designate space within the hospital for AAT.

Week 1: AAT Sessions Begin

1. Start AAT sessions with selected patients.

- Ensure the therapy animals and handlers follow safety protocols and adhere to planned schedule.

2. Data Collection

- Start collecting data on patient responses and outcomes during the sessions.
- Use standardized assessment tools for pre and post session feedback and data.

Week 2, 3, & 4: AAT Sessions Continue

1. Continued Implementation of AAT

- Continuously evaluate the progress and impact of the sessions on patients.
- Compare the collected data with the baseline to assess the effectiveness of the program.

2. Feedback and Adjustments

- Gather feedback from patients, their families, and hospital staff.
- Use feedback to make recovery adjustments to AAT programs.
- Address any issues or concerns related to safety and compliance.

3. Documenting and Reporting

- Compile the data and experiences from the 4-week period into a comprehensive report.

- Summarize the impact of AAT on patients' mental health and well-being.

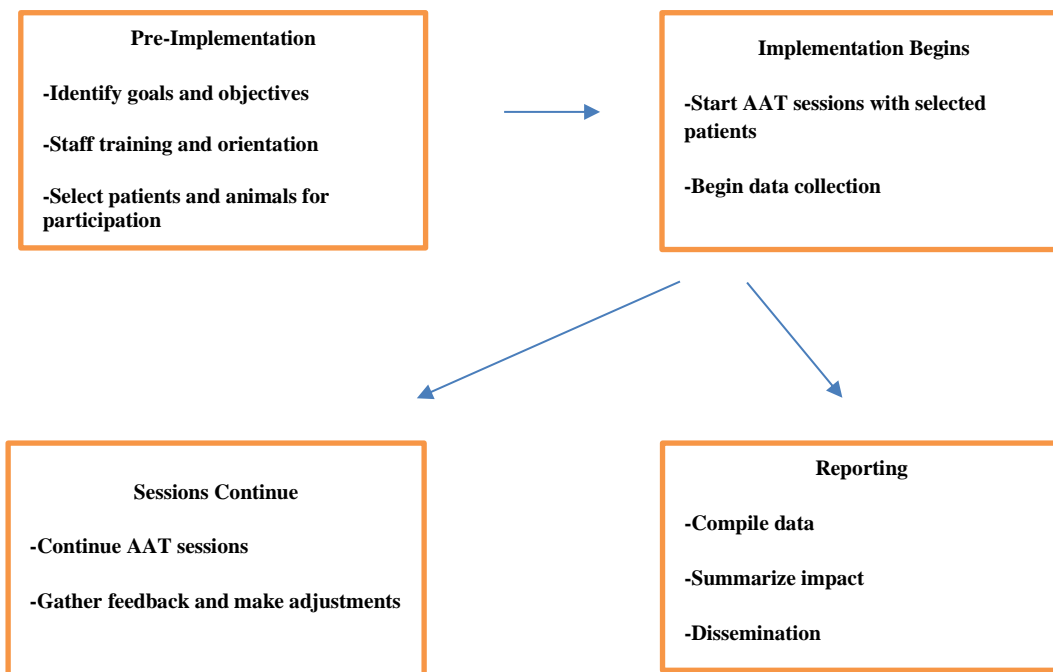
4. Future Planning

- Plan for the continuation and expansion of the AAT program in the hospital.
- Consider long-term funding, staff training, and the integration of AAT into standard care protocols.

5. Dissemination

- Share finding and success of the 4-week AAT program with relevant stakeholders, such as hospital administrators, researchers, and patient advocacy groups.

Timetable/Flowchart



Data Collection Methods

The Child & Adolescent Behavior Assessment-Youth (or Informant) (CABA-Y) (Morin et al., 2017) for adolescents and the Behavior and Symptom Identification Scale (BASIS-32) (See Appendix C) (McLean Hospital, & Eisen, S. V, 1999) for adults will be used for to quantify specific behaviors or symptoms related to mental health disorders. The CABA-Y/I is a brief, structured scale, that assesses problem behavior through patient and/or informant report (Morin et al., 2017). The BASIS-32 was first developed in 1984 as a brief yet comprehensive self-report assessment for mental health treatment. Five domains of the instrument include: daily living/role functioning skills, relation to self/others, depression/anxiety, and impulsive/addictive behavior, and psychotic symptoms (Eisen, 1996; Eisen et al., 2004). These assessments are valuable tools in determining patients' baseline in order to capture their initial mental health status as well as a post-assessment after treatment. Information from CABA-Y/I and BASIS-32 will be used to compare the pre and post assessment data for each individual to determine if there are statistically significant changes in mental health symptoms. Statistical methods, such as paired t-tests, can be used to analyze the data obtained from the behavioral assessments to examine the effectiveness of the AAT intervention in reducing symptoms.

