A systematic review of canine assisted psychotherapy for youth at risk or with mental health disorders

Hedieh Hakakian

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A SYSTEMATIC REVIEW OF CANINE ASSISTED PSYCHOTHERAPY FOR YOUTH AT RISK OR WITH MENTAL HEALTH DISORDERS

A dissertation submitted in partial satisfaction of the requirements for the degree of Doctor of Psychology in Clinical Psychology

by

Hedieh Hakakian

June, 2023

Amy Tuttle, Ph.D. – Dissertation Chairperson
This clinical dissertation, written by

Hedieh Hakakian

under the guidance of a Faculty Committee and approved by its members, has been submitted to and accepted by the Graduate Faculty in partial fulfillment of the requirements for the degree of

DOCTOR OF PSYCHOLOGY

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Dr. LaTonya Wood, Ph.D., Committee Member
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DEDICATION

This dissertation is dedicated to my girls Bella, Luna, Bonnie, and Libby who inspire me every day. Their continued impact on my life has made me who I am.
VITA

HEDIEH HAKAKIAN, M.A.

EDUCATION

Doctor of Psychology in Clinical Psychology  
Pepperdine University, Los Angeles, CA  
Anticipated Graduation Date: May 2023

Specialty Tracks: Cognitive Behavioral Therapy and Family Systems  
Qualifying Clinical and Assessment Exams Passed: May 2021 and October 2021

Dissertation Proposed: February 23rd, 2021
Dissertation Chairperson: Amy Tuttle, Ph.D.
Dissertation Title: A Review of Canine Assisted Psychotherapy for Youth at Risk or With Mental Health Disorders

Master of Arts in Clinical Psychology  
California State University, Northridge (CSUN), Los Angeles, CA  
2019

Thesis Title: Investigation of the Positive Consequences of Childhood Maltreatment Among Diverse Ethnic Groups

Bachelor of Arts in Honors Psychology  
California State University, Northridge (CSUN), Los Angeles, CA  
2017

University Honors: Summa Cum Laude

Certifications
National Institutes of Health

AWARDS AND DISTINCTIONS

Colleague’s Grant, Pepperdine University  
2019 – 2021

Distinction, CSUN  
2019

William R. Foster Award Recipient, CSUN  
2017

Outstanding Graduating Senior Award Finalist, CSUN  
2017

Dean’s List, CSUN  
2013 – 2017

LANGUAGES

Fluent in Farsi

CLINICAL EXPERIENCE

Doctoral Intern  
University of San Francisco, San Francisco, CA  
August 2022 – Present

Supervisor: Stephanie McGrath, Psy.D.

- Providing integrative individual psychotherapy 10 hours/week to a diverse, college student population at a private university counseling center
- Diagnostic categories include but are not limited to anxiety disorders, adjustment disorders, depressive disorders, Obsessive Compulsive Disorder, trauma-related disorders, first-generation and LGBTQIA+ related concerns
• Co-facilitating psychoeducational group psychotherapy utilizing ACT and DBT interventions on a weekly basis and process-style group psychotherapy to interested students
• Conducting triage care and diagnostic intakes 5x/week and providing crisis intervention when needed
• Engaging with liaisons and campus partners to inform case management and treatment planning
• Attending weekly in-service seminars, case conference, evidence-based practice groups to enhance professional development and cultural humility
• Developing and presenting workshops and didactic presentations to both the student population and practicum students
• Trained in and maintain comprehensive electronic records via Titanium including triages, crisis interventions, intake evaluations, and progress notes

Clinical Psychology Extern
Cerrito’s College
Supervisor: Humberto Hernandez, Ph.D.
• Conducted individual, short-term, integrative, culturally congruent, evidence-based treatment to a diverse college student population at a local college counseling center
• Diagnostic categories include but are not limited to anxiety disorders, adjustment disorders, depressive disorders, Obsessive Compulsive Disorder, trauma-related disorders, and LGBTQIA+ related concerns
• Led thorough diagnostic intakes for each client, provided risk assessments, and developed safety plans as needed
• Co-facilitated workshops and group therapy for student groups on relationship management, communication, and mindfulness
• Attended weekly individual and group supervision meetings to further discuss student care, outreach opportunities, case conceptualization, and treatment planning
• Trained in and maintenance of comprehensive electronic records via Point and Click including progress notes and assessment administrations/evaluations

Clinical Psychology Extern
Harbor-UCLA Medical Center, Child & Adolescent Psychiatry Clinic
Primary Supervisors: Claudia Avina-Sindici, Ph.D. & Lynette Lau, Ph.D.
• Provided evidence-based treatments for children, adolescents, and young adults with suicidal and self-harm behaviors, anxiety disorders, mood disorders, and severe emotion dysregulation
• Conducted psychodiagnostic assessments, screenings, risk assessments, and modifying treatment specific to patient presentation and cultural considerations
• Worked as part of an interdisciplinary team and consulted with patient psychiatrists and psychologists to inform treatment planning
• Attended seminars and participated in treatment modality trainings (e.g., Dialectical Behavior Therapy (DBT), ICARE)
• Developed culturally congruent case conceptualizations and trauma-informed treatment plans
• Attended weekly supervisions and didactics to further enhance breadth of possible treatment interventions
• Trained in and developed comprehensive DMH electronic clinical records via IBHIS including intake evaluations, progress notes, scheduling, and treatment planning

Clinical Psychology Extern
Rich & Associates
Primary Supervisors: Seth Shaffer, Psy.D. & Erika Rich, Ph.D.
• Co-facilitated intensive outpatient social skills summer program for children and adolescents with social skills deficits and a range of diagnoses such as Autism Spectrum Disorder, Attention Deficit Hyperactivity Disorder, and Oppositional Defiant Disorder
• Utilized behavioral strategies, psychoeducation, mindfulness, and group process discussions to facilitate coping and social skills development as well as behavior management
• Worked individually with specific children requiring more intensive treatment and participated in consultation/collaboration with the individual providers of these children to inform treatment planning
• Tracked behavioral and social skills goals for assigned children and adolescents and provided feedback on their progress and recommendations for continued progress
• Attended daily group supervision to discuss cases, treatment progress, and treatment plans

Neuropsychology Extern
July 2020 – July 2021
Children’s Hospital Los Angeles
Los Angeles, CA
Supervisor: Sharon O’Neill, Ph.D., MHA, ABPN
• Developed competence in a variety of neuropsychological assessment batteries for children, adolescents, and young adults
  o Tests included but were not limited to: Bayley 3/Bayley 4, CPT-3, CVLT-CC/VLT-II, D-KEFS, Grooved Pegboard, NEPSY-II, NIH Toolbox, RCFT, VMI, WAIS-IV, WASI-II, WISC-V, WPPSI-IV, and WRAML-2
• Conducted research on diverse patients with multiple neurological, medical, and psychiatric comorbidities (e.g., Congenital Heart Disease, Congenital Adrenal Hyperplasia, Autism Spectrum Disorder)
• Reviewed medical and educational records; administered, scored, and interpreted measures; developed comprehensive integrative reports including appropriate recommendations
• Participated in weekly didactics and lectures in the department of Neurology and Adolescent Medicine to discuss present patients, emerging cases, and advancements in medicine with psychiatrists, neuropsychologists, and neurologists
• Attended weekly APA-approved continuing education Neuropsychology seminars addressing various topics such as medical diagnoses, neuroanatomy, neuropsychological assessment, and cultural considerations

Clinical Psychology Extern, Psy.D. Trainee
September 2019 – Present
Pepperdine Community Counseling Center
Encino, CA
Supervisor: Anat Cohen, Ph.D.
• Conducting on-going individual therapy with children, adolescents, and young adults
• Conducting intake evaluations, including administration, scoring, and interpretation of initial outcome measures
  o Assessment measures include but were not limited to: BAI, BDI, GAD-7, OQ-45, PCL-5, PHQ-9, and Working Alliance Inventory
• Writing integrative intake evaluation reports
• Writing weekly case progress notes and maintaining current and accurate clinical documentation
• Co-leading community-based presentations for children and parents of children in the LAUSD on topics such as: bullying prevention, attention and concentration, and anxiety
• Attending weekly individual and group supervisory sessions to discuss intervention methods, case conceptualization, strategies to assist clients and improve clinical skills, and treatment planning
• Attending didactic seminars on a variety of topics including cultural conceptualization, case conceptualization, treatment modalities specific to certain populations, and intervention integration
• Provide on-call response to clinic clients on a rotating basis

Clinical Intern
September 2018 – May 2019
Assessment Clinic, CSUN
Northridge, CA
Supervisor: Gary Katz, Ph.D.
• Received extensive training in intelligence and achievement tests for child and adult populations
• Administered a core battery of cognitive assessments to child, adolescent, and adult populations
  o Tests included but were not limited to: WAIS-IV, WASI-II, WISC-V, and WRAT5
• Scored and interpreted assessment measures; wrote integrative reports; and developed recommendations
Clinical Intern