Observations from trained observers such as behavioral health techs, nurses, and therapists who are familiar with AAT goals and protocols, can also be used a source of data. They can record and document the behavior and emotions of patients during the AAT sessions.

Medical records and chart reviews are also significant sources of information. A review of patients' medical records and charts to collect pre-existing data related to their conditions, such as diagnostic history, medication use, and past treatment outcomes can be extremely useful in determining effective interventions.

By employing a combination of these data collection methods and adhering to ethical guidelines, comprehensive and reliable data can be obtained to assess the impact of AAT on the mental health of inpatient hospitalization patients.

Evaluation

In light of existing research and the specific interventions planned in our animal-assisted therapy (AAT) benchmark project, we anticipate a positive influence on patient outcomes. This expectation is grounded in the utilization of standardized assessments such as the Child & Adolescent Behavior Assessment-Youth (CABA-Y) for adolescents and the Behavior and Symptoms Identification Scale (BASIS-32) for adults.

The CABA-Y and BASIS-32 assessments have been selected for their ability to quantify specific behaviors and symptoms related to mental health disorders. By incorporating these standardized tools into our evaluation process, we aim to systematically measure and analyze changes in patients' mental health status throughout the AAT intervention.

Previous studies and existing literature on AAT have suggested that interactions with therapy animals can contribute to reductions in psychological distress, symptoms of depression and anxiety, and improvements in overall well-being. As we apply these findings to our benchmark project, we expect to observe similar positive trends in our patient population.

Cost/Benefit Analysis

Prospective pay for inpatient psychiatric services can be costly. In a study by Stensland and colleagues (2012) entitled, *'An Examination of Costs, Charges, and Payments for Inpatient Psychiatric Treatment in Community Hospitals'* charges for psychiatric services are not well understood. For example, this study showed the average cost to deliver care was highest for

those insured by Medicare and lowest for the uninsured with estimates for schizophrenia treatment, \$8,509 for 11.1 days, and \$5,707 for 7.4 days, respectively; bipolar disorder treatment, \$7,593 for 9.4 days and \$4,356 for 5.5 days; depression treatment, \$6,990 for 8.4 days and \$3,616 for 4.4 days; drug use disorder treatment, \$4,591 for 5.2 days and \$3,422 for 3.7 days; and alcohol use disorder treatment, \$5,908 for 6.2 days and \$4,147 for 3.8 days (Stensland et al., 2012). For fiscal year 2022 in private freestanding psychiatric facilities the per diem rate ranges from \$512 to \$570, and from \$542 to \$623 for state-owned psychiatric facilities (Texas Health and Human Services Commission [HHSC], October 1, 2021).

Implementation of animal-assisted therapy (AAT) can be both cost-effective for the hospital and beneficial to the patients. There are several strategies that can be utilized in order to minimize costs of implementation such as collaborating with local animal shelters and recruiting volunteer handlers that are willing to provide trained handlers or offer their expertise as part of community outreach. The hospital could also train existing hospital staff, such as nurses or therapists, to become AAT handlers thus reducing the need for additional personnel and associated costs. Community support and donations can also be used to donate funds, supplies, and services to help launch the program. Furthermore, simple modifications to existing hospital spaces for AAT sessions can be made to avoid extensive renovations that may incur high costs, but will also ensure safety and hygiene. While all efforts will be made to minimize expenses, some are unavoidable such as the costs associated with legal and ethical consultation and compliance, including developing informed consent procedures, addressing potential legal issues, and obtaining liability insurance to protect against possible risks related to therapy animal interactions. There will also be expenses linked to marketing and education in order to promote the program within the hospital and in the community.

As expected, there will be incurred costs; however, the benefits far outweigh them, with the most important benefits going towards the patients. Participants show positive changes in their mental health, including reduced symptoms of anxiety, depression, and stress, and increased well-being. The reduction of anxiety and aggressive behaviors will help to support a calmer, safer, and therapeutic environment. There is also an increase in patient engagement in treatment and therapy sessions due to the presence of therapy animals. A calmer and therapeutic environment supports reduced rates of involuntary or coercive treatments, which may lead to cost savings and better patient care. This will also improve staff and family satisfaction giving way to increased morale among hospital staff, as well as satisfaction among patients' families, who may see positive changes in their loved ones.

Discussion of Results

Our emphasis on rigorous data collection and analysis, coupled with the selected assessment tools, will allow us to draw meaningful conclusions about the impact of AAT on patient outcomes. We are optimistic that the positive influence of AAT, as indicated by the CABA-Y and BASIS-32 assessments, will contribute to the overall success of our project and provide valuable insights into the potential benefits of integrating AAT into psychiatric care.

Conclusions/Recommendations

The preliminary results of this AAT intervention project suggest that animal-assisted therapy has the potential to provide a valuable and complementary approach to traditional mental health treatments. The positive impact on patients' mental health, emotional well-being, and overall quality of life underscores the significance of integrating AAT into mental health care practices.

Further research and long-term studies are encouraged to explore the sustained benefits of animal-assisted therapy and its potential integration into mental health care protocols. This approach holds promise for improving the lives of individuals grappling with mental health disorders.

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Appendix A

NURS 5382 Capstone Evidence Table

PICOT Question: In patients with mental health disorder (*P*) how does the use of animal-assisted therapy (*I*) affect the mental health symptoms as measured by the Child and Adolescent Behavioral Assessment-Youth and the Behavior and Symptom Identification Scale Basis 32” (*C*) compared to those who don’t receive animal-assisted therapy over 12 weeks (*T*)?

PICOT Question Type (Circle): **Intervention** Etiology Diagnosis or Diagnostic Test Prognosis/Prediction Meaning

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Appendix A (Continued)

Citation: (i.e., author(s), date of publication, & title)	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Strength of the Evidence (i.e., level of evidence + quality [study strengths and weaknesses])
Author, Year, Title	Theoretical basis for study Qualitative Tradition		Number, Characteristics, Attrition rate & why?	Independent variables (e.g., IV1 = IV2 =) Dependent variables (e.g., DV =) Do not need to put IV & DV in Legend	What scales were used to measure the outcome variables (e.g., name of scale, author, reliability info [e.g., Cronbach alphas])	What stats were used to answer the clinical question (i.e., all stats do not need to be put into the table)	Statistical findings or qualitative findings (i.e., for every statistical test you have in the data analysis column, you should have a finding)	<ul style="list-style-type: none"> Strengths and limitations of the study Risk or harm if study intervention or findings implemented Feasibility of use in your practice Remember: level of evidence (See PICOT handout) + quality of evidence = strength of evidence & confidence to act Use the USPSTF grading schema http://www.ahrq.gov/clinic/3rduspstf/ratings.htm
1. Ambrosi et al., (2019). Randomized controlled study on the effectiveness of animal-assisted therapy on depression, anxiety, and illness perception in institutionalized elderly.	Therapeutic Alliance	RCT 2 groups TX n=17 Ctrl n=14 65 years of age and older	Methods: This study involved a randomized sample of institutionalized patients 65 years of age and older; the treatment group had 17 subjects Northern Italy 10 weeks, individual 30-min sessions. verbal and non-verbal interactions between the elderly, the dog, and the dog handler.	IV: AAT canine	GDS-15, Generalized Anxiety Disorder 7 (GAD-7), Positive and Negative Affect Schedule (PANAS), Illness Perception Questionnaire-Revised (IPQ-R) Satisfaction Questionnaire and Numeric Pain Rating Scale	Hotelling's paired T-square test multiple paired t-tests using a Bonferroni correction factor Cohen's <i>d</i>	A large effect size and a statistically significant decrease in 15-item Geriatric Depression Scale scores were identified in the treatment group. No significant differences were detected in the Generalized Anxiety Disorder 7, Positive and Negative Affect Schedule, and Numeric Pain Rating Scale. However, the Positive and Negative Affect Schedule and the Numeric Pain Rating Scale showed a moderate decrease. The Illness Perception Questionnaire's timeline (acute/chronic) and treatment control subscales showed a clinically relevant, large effect size.	Level: 2 The aim of this study was to verify dog-assisted therapy's effectiveness on depression and anxiety in institutionalized elderly. Patients' illness perception was examined to identify core beliefs regarding mood, personal control, and illness coherence because they can affect treatment compliance. Subjective perception of pain, social interaction, and setting-bound observable variables were also studied. Strength of evidence: grade A Level of certainty: high