**Anxiety and Mood Disorders Clinic, CSUN**

*September 2017 – May 2019*

**Supervisor:** Jill Razani, Ph.D.

- Provided individual evidence-based treatment to members of the community presenting with a variety of anxiety and mood disorder diagnoses and symptoms
- Conducted intake sessions to assess appropriate fit for services complete with psychodiagnostic measures and risk assessments
- Participated in weekly group supervision to discuss case conceptualization and treatment planning
- Maintained up-to-date clinical documentation denoting the current phase of treatment and treatment goals

**Advanced Peer Educator**

*September 2016 – May 2017*

**Peer Educator**

*September 2015 – May 2016*

**The BLUES Project, University Counseling Services, CSUN**

*Northridge, CA*

- Completed extensive training on recognizing and communicating the causes, symptoms, treatment, and referral sources for depression and suicide
- Co-led presentations for hundreds of university students in classes and campus organizations on the signs and treatment of depression and suicide
- Planned and hosted university wide events to raise awareness of depression and suicide prevention as part of Beat the Blues Week and the Semi-Colon Project
- Participated in outreach and recruitment activities to increase student involvement in the organization

**SUPERVISORY EXPERIENCE**

**Peer Consultant**

*Fall 2021 – Present*

**Pepperdine Community Counseling Center**

*Encino, CA*

**Supervisor:** Anat Cohen, Ph.D.

- Selected from a pool of qualified applicants by the Clinical Director to provide consultation, mentorship, and support to first and second year Psy.D. interns for the 2021-2022 academic year
- Holding weekly consultation sessions with the consulees during which there is an emphasis on clinical skill development (e.g., intake writing, conceptualization, cultural considerations, diagnostic related concerns, treatment planning, and procedures for clinical documentation)
- Evaluating consulees’ written documentation and providing feedback on their chart documentation and writing skills
- Attending weekly supervision specifically for the purpose of further enhancing consultation skills and addressing any consulee related concerns
- Academic coursework/seminar: PSY 776 Clinical Supervision – Edward Shafiranske, Ph.D. & Carol Falender, Ph.D., Pepperdine University, Fall 2021

**TEACHING EXPERIENCE**

**Psy.D. Program Teaching Assistant**

**Pepperdine University**

*Los Angeles, CA*

- **PSY 601**: Assessment of Intelligence with Alison Flores Vargas, Ph.D. *Fall 2021*
- **PSY 602**: Personality Assessment with Susan Himelstein, Ph.D. *Fall 2021*
- **PSY 713**: Advanced Psychological Assessment with Carolyn Keatinge, Ph.D. *Fall 2021*
- **PSY 711**: Personality Assessment with Carolyn Keatinge, Ph.D. *Spring 2021*
- **PSY 710**: Cognitive Assessment with Carolyn Keatinge, Ph.D. *Fall 2020; Fall 2021*

- Grade student assignments
- Collaborate on structuring and modifying assignments
- Meet and advise students, provide feedback on assessment administration
• Assist students in developing integrative assessment reports incorporating assessment results and relevant contextual factors

RESEARCH EXPERIENCE

Doctoral Dissertation
Pepperdine University
Dissertation Chairperson: Amy Tuttle, Ph.D.
• Title: “The Benefits of Canine Assisted Psychotherapy for Youth at Risk or With Internalized Problem Behaviors: A Systematic Review”
• Completed and presented a dissertation proposal in which a thorough background and rationale was presented incorporating previous research, suggesting the significant clinical implications of this work
• Developed an extensive search, screening, and synthetization plan delineating the process to identifying and selecting relevant studies for inclusion
• Created a systematic and reproducible methodology to answer the expressed research questions

Research Assistant
Research Assistant
July 2017 – December 2020
Developmental Psychology Lab, CSUN
Northridge, CA
Supervisor: Sara Berzenski, Ph.D.
• Currently working collaboratively with Dr. Berzenski to prepare a manuscript for publication on posttraumatic growth (PTG) amongst diverse maltreated youth
• Assisted with research investigating the effects of maltreatment on children and adolescents
• Contributed to the development of the IRB application
• Trained, mentored, and supervised student assistants
• Created study scripts and surveys on Qualtrics
• Conducted statistical analyses (e.g., multiple regression, structural equation modeling, path analysis)
• Participated in national conferences and poster presentations, presenting research on somatization amongst college students with previous experience of childhood maltreatment

Research Assistant
Applied Cognitive Decision-Making Lab, CSUN
August 2016 – May 2019
Northridge, CA
Supervisor: Jill Qualici, Ph.D.
• Ran university student participants through decision-making experiments
• Administered and collected surveys, materials, and forms from participants
• Assisted in preparation of the IRB application
• Helped develop study scripts and protocols for multiple research groups

Research Assistant
Applied Cognitive Psychology Lab, CSUN
August 2016 – May 2019
Northridge, CA
Supervisor: Justin Kantner, Ph.D.
• Developed an independent study design with faculty member
• Created all IRB forms and supplementary materials needed for approval of experiment
• Created a systematic and reproducible methodology to answer the research questions
• Ran university students through research design, collected, and synthesized data using statistical analyses (e.g., SPSS)

Student Researcher
Department of Psychology, CSUN
January 2016 – May 2016
Northridge, CA
Course Instructor: Stephanie Drew, Ph.D.
• Created a study design investigating the effects of hair color on impression formation
• Independently conducted an extensive literature review
• Created flyers for participant recruitment
• Conducted studies on a group of university students

PROFESSIONAL EXPERIENCE

Graduate Assistant September 2019 – September 2021
Pepperdine Community Counseling Center Encino, CA
• Conducted phone screenings and intakes for potential clients
• Implemented orientations with new trainees and provide continual assistance throughout their time at the clinic
• Answered phone calls and work as a liaison between the clinic clients and therapists
• Created, audited, and closed client charts
• Assisted with coordination of various clinic outreach and marketing activities
• Supported therapists and supervisors with day-to-day procedures

Co-Manager July 2018 – June 2019
Center for Achievement in Psychological Science, CSUN Northridge, CA
• Worked as a liaison between faculty members and psychology students
• Provided mentorship to undergraduate students
• Planned and hosted resume and CV workshops, graduate school, and GRE presentations
• Instructed a 300-level psychology course
• Planned and hosted events for the psychology department to raise awareness of available resources

Chief of Staff June 2016 – June 2017
Senator for the College of Social and Behavioral Sciences June 2015 – June 2016
Associated Students, CSUN Northridge, CA
• Managed the President’s cabinet and chaired cabinet meetings
• Collaboratively planned and hosted campus events
• Held office hours for 20 hours each week
• Tabled at events to distribute information about programs and services

SERVICE

Student Buddy September 2020 – June 2021
Student Government Association, Pepperdine University Los Angeles, CA
• Paired with a first-year trainee and met monthly to discuss the student’s progress in the Psy.D. program
• Assimilated the student into the Psy.D. program structure by providing an overview of coursework and expectations
• Aided the student in developing clinical documentation, written assignments for class assignments, and created an academic trajectory to meet their goals

Psy.D. Steering Committee Representative September 2020 – June 2021
Class Representative September 2019 – June 2020
Student Government Association, Pepperdine University Los Angeles, CA
• Sending monthly emails to students reporting about student affairs
• Providing a platform for students to voice opinions and concerns regarding the campus
• Attending monthly steering committee meetings attended by the executive committee and fellow students to discuss Psy.D. program matters such as curriculum changes, goals, anti-racism trainings, and academic environment
• Serving as a liaison between students and the Psy.D. executive committee
• Collaborating with other members of the group to develop and implement campus events

Matador Mentor  
May 2016 – May 2017

New Student Orientation Leader  
May 2015 – May 2016

Student Involvement and Development, CSUN  
Northridge, CA

• Completed 50+ hours of training on effective communication (e.g., gender-neutral, inclusive) with students transitioning to college
• Provided mentorship to incoming university students regarding campus resources, majors, and financial aid
• Gave informational tours to new and transfer students
• Completed 20+ additional hours of facilitation training to aid new students in confronting issues pertinent to the transition to college life (e.g., relationships, body issues, and prejudice)
• Supervised and mentored orientation leaders

PRESENTATIONS & PUBLICATIONS

Presentations


Hakakian, H.H., Stophlet, T., & Walker, M. (February 2021). Bullying/Cyberbullying: What parents need to know and how they can help. Portola Middle School, Tarzana, CA.


Hakakian, H.H. (December 2016). Effect of hair color on impression formation. Poster session presented at the CSUN Psychology Symposium, Northridge, CA.

PROFESSIONAL DEVELOPMENT

University of California, Los Angeles  
Los Angeles, CA

• ICARE Online Training  
  Presented by Lynette Lau, Ph.D.  
  September 2021

• DBT Training  
  Presented by Claudia Avina-Sindicí, Ph.D.  
  September 2021

University of Southern California  
Los Angeles, CA

• ITCT-A Training Workshop  
  Presented by John Briere, Ph.D. & Cheryl Lanktree, Ph.D.  
  January 2020

Pepperdine Community Counseling Center  
Encino, CA

• Treating Common Childhood Disorders  
  Presented by Xochitl Leevers, Psy.D.  
  February 2020

• CBT Intervention Skills  
  January 2020
Presented by Phoebe Zaky, LMFT

- Case Conceptualizations  
  Presented by Barbara Ingram, Ph.D.

- Developing Cultural Formulations  
  Presented by Carrie Castaneda-Sound, Ph.D.

PROFESSIONAL AFFILIATIONS

American Psychological Association  2017 – 2018
Division 40: Society for Clinical Neuropsychology  2020 – Present
Division 45: Society for the Psychological Study of Culture, Ethnicity and Race  2020 – Present
ABSTRACT

Mental health disorders among youth are often underrepresented in research, resulting in a delay and under-treatment of their needs (Catania et al., 2011). While their needs are frequently under-treated, research suggests that youth often experience mental health problems that subsequently lead to difficulties in adulthood (Carballo et al., 2011) necessitating a need to identify efficacious treatments to these problems. This systematic review used a mixed-methods design to analyze current literature on the use of Canine-Assisted Psychotherapy (CAP) with youth ages 0 – 20. The aims of the study were to (a) understand the impact of CAP on mental health (i.e., clinical diagnosis and symptomatology) and therapeutic factors (i.e., factors of benefit to the therapeutic process or participant welfare) for youth at risk or with mental health disorders and (b) investigate the characteristics of CAP interventions (e.g., illustration of the intervention including: underlying theories, the role of the canine(s) in treatment, the role of the therapist(s) in treatment, activities during treatment; description of the canine including: breed, age, training) identified in the literature. This review found mixed results, with CAP interventions being found to reduce symptoms of mood disorders, PTSD, anger problems and disruptive behaviors among youth. The results also suggested that CAP interventions were efficacious in increasing self-esteem and therapeutic factors among youth at risk or with mental health disorders.

Keywords: canine, dog, canine-assisted, youth, mental health, disorder, counseling, intervention, psychotherapy
Chapter I: Background and Rationale

Statement of the Problem

Mental health disorders among youth result in significant impairment in the way the child or teen typically handles their emotions and subsequently behaves, causing distress and difficulty getting through the day (Perou et al., 2013). Mental health concerns of youth are often underrepresented in research, leading to a delay and a lack of treatment of their needs (Catania et al., 2011). However, despite this, research indicates that youth frequently experience mental health problems that often lead to difficulties in adulthood (Carballo et al., 2011). Therefore, due to the significant impact of mental health disorders amongst youth, finding efficacious treatment methods is vital.

This systematic review of the literature aimed to analyze current literature on the use of Canine-Assisted Psychotherapy (CAP) with children, teens, and young adults. Though there is no explicit definition of the age range of this population, this review aimed to explore the implications of using CAP for youth defined between the ages of 0 - 20. The systematic review investigated the efficacy of one treatment method in particular, CAP, in treating youth at risk or with mental health disorders. The aims of the study were to (a) investigate the characteristics of CAP interventions (e.g., illustration of the intervention including: underlying theories, the role of the canine(s) in treatment, the role of the therapist(s) in treatment, activities during treatment; description of the canine including: breed, age, training) identified in the literature and (b) understand the impact of CAP on mental health (i.e., clinical diagnosis and symptomatology) and therapeutic factors (i.e., factors of benefit to the therapeutic process or participant welfare) for youth at risk or with mental health disorders.
Overview of the Literature

Mental Health Among Youth

Mental health is an essential component of an individual’s ability to function well in various aspects of their lives (e.g., personal, and social) while exhibiting key skills to cope with stressful life events. Of the disorders experienced by youth, the most prevalent are Attention Deficit Hyperactivity Disorder (ADHD), anxiety problems, behavior problems, and depressive disorders (Center for Disease Control [CDC], 2021), with suicide being the second leading cause of death in young people (National Institute of Mental Health [NIMH], 2023). Eating disorders are also common and typically develop during adolescence while increasing in severity and risk during early adulthood (Hudson & Rapee, 2002). Most mental health disorders reach their peak of incidence during the transition from childhood to young adulthood (i.e., transitional age), with approximately 1 in 5 people experiencing mental health problems before the age of 25 (Kessler et al., 2007). Similarly, Patel et al. (2007) found that approximately 20-25% of young people suffer from mental health and substance use disorders. Approximately half of mental health illnesses begin and develop between ages 14 to mid-20s (Kessler et al., 2017). Research indicates that the prevalence of mental health disorders amongst youth has been increasing over time (Kyu et al., 2016). Additionally, research findings suggest that youth often endure an array of mental health problems that can hinder healthful passage into adulthood (Pine et al., 1998) and frequently lead to difficulties in adulthood (Carballo et. al., 2011).

Though roughly 17% of youth are said to experience mental health problems annually, only about 50.6% of those individuals receive treatment (Whitney & Peterson, 2019). Research has found that individuals between the ages of 0 - 20 experience the greatest delay in treatment to their mental health concerns (Catania et al., 2011). Not only is accessibility a potential
concern, but research has also found that youth often show high rates of disengagement in treatment (Kim et al., 2019).

Though youth can vary across domains such as physical and behavioral influences, socioeconomic status, education, and environmental determinants of health (Khetarpal et al., 2022), an area in which they all align is that this is a time when they are navigating a multitude of developmental transitions that can have lasting impacts on their mental health. As such, understanding the impact of mental health disorders on the overall well-being of youth is of critical importance, particularly as this is an ever-growing concern.

**Risk Factors for Youth Mental Health**

Many factors determine mental health outcomes of youth. Greater risk factors often lead to a greater impact on mental health. The World Health Organization (WHO; 2021) noted factors that can lead to stress during youth such as exposure to adversity, media influences, pressure to conform and exploration of identity. Other determinants include aspects of their home life and relationships with others. Factors such as violence and socioeconomic status are also identified as risk factors to mental health (Heshmat et al., 2016).

Research on the prevalence of mental health problems amongst youth suggests a negative prognosis for children whose parents experience mental health concerns, indicating another possible risk factor (Bennett et al., 2012). One study found that adolescents who were exposed to maternal postpartum depression during their formative years had a two-fold increase in the likelihood of an emotional disorder (Naicker et al., 2012). Children of parents with severe mental illness (e.g., Bipolar Disorder, Schizophrenia, Major Depressive Disorder) have been found to have a higher risk of developing a child and adolescent mental disorder (Thorup et al., 2018). Therefore, these findings suggest that parental mental health can serve as a risk factor for youth.
College age students are also susceptible to mental health problems due to many risk factors often associated with the transition from high school to college. Traditional college students (i.e., those who start college after completing high school) typically depend on parental support for financial stability, do not work, and are often young. Therefore, in addition to new academic pressures they may be facing, these students are also balancing new adult-like tasks and responsibilities while not yet fully entering adulthood. Often, this can cause students to feel overwhelmed and heighten their experiences of mental health problems. Moreover, lack of identification or acknowledgement of mental health symptoms can serve as factors that contribute to the tenacity of mental health problems amongst college aged individuals.

The early identification and treatment of mental health disorders may substantially impact the subsequent effects of the disorders, necessitating the need to properly identify and promptly treat disorders (Pedrelli et al., 2015). Therefore, it is essential to address these concerns early on with an evidence-based approach in hopes of reducing the symptoms quickly and efficiently.

**Animal-Assisted Interventions**

While many interventions have been successful with youth, one that has been growing in popularity is animal-assisted interventions (Flynn et al., 2020). Animal Assisted Interventions (AAI) incorporate the use of many types of animals (e.g., horses, dogs, farm animals) to attain psychological well-being in a variety of populations. These types of interventions can be broken down into subgroups, as defined by the American Veterinary Medical Association (2020):

- *Animal-assisted therapy (AAT)*
- *Animal-assisted education (AAE)*
- *Animal-assisted activities (AAA)*
- *AAI Resident animals (RA)*

Animal-assisted activities (AAA) are described as non-structured opportunities designed to enhance quality of life. These activities can be delivered in a
variety of environments and are often designed to provide motivation or education. Animal-assisted therapy (AAT) is described as a goal-oriented intervention in which animals are used as an integral part of the treatment process. This particular form of treatment is often more structured in its approach and includes goals of reducing negative psychopathological symptoms. Moreover, these forms of treatment are often delivered or directed by a licensed health professional with qualifying certifications and training (Fine et al., 2015).

Although AAI are growing in popularity in recent years, the healing aspects of the relationship between humans and animals is not new. In fact, explorations of the significant relationship between animals and humans dates back to the 1800s when Florence Nightingale first made discoveries about the benefits of AAT for individuals with symptoms of anxiety (Connor & Miller, 2000). Animals are typically known to develop natural bonds with people, often expressing love and warmth. This expression of love can translate to a sense of safety on behalf of the individual, thus suggesting the benefits of the use of animals in therapy.