					15-item Geriatric Depression Scale Generalized Anxiety Disorder 7, Positive and Negative Affect Schedule, and Numeric Pain Rating Scale. The Illness Perception Questionnaire			
2. Flynn, et al. (2022). Improving engagement in behavioral and mental health services through animal-assisted interventions: A scoping review.	Engagement theory	Scoping review Arksey & O'Malley's five-stage framework (PRISMA ScR) checklist	N=10 studies	IV: AAI (animal assisted interventions)	Engagement as a construct in the therapeutic context was discussed as being an important component to client motivation, clinical outcomes, recovery, and reduction of recidivism rates across all 10 of the reviewed studies. However, no articles precisely defined or clearly operationalized this term.	3 phenomenological qualitative analyses, 2 case studies with observational data, 1 systematic review of broad clinical goals for canine-assisted psychotherapy that included the outcome of engagement, 2 behavioral observation studies, and 2 randomized	AAIs may support client engagement in behavioral and mental health services. A wide range of conceptualizations in which populations and settings could benefit from AAIs were identified	<p>Although almost all of the studies found that AAIs positively affected client engagement, the inconsistent and often unclear definitions of engagement, the variety of study foci and research methods, and the paucity of rigorous methodological approaches all limited the reliability of this preliminary positive conclusion. The most common finding, that AAIs increase prosocial behaviors and active participation in therapy</p> <p>Level 1</p> <p>Strength of evidence: grade A Level of certainty: high</p>

						controlled trials (RCTs) that used validated measures to assess engagement		
3. Hawkins et al. (2019). Animal-assisted therapy for schizophrenia and related disorders: A systematic review.	PRISMA guidelines	SR Methods : PubMed, PsycINF OCINA HL, EMBAS EThe Cochran e Library (trials database), CAB Abstracts, Web of Science	N=7 Spain (n = 2), Taiwan (n = 2), Israel (n = 1), Norway (n = 1), and in the USA (n = 1). N=390. Sample sizes ranged from 20 to 105 participants (mean 55.7, SD 40.2). Mean ages ranged from 34.7 years to 79.1 years (mean 50.9, SD 16.7). Of those that reported the gender or sex of participants, there were 166 females and 179 males	IV: animal-assisted therapy (n = 5), animal-assisted activity (AAA; n = 1), and pet therapy (n = 1) animals used were dogs (n = 5). Other animals included cats (n = 1), horses (n = 1), farm animals (n = 1), and hamsters (n = 1). DV: mental state and behaviour, clinical global response, and quality of life and wellbeing	Quality of Life Scale EuroQol Five Dimensions Questionnaire service use: Service Engagement Scale social functioning Assessment of Interpersonal Problem-Solving Skills (AIPSS; Donahoe et al., 1990), Living Skills Profile (LSP; Rosen et al., 1989), or behavioural observation of social functioning), medication, general functioning, physical health/activity, activities of daily living (ADL), and adverse effects	QL synthesis The Cochrane Tool Cochrane risk of bias tool	Significant improvements were reported in treatment groups for self-esteem, self-determination, self-efficacy (GSE), and anxiety. A significant reduction in violent incident reports was found in an equine-assisted psychotherapy (EAP) treatment group. One study also reported a significant reduction in salivary cortisol Evidence for the effectiveness of animal-assisted therapy for the treatment of schizophrenia remains inconclusive and not sufficiently robust. Five out of seven studies included symptoms as an outcome measure, with one reporting improvements in negative symptoms and one study reporting improvements in positive and emotional symptoms.	No meta-analyses due to heterogeneity of studies. None of the studies were reviewed by an Institutional Animal Care and Use Committee (IACUC) Level: I 1) included studies of lower quality in order to be inclusive, 2) studies were limited/reported om English language due to a lack of resources, 3) unable to conduct a meta-analysis due to heterogeneity of studies. Strengths included: 1) restriction to RCTs to assess the best available evidence, 2) inclusion criteria were not restricted to published articles from peer-reviewed journals, 3) inclusive and comprehensive search strategy 4) use of the Cochrane Tool for Assessing Risk of Bias. Strength of evidence: grade A Level of certainty: high