Several reviews of the literature on the rewards of AAI have been done, suggesting that overall these interventions may be of benefit to a variety of individuals (Maujean et al., 2015). AAI have been found to have positive effects on a wide range of psychological and social outcomes, including depression, anxiety, developmental disabilities, post-traumatic stress disorder (PTSD), schizophrenia, and autism spectrum disorders (Bert et al., 2016; Friedmann & Son, 2009; O’Haire et al., 2015; Rossetti & King, 2010; Souter & Miller, 2007).

Barker et al. (2015) found a significant difference in anxiety levels among hospitalized youth, with the AAI group reporting less anxiety than a control group. Research has also found that implementing the use of AAI with youth decreased anxiety, attention difficulties, disruptive behavior, and symptoms of depression (Balluerka et al., 2015).
Canine-Assisted Psychotherapy. One specific subgroup of AAT is Canine-Assisted Psychotherapy (CAP). Similar to AAT, CAP are therapeutic interventions designed to promote health and healing, specifically through the incorporation of canines. For the purpose of this review, psychotherapy is defined as talk therapy that is intended to support individuals with a variety of mental health disorders. Similar to AAT, the efficacy of CAP has been explored over the course of many generations. Sigmund Freud, a proponent of psychoanalytic theory, began incorporating his dog into psychotherapy sessions and quickly identified the benefits of CAP on rapport development. CAP has been used in a variety of settings such as hospitals, nursing homes, special needs programs, and school settings. Moreover, its efficacy has been established with a broad range of individuals, of which youth are included (Jones et al., 2019).

An interesting observation noted in a systematic review by Jones et al. (2019) on the incorporation of canines in mental health treatment for adolescents indicates the barriers often experienced by clinicians when trying to work with youth during therapy. Specifically, they touch on the adverse opinions youth typically experience towards mental health treatment and the importance of finding treatment that is deemed “acceptable” by them. Through their review, it was found that youth often have high attendance and retention rates in CAP indicating high levels of acceptability (Stefanini et al., 2015; 2016). Moreover, they found that CAP had a positive impact on primary diagnoses and symptomology in children and adolescents (Stefanini et al., 2016).

Research has shown the effectiveness of CAP. CAP has been found to make intervention for youth more engaging and help with rapport building (VanFleet & Faa-Thompson, 2010). CAP has been found to be helpful when incorporated with trauma-focused therapy as well (Dravsnik et al., 2018). Specifically, it was found that regardless of the age of the youth,
traditional therapy incorporated with canine-assistance had the highest acceptability compared to approaches not incorporating canines. Hoagwood et al. (2017) published a systematic review looking at the benefits of AAT for youth with or at risk for mental health problems. Through their review, it was found that canine therapies were found to have positive effects for childhood trauma.

The efficacy of CAP has also been established with college age individuals. In a study observing the stress levels of female college students, CAP was found to provide alleviation of psychological stress (Crump & Derting, 2015). Another study investigating the impact of CAP on university students found that the participants reported a significant decrease in perceived stress, homesickness, and improvements in school belongingness (Binfet, 2017).

CAP has not only been found to be effective for children and adolescents but adults as well. Adults experiencing PTSD were found to have significant improvements in their PTSD symptomology and CAP may have even had a role in preventing suicide in patients with PTSD (Altschuler, 2018). Overall, the studies above suggest the benefits of CAP on a variety of psychological problems in a wide range of individuals. While the denoted studies implicate the efficacy of CAP, there is still a significant discrepancy in the literature regarding specificities of CAP treatment.

**Discrepancy in the Literature**

As noted above, the significant impact of CAP on the psychological health of individuals aged across the lifespan, specifically youth, is clearly evident. Many articles and systematic reviews support this notion, yet a large discrepancy still exists in regard to how these interventions are being implemented. Thus, this review aimed to advance what was already known and understood about CAP and its influence on youth mental health.
Many researchers have published reviews suggesting the psychological benefits of AAI (DeCourcey et al., 2010; Gorrity & Stallones, 1998). Although these reviews have investigated the value of these interventions, including CAP, they failed to incorporate randomized controlled trials. Thus, a systematic review conducted by Maujean et al. (2015) attempted to add to the literature by reviewing randomized controlled trials of AAT on psychosocial outcomes. Within this particular review, there was attention to what psychosocial outcomes were being targeted during treatment, the format of the intervention and overall results. However, this review did not specifically investigate the benefits of CAP on psychosocial outcomes, nor did it primarily investigate its benefits on youth.

Jones et al. (2019) attempted to answer some of the questions regarding intervention characteristics within their systematic review. Specifically, they noted what measures were used to assess the success of CAP, and conclusions of the studies which often included what type of intervention was used. The review by Jones et al. (2019) was the first to investigate CAP in this capacity and served as a model for the current review. The current review planned to update and enhance the literature and review by Jones et al. (2019), while also focusing on a more expansive population (i.e., ages 0 - 20).

**Rationale, Primary Aim(s) and Research Questions**

There are risks and a prevalence of mental health disorders among youth, indicating a need for treatment, and evidence suggests that many disorders often established during these formative years can translate over to problems in adulthood if not treated properly. As noted above, CAP has been shown to have positive effects on a variety of symptoms experienced by youth. In addition to being a treatment for psychopathological concerns, CAP is able to help individuals develop self-esteem, social skills, and has been effective in improving the therapist-
client relationship. Finally, the aforementioned evidence addresses some of the concerns with previous systematic reviews and the need for another more thorough review to be completed.

The primary focus of this review was to examine the benefits of CAP for youth, ages 0 - 20 years. The research objectives denoted below were designed following a similar structure to those delineated in the review by Jones et al. (2019). The aims of the study were to (a) investigate the characteristics of CAP interventions (e.g., illustration of the intervention including: underlying theories, the role of the canine(s) in treatment, the role of the therapist(s) in treatment, activities during treatment; description of the canine including: breed, age, training) identified in the literature and (b) understand the impact of CAP on mental health (i.e., clinical diagnosis and symptomatology) and therapeutic factors (i.e., factors of benefit to the therapeutic process or participant welfare) for youth at risk or with mental health disorders.

Key research questions used to explore current literature regarding the use of CAP with youth included:

1. How are canines being incorporated into CAP interventions?

2. What are the effects of CAP on youth at risk or with mental health disorders (or symptoms)?

3. Does CAP impact the well-being of therapeutic factors involved in treatment?
Chapter II: Method

The primary objective of this systematic review was to explore the impact of canine-assisted psychotherapy (CAP) for youth ages 0 - 20 years. The aims of the study were to (a) investigate the characteristics of CAP interventions identified in the literature and (b) understand the impact of CAP on mental health and therapeutic factors for youth at risk or with mental health disorders.

Systematic Review Approach

This systematic review included a synthesis of knowledge from a variety of research available through online published sources. This particular review took a mixed-methods approach to understanding the complexities of CAP. This specific approach was decided with careful consideration of the research aims, wherein the observation of both quantitative and qualitative data were beneficial.

Eligibility Criteria

Inclusionary Criteria

The following eligibility criteria were required in order to be included in this review:

Source Eligibility. All studies included in this review must have been written in English and been published nationally and/or internationally from peer-reviewed journals. The current study did not restrict articles based on publication year or country of publication due to the limited amount of literature that currently exists on this topic. To evaluate the evolution of the use of CAP with youth over time, all peer reviewed articles published until the time this review was conducted in 2022 were eligible for inclusion. Only studies using CAP as the primary intervention and reporting qualitative or quantitative results to mental health outcomes were included in this review.
**Population.** As this study aimed to investigate the benefits of CAP for youth, studies included must have included individuals who were ages 0 - 20 years. Should a study not have explicitly investigated individuals between 0 - 20 years of age, it was required that a minimum of 50% of the study population fall within that age range in order to have been included in this review. This study did not exclude individuals based on gender or race.

**Setting.** Given that this was a novel topic and therefore there was limited research in this area, studies from any setting were included in this review.

**Design.** Multiple study designs were incorporated in this review, including randomized control trials (RCTs) or quasi-experimental designs such as one-group pretest-posttest studies. Studies that incorporated the use of a control group were also included if they contained one of the subsequent controls: no treatment, waitlist, intent-to-treat, usual care, and alternative treatment.

**Intervention.** Studies that incorporated the use of CAP in a psychotherapy setting were eligible for inclusion in this review (i.e., using talk therapy to treat emotional problems or mental illnesses). To be consistent with the study aims, the studies analyzed must have included the overall impact of using canines as part of intervention on youth at risk or with mental health disorders. While not required, the documentation of how canines were incorporated in the intervention designs were highly preferred.

**Outcome.** While not mandatory, in order to examine the effectiveness of CAP for youth, the included studies were preferred to have contained at least one standardized youth outcome measure used to examine symptomatology (e.g., Beck Depression Inventory [BDI], Center for Epidemiologic Studies Depression Scale (CES-D, Children’s Depression Inventory [CDI], Youth Anxiety Measure [YAM-5]). If the studies failed to include a standardized measure, they were
still included in the review if they noted using any outcome measure (e.g., interviews, patient files). Parent- or guardian- report outcome measures were also not required but were used as alternatives to youth measures.

**Exclusionary Criteria**

Studies incorporating the use of CAP with individuals outside of the designated age range (i.e., ages 0 - 20) were excluded from this review if the percentage of individuals outside that age range exceeded 50% of the entire study sample. Moreover, studies that included a canine in a non-psychotherapy format, such as in a general AAT format, were not included.

**Search, Screening and Selection Processes**

**Information Sources**

The study search was carried out by using the following electronic databases and the same search strategy with alterations as fitting for every database: EBSCO Host and Scopus.

**Search Terms**

A comprehensive list of search terms composed of items operationalized from the study variables was created for the purpose of being utilized in the electronic database in order to identify studies to be included in this review. The following is the list of terms identified for use in the database search:

1. Canine: canine* OR dog* OR k9 OR hound OR canine-assisted
2. Youth: youth* OR child* OR adolescen* OR "young adult*" OR school age OR teen* OR tween* OR college age OR transitional-age
3. Mental Health: "mental health" OR disorder* OR mental illness OR mental disorder* OR psychiatric illness OR mental* OR emotion* OR behaviour* OR
behavior* OR empath* OR trauma* OR affect OR "internaliz* disorders" OR depress* OR anxi* OR anxious* OR "externaliz* disorders"

4. Psychotherapy: counselling OR counseling OR intervention* OR psychotherap* OR therap*.

Additionally, each search term was given an identification number (ID) as denoted above (see Appendix A) to aid in organization and give visual representation of the pairing of the terms provided. On electronic databases, these search terms were applied to titles, abstracts, keywords, authors, and references of all articles.

**Search Plan**

The primary search concept was CAP, grouped with supplementary search terms used to aid in tapering down studies to include CAP outcomes when used with youth at risk or with mental health disorders. Each of the search terms defined in Appendix A were further grouped using prearranged combinations to create a search plan (see Appendix B) to maintain consistency between searches. Every search was documented (see Appendix C). Each database was searched in the same sequential order using the same terms. Publication type (peer reviewed academic journal, finalized publication), language (English), date (until 12/31/2022), and subject (i.e., psychology and social science) were applied to each database if possible.

**Selection of Studies**

Each database was searched using the search plan noted above. Once studies were identified through the search process they were gathered for review and analysis of the inclusion and exclusion criteria. All articles were screened through an initial reading of the article title, keywords, and abstract by two reviewers (i.e., the primary investigator and a research assistant). If an article successfully met criteria during the initial screening, the full texts of potentially
relevant articles was retrieved and thoroughly assessed for further eligibility criteria. During this
time, studies that did not provide the characteristics to answer the research questions were
excluded from the study. Thus, studies that failed to utilize CAP interventions or denote the
overall effects of said interventions for youth at risk or with mental health disorders was
excluded. Moreover, a list of additional variables pertaining to the inclusion and exclusion
criteria (e.g., questions regarding the general study information, publication status, and target
population) was included. While each study was not included in the final review, each was
entered into an electronic “Screening and Selection Record” form (see Appendix D) by the
primary investigator and research assistants. This form was designed to encompass all stages of
the selection process previously noted. Studies that met eligibility criteria were moved to the data
extraction stage while those that did not meet criteria were labeled as “EX” (i.e., excluded) and
kept out of the systematic review. If any disagreements between the author and the second
reviewer became apparent, it resulted in a definitive verdict which went to the primary
investigators dissertation Chair (Dr. Amy Tuttle). Following the completion of the screening and
selection process, a PRISMA Flow Diagram (see Appendix E) was utilized to offer a clear and
concise summary of the study selection process.

Data Collection and Extraction

A data collection and extraction form was employed to collect information that
corroborated those target variables (see Appendix F) by the primary investigator and the research
assistants. Data extracted included general information (e.g., study ID, date data collected, author
details, publication details), design characteristics and methodological information (e.g., study
design, primary aim of the study, duration of data collection and study completion), assessment
of research variables (e.g., mental health disorders and secondary factors), participant
characteristics (e.g., recruitment, age, gender), setting characteristics (e.g., study location, data collection setting(s)), intervention and comparator groups (e.g., intervention description, duration of treatment, provider type), canine characteristics (e.g., breed, age, training), secondary factors (e.g., rapport, attendance rates), analyses conducted (e.g., qualitative and quantitative), results, and conclusions.

Each extracted article had data pulled by one research assistant and was then audited by the primary investigator. If any potential uncertainty regarding the data extraction occurred, this resulted in a consultation between the research team. If a consensus was still unable to be drawn, consultation with the dissertation chair aided in resolving those concerns. Additionally, a third reviewer served as an auditor and was tasked with auditing a random sample of studies in order to reduce potential bias and mistakes during this phase.

**Quality Appraisal**

Quality appraisal is an important component that is used to assess the reliability, validity, and overall results of the published studies that are included in this review. Upon completion of the extraction of relevant data from the source documents, the quality of the sources was then evaluated using a Quality Appraisal Form (see Appendix G). Each of the included articles was reviewed for the quality appraisal by one research assistant and then audited by the primary investigator. If a consensus regarding the quality appraisal could not be made, this resulted in a consultation with the entire research team (e.g., other research assistants and the dissertation chair).

Designed by Hong et al. (2018), the first part of the appraisal form was used to assess the quality of five types of empirical studies. The author answered the first two screening questions prior to completing the rest of the methodologically-specific form. Following those questions,
the quality of the type of empirical study (e.g., qualitative study, quantitative study, mixed-methods study) was assessed. Should have any of the included studies received a score of “uncertain” in this section, the author planned to consult with the Chair to determine an appropriate rating.

The second half of the form pertained to the quality of multiple domains of the study (e.g., strength of literature and rationale for the study, research sample, data collection, and discussion of study limitations). Each domain in this section received a rating from 0 (i.e., missing) to 3 (i.e., strong) and a full tally of the ratings was scored at the end of the form. Finally, each form received an overall score which stood as the source document’s final appraisal.

**Data Management, Synthesis and Analysis Plan**

**Data Management**

Data extricated from the studies was entered and stored using Google Sheets. Data pertaining to the quality appraisal portion of the study was also managed on Google Drive.

**Synthesis and Analysis Plan**

**Database Development.** This systematic review employed a method of compiling extracted data into systematic categories to develop a clearer understanding of distinct patterns, themes, variations, and relationships between each of the variables under investigation. Once similar data were grouped together, they were then coded into categories to be further analyzed.

**Data Analysis and Synthesis.** Once data were synthesized into their respective categories, data analysis was conducted. For studies that were qualitative in nature the author identified themes and common characteristics between studies and synthesized data. For studies that were quantitative in nature, effect sizes were observed and compared to evaluate the efficacy
of CAP for youth experiencing mental health disorders. Comparisons were drawn between different treatment modalities based on statistical significance.

**Reporting of Results.** The author created three evidence tables, one called “CAP Intervention Characteristics” (see Table 1), one called “Canine and Handler Training and Certification” (see Table 2), and one called “Outcome Measures” (see Table 3). The author also developed specific graphic illustrations of findings relevant to each research question, indicated in the subsequent section.
Chapter III: Results

The results of the systematic review will be presented in the following section and will include the data screening characteristics, general characteristics of the included studies (including gender, age, race-ethnicity, and diagnostic and mental health disorders), intervention characteristics (including illustrations of the interventions, underlying theories, and canine characteristics), study effectiveness and outcomes (including outcome measures, impact on mental health, and impact on therapeutic factors) and quality appraisal.

Data Screening

A total of 2701 publications were identified using electronic databases. Duplicate records were highlighted using features of Google Sheets and manually removed by the primary investigator, which resulted in 862 duplicates for removal before the screening. Phase one of the search and screening included a review of 1839 article titles, keywords, and abstracts in the context of identifiable inclusion criteria. Following this initial search and screening, 1704 records were excluded, resulting in 135 full-text articles evaluated fully for inclusion. Upon review of the full texts, 124 were excluded due to not relating to CAP, not including youth, and not excluding a non-psychotherapy format. In total, 11 studies were included in this review. The full screening breakdown is offered in Appendix E.

General Characteristics of Included Studies

Features of each of the included studies are denoted in Appendix H. Specifically, the characteristics identified include the author(s), publication year, full document title, publication source, country of publication, general methodology, and sample size.