					(such as phobias, allergies, injury, suicide, or other cause of mortality).			
4. Hoagwood et al. (2017). Animal-assisted therapies for youth with or at risk for mental problem: A systematic review.	To systematically review experimental evidence about animal-assisted therapies for children or adolescents with or at risk for mental health conditions.	Systematic Review Pre/post test Solomon four group design Repeated measures	Patients 21 or younger at risk for mental health symptoms	Major variables include use of different patients including equines, hippos, and canines, cats, rabbits, and other farm animals.	Pre/post test	Post test	AAT is an effective treatment for children and adolescents with mental health problems	LOE: II Strengths: Of the 24 studies evaluated, 11 of them were RCTs which are strong levels of evidence. Limitations: Almost half of the studies used horses for AAT which are not easily accessible.
5. Hughes et al. (2020). Companion animals and health in older populations: A systematic review.	To investigate the effect of the companion animals on the physical and mental health of older adults aged 60 and above.	Systematic literature review of 70 studies Pre/post test	Patients aged 60 and above with behavior and psychiatric symptoms of dementia (BPSD) in various environments	Major variables include the use/ownership of different animals and effect on mental and physical health	Pre/post test	Post test	None	AAT was found to have a positive impact on patients' mental and physical health including improved participant quality of life, depression, anxiety, cognitive impairment, and physical activity levels. Strengths: Multiple studies reviewed; patient population examined in different settings Limitations: Literature search limited to PsycINFO and PubMed databases LOE:
6. Jones, et al. (2019). Incorporating animal-assisted therapy in mental health	To identify the characteristics of CAP interventions, their impacts and	None	SR 4 Databases searches:	7 studies included. Sample sizes ranged from 1-20	Major variables include: format, setting, dose/sessions, interaction with canine, and	Study 1: Self-report questionnaires PCL-C, CESD; Likert scales	None	CAP had a positive impact on primary diagnoses and symptomatology, conferring additional benefits to standard treatments for internalizing disorders, post-traumatic stress disorder, and equivalent effects for anxiety, anger and externalizing disorders; associated with positive impacts on secondary factors including increased

treatments for adolescents: A systematic review of canine assisted psychotherapy.	their acceptability, tolerability and feasibility for adolescents with mental health disorders.		PsycINFO, PubMed, Scopus, Medline	Age range: 11-17	intervention characteristics	<p>(subjective wellbeing and coping with stressful life events)</p> <p>Study 2: Self-report questionnaires STAS-TAS, CABS, BDI-II; subjective mood thermometers (tension, confusion, fatigue, depression) facilitator observations</p> <p>Study 3: Self-report questionnaires BYI-II (5 scales)</p> <p>Study 4: Structured interview and subsequent qualitative analysis</p> <p>Study 5: Document analysis &</p>	<p>engagement and socialization behaviors, and reductions in disruptive behaviors with treatment sessions.</p> <p>Improved global functioning.</p>
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						semi-structured interview for thematic analysis Study 6: Staff reported measures; C-GAS, format of hospital care, ordinary school attendance; and observational/behavioral coding Study 7: Staff report C-GAS, and observational/behavioral coding: YSR		
7. Koukourikos et al. (2019). Benefits of animal assisted therapy in mental health.	To present the benefits and highlight the role of animals and their advantaged in their treatment of	None	Literature Review	Dementia patients Depressed patients Autistic patients	Major variables include different psychiatric conditions/diagnoses and levels of functioning	Not included in review	AAT has numerous benefits such as: emotional support and relief, cultivating social skills, improving cognitive self-care skills, improved mood, reduction of negative symptoms related to dementia, decreased cortisol levels, etc.	LOE: VII Strengths: Multiple studies reviewed; systematic literature review Weakness: Review did not contain specific details about the studies such as methods used or data collection