The included studies were conducted between the following years: 2001 - 2010 (n = 1, 9.09%), 2011 - 2020 (n = 8, 72.73%), and 2021 - 2022 (n = 2, 18.18%). The studies were
conducted globally, with a majority administered in the United States of America \((n = 5, 45.45\%)\), followed by Australia \((n = 1, 9.09\%)\), Germany \((n = 1, 9.09\%)\), Israel \((n = 1, 9.09\%)\), Portugal \((n = 1, 9.09\%)\), South Africa \((n = 1, 9.09\%)\), and Spain \((n = 1, 9.09\%)\). The included studies varied in methodologies, with a majority being quantitative \((n = 8, 72.73\%)\), followed by qualitative \((n = 2, 18.18\%)\), and mixed-methods \((n = 1, 9.09\%)\). They also varied in sample size, most of which were 0 - 10 \((n = 3, 27.27\%)\), followed by 11 - 20 \((n = 2, 18.18\%)\), 21 - 30 \((n = 2, 18.18\%)\), 31 - 40 \((n = 2, 18.18\%)\), and 100 or more individuals \((n = 2, 18.18\%)\).

**Study Participant Characteristics**

**Participant Gender.** The gender of participants in the identified studies was collected, and 10 of the 11 studies specified the gender of the participants and one did not specify gender characteristics \((specified\ n = 10, 90.91\%;\ unspecified\ n = 1, 9.09\%;\ see\ Figure\ 1)\). Of articles that detailed the gender characteristics of the study participants, most studies included a majority male sample \(i.e.,\ at\ least\ 50\%\ male\ population;\ n = 4, 36.36\%)\, followed by majority female \(i.e.,\ at\ least\ 50\%\ female\ population) \((n = 3, 27.27\%)\). Additionally, one study included an all-female population \((n = 1, 9.09\%)\ and two single-case studies were conducted on male participants \((n = 2, 18.18\%)\).
Participant Age Ranges. Regarding the age of participants in the included studies, the majority of publications included a broad age range of participants (as defined by researchers) between the ages of 5 years and 17 years (children, young adolescents, and older adolescents; \( n = 5, 45.45\% \)), followed by 10-18 years (young adolescents and older adolescents; \( n = 3, 27.27\% \)), 10-14 years (young adolescents; \( n = 2, 18.18\% \)), and 10-20 years (young adolescents, older adolescents, and emerging adults; \( n = 1, 9.09\% \); see Figure 2).
**Participant Race/Ethnicity.** Of the included publications, a majority of authors did not provide race/ethnicity data of participants ($n = 7, 63.64\%$). Though articles lacked race/ethnicity data, one article did denote that a percentage of participants identified as “indigenous” ($n = 1, 9.09\%$). Three of the publications did provide race/ethnicity characteristics of the included participants ($n = 3, 27.27\%$). All of these studies stated that there were Hispanic, Caucasian, African American, and “Other”/ “Multi-Racial” participants included in their sample, and one also noted the inclusion of Native Americans (see Figure 3).

**Figure 3**

*Participant Race/Ethnicity*

![Participant Race/Ethnicity Diagram]

- Studies That Provided Race/Ethnicity Data of Participants
- Studies That Did Not Provided Race/Ethnicity Data of Participants
- Studies That Provided Race/Ethnicity Data of Some Participants

**Participant Diagnostic and Mental Health Disorder.** Included study participant diagnostic and mental health disorder was collected, and three of the publications noted that participants were experiencing symptoms and/or were diagnosed with Post-Traumatic Stress Disorder (PTSD; $n = 3, 27.27\%$). In addition, three articles reported that participants met the
criteria for Autism Spectrum Disorder (ASD), one of which also included Asperger’s Disorder and Pervasive Developmental Disorder Not Otherwise Specified (PDD-NOS), and another which also included Conduct Disorder \((n = 3, 27.27\%);\) ASD, Asperger’s Disorder and PDD-NOS \(n = 1, 9.09\%);\) ASD and Conduct Disorder \(n = 1, 9.09\%). Other reports on mental health disorders include anger management problems \((n = 1, 9.0\%);\) grief, loss, anxiety, depression, and self-concept issues \((n = 1, 9.09\%).\) Additionally, three of the included studies did not specifically identify participant mental health disorders \((n = 3, 27.27\%).\) One study investigated the effects of CAP on children and adolescents who had a “number of psychiatric disorders” and another investigated behavior following childhood sexual abuse (CSA) (see Figure 4).

**Figure 4**

*Participant Diagnostic and Mental Health Disorder*
**Intervention Characteristics**

Research question one focused on how canines are incorporated into CAP interventions in each of the 11 studies identified for this review. The following sections detail the results related to the illustration of CAP interventions, underlying theories, and canine characteristics.

**Illustration of the Intervention.** A broad range of interventions were utilized in the reviewed studies, including individual therapy ($n = 6, 54.55\%$) and groups ($n = 5, 45.45\%$) in a variety of settings such as in a school, community counseling clinics, and hospital.

Of the included publications that incorporated individual therapy, three studies included a comparator group which consisted of an identical treatment as the canine intervention group without the presence of a canine ($n = 3, 27.27\%$). Hartwig (2017) utilized the Human-Animal Resilience Therapy (HART) curriculum when working with the youth to address their counseling goals. The author noted that activities used in the curriculum include Thumball, sandtray Jenga, and art materials amongst other items. Additionally, the author noted that the HART curriculum had two versions, the traditional curriculum (i.e., comparison group) and the curriculum that had the same 10 weekly interventions with modifications to involve a therapy canine in the session (i.e., intervention group). More detail regarding the curriculum is noted in the study. Silva et al. (2011) utilized structured sessions of one-on-one activities with the therapist in the presence of a therapy canine (i.e., intervention group) and one-on-one activities with the therapist without the presence of a therapy canine (i.e., control group). The authors reported that the sessions were preceded by a 15-minute acclimatization period during which the therapist encouraged the youth, through modeling and verbally, to approach and explore the canine through holding, touching, and petting activities. Allen et al. (2022) followed a similar structure to the two studies denoted above. Specifically, they reported that enrolled participants were randomized to receive either
standard Trauma-Focused Cognitive Behavioral Therapy (TF-CBT) or Trauma-Focused Cognitive Behavioral Therapy + Animal Assisted Therapy (TF-CBT+AAT). The authors described the intervention by breaking it into three segments. Allen et al. (2022) reported that the first four sessions focused on providing psychoeducation regarding the youth's specific form of trauma exposure and PTSD symptoms, and teaching relaxation, affect regulation, and cognitive coping skills. Gradual exposure occurred in each of these sessions by repeatedly discussing the index trauma and how each skill can be used to address its effects. They noted that the subsequent four sessions centered on the development of a factual narrative of the youth's trauma experience with a particular emphasis on eliciting thoughts, emotions, and physical sensations encountered during and after the event. Finally, the authors noted the last four sessions of the protocol included the youth reviewing the trauma narrative with the caregiver in a conjoint session, developing and executing an in vivo exposure plan, educating the youth and caregiver on safety skills, and observing how the trauma experience might impact the youth's life. Regarding the incorporation of canines, authors reported that a canine was required to be in the room for all sessions where the youth was engaged in a portion of treatment but did not specify how the canine was utilized beyond that.

Of the three additional studies utilizing individual treatment, one opted to use a waitlist control group (n = 1, 9.09%). Prothmann et al. (2006) offered limited information about the characteristics of the intervention they utilized, noting that the “canine therapy” was conducted as a “non-directed, free-play therapy” and included a waitlist control group. The final two studies did not include a specific comparator group (n = 2, 18.18%). Lubbe and Scholtz (2013) utilized an “intrinsic case study design, focusing on the aim of gaining an enhanced understanding of the individual case” (p. 118). As such, this study utilized the inclusion of a canine with one specific
youth and did not compare the findings to a non-CAP-receiving individual. While Guzmán et al. (2022) did include comparisons between individuals receiving dog-assisted therapy (DAT) and regular therapy, they did not offer the same interventions to all participants. They noted that their intervention included activities that were designed to help achieve therapeutic objectives including the creation of the bond between the clinician, patients, and canines, and personal development. Additionally, they offer examples of the activities that individuals in the DAT group engaged in (e.g., verbal, and non-verbal communication activities, sensory activities, and activities related to taking care of the canines).

Of the identified publications that incorporated group therapy, one study included a comparator group that consisted of identical treatment as the canine intervention group without the presence of a canine (n = 1, 9.09%). Becker et al. (2017) reported that all groups (intervention and comparison) had the same target skill each week and followed the same schedule including: a) an overview of previous skills, b) an introduction to the session goal and activity, c) modeling and practice of this new skill, and d) review of newly learned target skill. They added that the traditional session goals aligned exactly with animal sessions, and whenever possible, the session content mirrored the animal sessions. Additionally, they reported that their intervention was consistent with reviews of previous social skills training groups, noting that “a host of teaching techniques were used, including direct instruction, modeling, role-playing, shaping, feedback, and reinforcement of positive interactions” (p. 312). They reported that in the experimental condition, participants’ interactions with the canines varied based on the stage of the session and the session’s target skill.