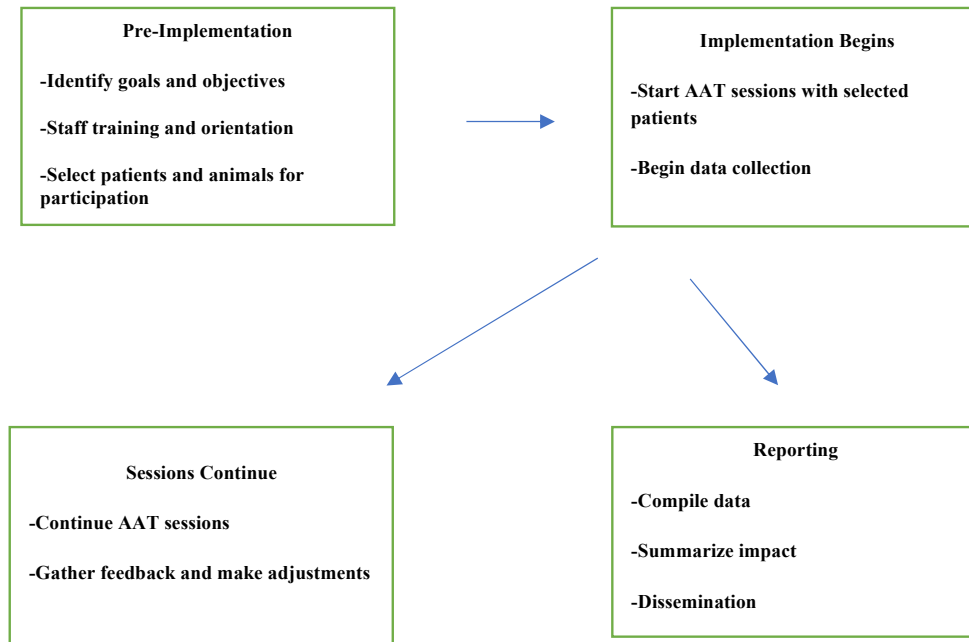
	mental health			Schizophrenic patients				
8. Rodrigo-Claverol et al. (2023). Human-animal bond generated in a brief animal-assisted therapy intervention in adolescents with mental health disorders.			Multicenter cohort study involving adolescents aged 13-17 years admitted to the acute adolescent psychiatry units in 3 hospitals	114 participants aged 13-17 years old	Variables include age at inclusion, gender, diagnosis of behavioral disorder, diagnosis of psychosis, diagnosis of depression, diagnosis of eating disorder, and pet ownership	Center for the Study of Animal Wellness Pet Bonding Scale (CSAWPBS) <i>t</i> -test chi-square test Fisher's exact test	AAT is an effective complementary tool for improving the biopsychosocial well-being of young people	Strengths: Large sample group, several dogs used for therapy Limitations: Subjectivity of respondents
9. Rodrigues-Martinez et al. (2021). Evidence of animal-assisted therapy in neurological diseases in adults: A systematic review.			17 Clinical trials of patients with neurological disease	Participants had a range of neurological disorders including dementia, spinal-cord injury, stroke, and multiple sclerosis	Variables	MSQOL-54 CVE-20 FSS FIS Answorth Scale NRS EDSS KHQ BDI T25-fq BBS	AAT has many benefits in several areas including motor and physical ability as well as in mental and behavioral health	Strengths: Multiple studies involving a variety of animals and patients with different neurological conditions Limitations: Small sample sizes LOE: II

10. Stefanini, et al. (2015). The use of animal-assisted in adolescents with acute mental disorders: A randomized controlled study.	To compare the effects of Animal-Assisted Therapy with a standard treatment protocol in children and adolescents admitted to the psychiatry hospital for acute mental disorders.	None	RCT	<p>N: 34 patients</p> <p>Age range: 11-17</p> <p>Each group contained 8 males and 9 females</p> <p>Controlled: 17; Treatment: 17</p> <p>Setting: Psychiatric hospital</p>	<p>All selected participants underwent a standard treatment protocol that included: 1) psychiatric and medical assessment; 2) assessment and support therapy to family; 3) nursing matronage; 4) psycho-educational treatment; 5) individual psychotherapy; 6) therapeutic group intervention; 7) supplementary activities (such as Hospital-School, play activity, etc)</p> <p>The treatment group participated in weekly sessions for about 3 months. Each session lasted approx. 45 min in which the participant interacted with a dog and its handler.</p>	<p>1. Global Functioning Scale C GAS</p> <p>2. 3-point format of hospital care rating scale</p> <p>3. School attendance</p> <p>4. Observation of AAT. Each session videotaped, evaluated and coded by two independent investigators.</p>	<p>χ^2 test</p> <p>T-test</p>	<p>Major significant changes between the treatment and control groups: increase in format of hospital care, school attendance and global functioning.</p> <p>Reduction in social withdrawal behaviors</p> <p>Higher participation</p>
11. Trujillo et al. (2019). Engaging adolescents: animal	To compare treatment engagement and outcomes	None	exploratory study with a quasi-experimental pre-post	31 total patients: 14 participants received treatment with	Both groups received mental health and substance treatment at their	<p>T-test</p> <p>Wilcoxon rank sum</p>	Participants who received treatment with AAT ($M = 9.9$, $SD = 3.2$) attended more therapy sessions within a 16-week period (β	AAT could be a way to increase engagement for youth in substance use treatment.

assisted therapy for adolescents with psychiatric and substance use disorders.	between two groups of adolescents with psychiatric and substance use disorders; one received treatment with animal-assisted therapy and the other did not		comparison group design.	AAT and 17 did not Ages: 12-17 years old School based setting	school as well as treatment with a therapist, licensed clinical social worker, and certified additions counselor III, manual-standardized motivational interviewing and acceptance and commitment therapy In addition to the TAU, 14 participants received AAT sessions with a 8 year old Labrador retriever		= 3.5, $t(1) = 2.89$, $p = 0.0072$) than those that received treatment without AAT ($M = 6.4$, $SD = 3.5$). Additionally, the AAT group ($Mdn = 2.9$, $IQR: 1.8, 5.0$) had a greater improvement in overall-wellbeing ($\beta = 3.6$, $t(1) = 3.74$, $p = 0.0009$) than treatment group without AAT ($Mdn = 0.5$, $IQR: -2.6, 1.4$).	
12. Widmayer et al. (2019). Could animal-assisted therapy help to reduce coercive treatment in psychiatry?	To examine AAT as a new treatment approach to prevent compulsory measures and favor less restrictive alternatives	None	Literature Review	11 studies reviewed. Various sample sizes, ranging from 1-230	Psychiatric patients receiving AAT. Variables include psychiatric diagnosis, symptoms, and type of animal used in AAT.	Not included in review	Not included in review	Use of AAT resulted in improved mood, decreased anxiety, and less incidence of aggression in Schizophrenic patients. AAT was found to be an effective treatment in psychiatric patients experiencing a variety of symptoms.

Legend: AAT=animal-assisted therapy; CAP=canine-assisted psychotherapy; CSAWPBS=Center for the Study of Animal Wellness Pet Bonding Scale; HAB=human-animal bond; LOE=level of evidence; N=number; RCT=randomized controlled trial; SR=systematic review; TAU=treatment as usual.

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Appendix B**Flowchart or Timetable****For AAT in Mental Illness (4 Weeks)**

Appendix C

Instrument-CABA-I

Patient Account Number / Case ID: _____ Program Code: _____

Child & Adolescent Behavior Assessment - Informant (CABA-I)

Date Completed: _____ Time of Administration: _____ Informant (select one):
 ADMISSION ☐ DISCHARGE ☐ PARENT ☐ GUARDIAN ☐ STAFF ☐

To be completed at admission and discharge. Please answer every item. If you think one of the items does not apply, mark it as "No Problem."

How much of a problem has the patient had during the PAST WEEK with:

	No Problem	A Little Problem	Some Problem	A Big Problem
1. Concentration, paying attention	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. School performance (grades, completing work)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Physical health problems (headaches, stomachaches, dizziness)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Sleep disturbances (nightmares, trouble sleeping, sleeping more than normal)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Restlessness, fidgeting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Acting without thinking, being impulsive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Participating in daily activities (school, sports, hobbies)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Feeling nervous, worried, or anxious	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Getting along with family	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Getting along with other kids (not siblings)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Getting along with adults (not parents)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Not doing as told, being disobedient	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Change in eating habits (increase/decrease)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Feeling fearful or scared	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Feeling lonely	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Secrecy/keeping to themselves	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Feeling unhappy or sad	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Lying, cheating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Losing their temper, yelling/swearing/screaming at others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Breaking rules/laws	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Taking things that are not theirs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Bullying or threatening other kids	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. Feeling worthless or useless	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. Being destructive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. Getting into physical fights	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. Having strange thoughts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. Sexual acting out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. Alcohol use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. Drug use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30. Seeing or hearing things (hallucinations)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31. Talking or thinking about death	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32. Hurting themselves	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Staff Signature: _____ Date/Time: _____

Appendix C-BASIS-32

Instructions to Staff: Please fill in the following information.	Site Number: <input type="text"/> <input type="text"/> <input type="text"/> - <input type="text"/> <input type="text"/>
Patient ID Number: <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Admission/Intake Date: <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <div style="text-align: center; font-size: small;"> Month Day Year </div>
Time Point: 1 = Admission/Intake 3 = Discharge/Termination 2 = Mid-Treatment 4 = Post-Treatment Follow-up.... <input type="text"/>	Level of Care: 1 = Inpatient 3 = Partial/Day Hospital 2 = Outpatient 4 = Residential..... <input type="text"/>
Program Type: 1 = general adult 2 = child/adolescent 3 = geriatric 4 = affective/mood disorders 5 = psychotic disorders 6 = anxiety disorders/trauma 7 = substance abuse/chemical dependency 8 = dual diagnosis 9 = other..... <input type="text"/>	

BASIS-32[□] (Behavior And Symptom Identification Scale)

Instructions To Respondent: Below is a list of problems and areas of life functioning in which some people experience difficulties. Using the scale below, fill in the box with the answer that best describes how much difficulty you have been having in each area **DURING THE PAST WEEK.**

- 0 = No Difficulty**
1 = A Little Difficulty
2 = Moderate Difficulty
3 = Quite A Bit of Difficulty
4 = Extreme Difficulty

Please answer each item. **Do not leave any blank.**

If there is an area that you consider to be inapplicable, indicate that it is 0=No Difficulty.