Dietz et al. (2012) reported that their study incorporated three groups: no dogs, dogs with no stories, and dogs with stories. They noted that the therapy sessions included topics and
activities related to common struggles for survivors of sexual abuse, such as trust, secrets, triggers, self-esteem, boundaries, feelings, and welcome/unwelcome touch. They noted that two of their groups (no dogs and dogs no stories) followed the same format, with the addition of the canines and their handlers who were available in the lobby for 30 minutes before the group started to interact with the children. They added that the canine/handler teams then joined the group for 10 to 15 minutes as part of the introductory activity of the group. The third group was similar to the first two but also incorporated therapeutic stories about the dogs which were developed specifically for the session topics.

Hamama et al. (2011) offered vague insights into the structure of the therapy sessions utilized. They noted that an intervention group interacted with canines while a comparison group engaged in traditional therapy where they worked on enhancing the ability to build trust and improve control skills and empowerment. The study authors did not offer additional specifics regarding the intervention.

Signal et al. (2016) utilized a within-subjects design wherein all participants were engaged in all groups. The first three weeks of the group were described as sessions in which pairs of children interacted with a trained therapy canine for 20-30 minutes. The study authors reported that each of these sessions had a specific therapeutic objective. They added that the last seven weeks of the intervention included treatment with social workers at the Phoenix House to transfer animal behaviors to human interactions “with a focus on human-directed empathy, body language, and feelings, managing emotions, nonverbal and verbal communication, self-soothing, developing and respecting boundaries, and asking for support and developing support networks” (p. 85). Finally, Lange et al. (2006/2007) applied the use of a canine in a 12-week anger management group and did not utilize a comparison group. All participants were engaged in the
same group wherein the adolescents were engaged in activities that required them to work with the canine to accomplish goals (e.g., teaching the canine tricks, feeding him treats, learning how to brush his coat, and taking him for a walk).

While the aforementioned information offers insights into the interventions utilized by the 11 studies identified in this review, more information about the intervention descriptions (e.g., types of intervention and comparison groups) can be found in Table 1.

**Table 1**

*CAP Intervention Characteristics*

<table>
<thead>
<tr>
<th>No.</th>
<th>1st Author</th>
<th>Intervention Description</th>
<th>Format</th>
<th>Duration</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Hamama, L., et al.</td>
<td><strong>Intervention Group:</strong> Each session began with a particular focus and specific activity with the canines and continued with psychosocial issues. Group members walked the canine, took care of the canine, trained the canine to obey orders, and established trust with the animal. <strong>Comparison Group:</strong> Experienced traditional group therapy. The members worked on enhancing the ability to build trust and improve control skills and empowerment.</td>
<td>Group</td>
<td>3 hours once per week for 12 weeks</td>
</tr>
<tr>
<td>2</td>
<td>Becker, J.L., et al.</td>
<td><strong>Intervention &amp; Comparison Groups:</strong> Participants were assigned to either the experimental or control conditions based on scheduling availability. Each condition had one group of children ages 8–10 and one group of ages 11–14. There were 7–8 children in each group. All groups met for one hour each week over 12 weeks. The curriculum’s format and content were modeled after published social skills curricula for children with ASD and included sessions about getting acquainted, making conversation and friends, play skills, empathy, self-regulation, and conflict management. All groups had the same target skill each week and followed the same schedule, including a) an overview of previous skills, b) an introduction to the session goal and activity, c) modeling and practice of this new skill, d) a review of newly learned target skill. A variety of</td>
<td>Group</td>
<td>1 hour once per week for 12 weeks</td>
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<tr>
<td>No.</td>
<td>1st Author</td>
<td>Intervention Description</td>
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<td>techniques were used including modeling, direct instruction, role-playing, feedback, reinforcement, and shaping of positive interactions. During the final review, children were tasked with verbalizing or demonstrating the skills. <strong>Intervention Group:</strong> During the greeting and “goodbye” stages, each child had the chance to pet the canine individually. After the greetings, the participants observed one therapist and canine/handler team demonstrate the target skill. Children were split into small groups for each activity with one therapist and canine/handler team for every four children. Activities included: practicing asking the canines to perform basic commands, grooming, and practicing appropriate engagement with the canines.</td>
<td>Individual</td>
<td>50 minutes once per week for 10 weeks</td>
</tr>
<tr>
<td>3</td>
<td>Hartwig, E.K.</td>
<td><strong>Intervention Group &amp; Comparison Group:</strong> Utilized HART intervention, developed by study author. The therapeutic activities used in the HART curriculum were interactive and used activity-based materials to provide a means for youth to work toward counseling goals. Activities used in the curriculum include Thumball™, sandtray, Jenga™, strengths bandana, family genogram, and art materials. The counselors used processing questions that were included in the curriculum for each session. <strong>Treatment group</strong> sessions were exactly the same as the comparison group (i.e., they both had the same 10 weekly sessions as part of the HART curriculum) but included the presence of a therapy canine in the sessions. Counselors also facilitated caregiver consultations at sessions one, five, and 10.</td>
<td>Individual</td>
<td>50 minutes once per week for 10 weeks</td>
</tr>
<tr>
<td>4</td>
<td>Silva, K., et al.</td>
<td><strong>Intervention Group:</strong> Structured sessions of one-on-one activities with the therapist in the presence of the therapy canine. Prior to sessions, there was an acclimatization period (15 minutes) during which the therapist modeled and verbally encouraged approaching and exploring the canine through touching, holding, and petting activities. No specific therapy modality, the therapist followed a strict research protocol instead of a versatile agenda including structured one-on-one activities previously defined to promote prosocial behaviors.</td>
<td>Individual</td>
<td>45 minutes once per week (the number of treatment sessions was not specified)</td>
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<tr>
<td>No.</td>
<td>1st Author</td>
<td>Intervention Description</td>
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<td></td>
<td><strong>Comparison Group:</strong> Structured sessions of one-on-one activities with the therapist without the presence of a therapy canine serving as the control.</td>
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<td>5</td>
<td>Prothmann, A., et al.</td>
<td>Therapeutic sessions of non-directed free-play therapy with a certified therapy canine. There was no comparison group, only a waitlist control group.</td>
<td>Individual</td>
<td>30 minutes once a week for 5 weeks</td>
</tr>
<tr>
<td>6</td>
<td>Dietz, T.J., et al.</td>
<td><strong>No Dog Group:</strong> Treatment program developed by the clinical director. The therapy sessions included topics and activities related to common struggles for survivors of sexual abuse, including trust, self-esteem, triggers, secrets, feelings, boundaries, and welcome and unwelcome touch. <strong>Dogs s No Stories Group:</strong> The Dogs No Stories therapy group followed the same format as the No Dogs groups, with the addition of therapy canines and handlers who were available in the lobby for 30 minutes before the group started to interact with the participants. The therapy canine and handler groups also joined the group for 10 to 15 minutes as part of the introductory activity of the group and then left the group. <strong>Dogs with Stories Group:</strong> Groups continued to follow the same format as for the No Dogs and Dogs No Stories groups. However, stories written by the agency’s clinical director were incorporated into the therapy groups. The purpose of the stories was to add structure and depth to the therapy canine visits. In addition, a series of questions about the canines’ stories were developed to help the therapists make a smooth transition from the canine’s visit to the specific topic for the group. This helped clarify the purpose of the canine’s visit in the therapy session. Each of the stories related to the session topics and was written from the canine’s perspective. The canine handlers read the canine’s story and responded to questions about the story or the canine. They then left the group, and the therapists began to address the topic by asking the children the questions developed for the topic and relating the story to the children’s abuse in order to transition to the group session.</td>
<td>Group</td>
<td>50 minutes once a week for 12 weeks; 1 hour once a month by canines</td>
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<tr>
<td>7</td>
<td>Signal, T., et al.</td>
<td>During the first three weeks, groups of 4-6</td>
<td>Group</td>
<td>10 weeks (the</td>
</tr>
<tr>
<td>No.</td>
<td>1st Author</td>
<td>Intervention Description</td>
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<td>8</td>
<td>Allen, B., et al.</td>
<td><strong>Comparison Group:</strong> Received TF-CBT + AAT. The first four sessions focused on providing psychoeducation regarding the youth’s specific form of trauma exposure and PTSD symptoms, teaching relaxation, affect regulation, and cognitive coping skills. Additionally, they engaged in gradual exposure in each session by repeatedly discussing the trauma and how each skill can be used to address its effects. Clinicians met with youth for approximately 45 min each session and then met with caregivers for the remaining 45 min and provided training in the same skills. The following four sessions focused on the development of a factual narrative of the youth’s traumatic experience with a particular emphasis on eliciting thoughts, emotions, and physical sensations encountered during and after the event. During the last four sessions, the youth reviewed the trauma narrative with the caregiver in a conjoint session, developed and engaged in an in vivo exposure plan, were taught safety skills, and ways the trauma could influence the youths life were examined. <strong>Intervention Group:</strong> Followed the same TF-CBT structure denoted above. For implementation of the AAT component, they included a canine that was required to be in the room for all sessions where the youth was engaged in a portion of treatment (also including conjoint sessions with the caregiver).</td>
<td>Individual</td>
<td>12 sessions each lasting 90 minutes (unclear if this was 12 consecutive weeks)</td>
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<tr>
<td>No.</td>
<td>1st Author</td>
<td>Intervention Description</td>
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<td>9</td>
<td>Lange, A.M., et al.</td>
<td>The use of canines was applied to an anger management group for adolescents. All participants were engaged in this intervention. The adolescents were introduced to the canine during the first session of the group and were informed prior to the group that the canine would be there. The adolescents were engaged in various activities that required them to work with the canine to address a specific goal (e.g., teaching the canine a trick, learning how to brush him, feeding him treats, and taking him for walks).</td>
<td>Group</td>
<td>12 weeks (the hours per week were not specified)</td>
</tr>
<tr>
<td>10</td>
<td>Lubbe, C., et al.</td>
<td>Individual counseling with a canine in a single case study. Specific goals were delineated but no information pertaining to the sessions was offered.</td>
<td>Individual</td>
<td>Not specified</td>
</tr>
<tr>
<td>11</td>
<td>Guzmán, E., et al.</td>
<td>Children who attended the Day Hospital on Thursdays were included in the intervention. The program included activities that were designed to help achieve therapeutic goals to: create a bond (professionally, patient, and canines) and increase personal development. No specifics regarding the structure of each session were offered. All interventions involving activities with the canines were adapted to the specific needs of each child. Some specifics about the interventions utilized (e.g., petting and brushing the canine, low complexity motor activities, and activities related to taking care of the canine) were noted.</td>
<td>Individual</td>
<td>2 years of treatment (the hours per week and the number of weeks were not specified)</td>
</tr>
</tbody>
</table>