IN THE PAST WEEK, how much difficulty have you been having in the area of:

1. Managing day-to-day life. (For example, getting places on time, handling money, making everyday decisions).....	1	<input type="text"/>
2. Household responsibilities. (For example, shopping, cooking, laundry, cleaning, other chores).....	2	<input type="text"/>
3. Work. (For example, completing tasks, performance level, finding/keeping a job).....	3	<input type="text"/>
4. School. (For example, academic performance, completing assignments, attendance).....	4	<input type="text"/>
5. Leisure time or recreational activities.....	5	<input type="text"/>
6. Adjusting to major life stresses. (For example, separation, divorce, moving, new job, new school, a death).....	6	<input type="text"/>
7. Relationships with family members.....	7	<input type="text"/>
8. Getting along with people outside of the family.....	8	<input type="text"/>
9. Isolation or feelings of loneliness.....	9	<input type="text"/>
10. Being able to feel close to others.....	10	<input type="text"/>
11. Being realistic about yourself or others.....	11	<input type="text"/>
12. Recognizing and expressing emotions appropriately.....	12	<input type="text"/>
13. Developing independence, autonomy.....	13	<input type="text"/>
14. Goals or direction in life.....	14	<input type="text"/>
15. Lack of self-confidence, feeling bad about yourself.....	15	<input type="text"/>
16. Apathy, lack of interest in things.....	16	<input type="text"/>
17. Depression, hopelessness.....	17	<input type="text"/>
18. Suicidal feelings or behavior.....	18	<input type="text"/>
19. Physical symptoms. (For example, headaches, aches and pains, sleep disturbance, stomach aches, dizziness).....	19	<input type="text"/>
20. Fear, anxiety, or panic.....	20	<input type="text"/>
21. Confusion, concentration, memory.....	21	<input type="text"/>

Appendix C (continued)

Instrument- BASIS-32 page 2

0 = No Difficulty
 1 = A Little Difficulty
 2 = Moderate Difficulty
 3 = Quite A Bit of Difficulty
 4 = Extreme Difficulty

IN THE PAST WEEK, how much difficulty have you been having in the area of:

22. Disturbing or unreal thoughts or beliefs..... 22
23. Hearing voices, seeing things..... 23
24. Manic, bizarre behavior..... 24
25. Mood swings, unstable moods..... 25
26. Uncontrollable, compulsive behavior. (For example, eating disorder, hand-washing, hurting yourself)..... 26
27. Sexual activity or preoccupation..... 27
28. Drinking alcoholic beverages..... 28
29. Taking illegal drugs, misusing drugs..... 29
30. Controlling temper, outbursts of anger, violence..... 30
31. Impulsive, illegal, or reckless behavior..... 31
32. Feeling satisfaction with your life..... 32

For the following questions, please write the response code in the appropriate box.

33. How old were you on your last birthday? (age in years)..... 33
34. What is your sex? 1 = Male 2 = Female..... 34
35. What is your race? 1 = Black/African American 3 = Asian/Pacific Islander 5 = Multiracial/
 2 = White/Caucasian 4 = American Indian/Alaskan Other..... 35
36. Are you Hispanic or Latino? 1 = Yes 2 = No..... 36
37. What is your marital status? 1 = Never married 3 = Separated 5 = Widowed
 2 = Married 4 = Divorced..... 37
38. Outside of your treatment providers, what is your main source of social support? 1 = Spouse/partner 3 = Friends/roommates 5 = Other
 2 = Other family 4 = Community/church 6 = None..... 38
39. How much school have you completed? 1 = 8th grade or less 3 = High school graduate/GED 5 = 4-year
 2 = Some high school 4 = Some college college graduate..... 39
40. In the past 30 days, what were your USUAL living arrangements? 1 = Hospital or detox center 4 = Apartment or house
 2 = Nursing home/assisted living 5 = Shelter/street
 3 = Residential center/halfway house/ 6 = Jail/prison
 Group home/board & care home/supervised housing 7 = Other..... 40
41. At any time in the past 30 days, did you work at a paying job? 1 = No 3 = Yes, 11 - 30 hours per week
 2 = Yes, 1-10 hours per week 4 = Yes, more than 30 hours per week..... 41
42. At any time in the past 30 days, did you work at a volunteer job? 1 = No 3 = Yes, 11- 30 hours per week
 2 = Yes, 1-10 hours per week 4 = Yes, more than 30 hours per week..... 42
43. At any time in the past 30 days, were you a student at a high school, job training program, college or university degree program? 1 = Yes 2 = No..... 43
44. Today's date..... 44
 Month Day Year