**Underlying Theories.** Of the included studies, nine did not make any reference to a specific underlying theory utilized in either the CAP interventions or control groups (if applicable; \( n = 9, 81.82\% \); see Figure 5). One study, however, offered slight details regarding the underlying theory. This study noted that “the therapist followed a strict research protocol instead of a more versatile agenda,” which included “structured one-to-one activities previously defined to promote prosocial behaviors” (Silva et al., 2011, p. 656). Two of the identified publications identified a theoretical structure, one of which included the Human-Animal Resilience Therapy
(HART) approach which combines solution-focused and canine-assisted therapies (Hartwig, 2017), and another which incorporated CAP with Trauma-Focused Cognitive Behavioral Therapy (TF-CBT) interventions \((n = 2, 18.18\%);\) Allen et al., 2022).

**Figure 5**

*Underlying Theories*

![Graph showing Underlying Theories]

**Canine Characteristics**

**Canine Breed.** With respect to the breed of the canines in the 11 included publications, six studies did not specify the canines’ breed \((n = 6, 54.55\%);\) and five specified breeds \((n = 5, 45.45\%);\) (see Figure 6). Of the five studies that specified the breed of the canines utilized in CAP interventions, a majority identified a Labrador Retriever as either the only canine or one of many canines incorporated into the study \((n = 3, 27.27\%);\) This was followed by Golden Retriever \((n = 2, 18.18\%);\) German Shepherd, Terrier, and Cavalier King Charles Spaniels \((n = 1, 9.09\%);\) which were all also identified as either the only breed or one of a few breeds of canines utilized in CAP interventions.
Canine Age. Even more sparsely specified than the canine breed was the age of canines utilized by the 11 publications identified in this review. A majority of studies failed to note the age of canines \((n = 9, 81.82\%)\). Of the two studies that did report the age of canines utilized in CAP interventions, one reported the canine was 4 years old (Lange et al., 2006/2007) and the other denoted a range of 2 to 5 years old for the five canines they incorporated into their intervention (Guzmán et al., 2022).

Canine Gender. Similar to the age of canines identified in the included publications, the canine gender was also scantily reported. A total of nine studies did not specify whether the canines they used were male or female \((n = 9, 81.82\%)\). Of the two publications that did specify canine gender, one reported using a female canine (Silva et al., 2011) and the other reported using a male canine (Lange et al., 2006/2007).

Canine and Handler Training and Certification. Six of the 11 included publications made no mention of the training or certification of the canines included in the CAP interventions \((n = 6, 54.55\%)\). Hartwig (2017) reported that each of the counselors who worked with canines completed the “Pet Partners Handler Course and attended weekly practice sessions to develop
[Animal Assisted Therapy] skills with their canine partner” (p. 473). The author added that all canines were prescreened by the researcher and assessed throughout the training process for skills and aptitude. Additionally, the author reported that an “independent Pet Partners Evaluator” evaluated the counselor and canine teams through the pet partner’s skill and aptitude tests and approved each team who participated in the study to work in complex environments (p. 473). Silva et al. (2011) reported that all canines were recruited, trained, and certified as therapy canines by “Animas,” a “Portuguese association” and “member of the Assistance Dogs International Inc. (ADI)” (p. 656) which tested the canines for temperament, carefully evaluating their ability to work comfortably and safely within institutionalized settings. Though less specific than the two previously mentioned studies, Allen et al. (2022) reported that their team of trained canines and handlers was from a “local service dog organization” (p. 470) and comprised of canines that were either retired or selected for breeding and no longer actively working in a service capacity. In addition, they reported that their team of canines and handlers regularly visited psychiatric care facilities partnered with the researchers. Lange et al. (2006/2007) reported that the canines utilized in their study were “assessed by two Therapy Dogs International evaluators for both temperament and obedience,” and added that both canines passed the “American Kennel Club’s Canine Good Citizen test” (p. 23). Finally, Guzmán et al. (2022) reported that all canines passed a “K-Partners for CTAC, physical fitness, and therapy dog qualification” (p. 4; see Table 2).

Table 2

Canine and Handler Training and Certification

<table>
<thead>
<tr>
<th>No.</th>
<th>1st Author</th>
<th>Canine Training and Certification</th>
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</thead>
<tbody>
<tr>
<td>3</td>
<td>Hartwig, E.K.</td>
<td>Counselors who worked with the canines completed the Pet Partners Handler</td>
</tr>
<tr>
<td>No.</td>
<td>1st Author</td>
<td>Canine Training and Certification</td>
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<td></td>
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<td>Course and attended weekly practice sessions to develop AAT skills with their canine partner. All canines were prescreened and assessed throughout the training process for skills and aptitude by the researchers. An independent Pet Partners Evaluator evaluated the counselor/canine teams through the pet partners skills test and pet partners aptitude test and then approved each team that participated in the study to work in complex environments.</td>
</tr>
<tr>
<td>4</td>
<td>Silva, K., et al.</td>
<td>Animas, a Portuguese association, and member of Assistance Dogs International Inc. (ADI) recruited, trained, and certified each canine. The canines were tested for temperament, carefully assessing their potential to work safely and comfortably in institutionalized settings.</td>
</tr>
<tr>
<td>8</td>
<td>Allen, B., et al.</td>
<td>The organization had a team of trained canines and their handlers that regularly visit psychiatric care facilities and partnered with the researchers. Each canine was either retired or selected for breeding and no longer actively working in a service capacity.</td>
</tr>
<tr>
<td>9</td>
<td>Lange, A.M., et al.</td>
<td>The canine was assessed by two Therapy Dogs International evaluators for both temperament and obedience. He passed the American Kennel Club’s Canine Good Citizen test.</td>
</tr>
<tr>
<td>11</td>
<td>Guzmán, E., et al.</td>
<td>All canines passed a K-Partners for CTAC, physical fitness, and therapy canine qualification.</td>
</tr>
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</table>

**Study Effectiveness and Outcomes**

**Outcome Measures**

Eight of the 11 studies identified in this review utilized outcome measures to assess the impact of CAP on youth. Measures of mood disorders were the most commonly utilized measures ($n = 5, 45.45\%$). These measures included The Short Center for Epidemiologic Studies Depression Scale (SCESD) ($n = 1, 9.09\%$), Children’s Depression Inventory-Second Edition (CDI-2), Beck Youth Inventories Second Edition (BYI-II) ($n = 1, 9.09\%$), Moods and Feelings Questionnaire (MFQ) ($n = 1, 9.09\%$), and one measure that was adapted from an adult measure to be utilizable with youth, the Basler Befindlichkeits-Skala (BBS) ($n = 1, 9.09\%$). Many studies utilized measures for symptoms of trauma and Post-Traumatic Stress Disorder (PTSD) ($n = 4, 36.36\%$). Of the studies using measures to assess symptoms of PTSD, the majority identified the Trauma Symptom Checklist (TSCC) as their measure of choice ($n = 2, 18.18\%$) followed by the
PTSD Checklist - Civilian Version (PCL-5) \( (n = 1, 9.09\%) \), UCLA PTSD Reaction Index for DSM-5 \( (n = 1, 9.09\%) \), and a general measure of exposure to a traumatic event which included items taken from the DSM-IN criterion for PTSD \( (n = 1, 9.09\%) \). Additional measures utilized by the researchers include the Social Responsiveness Scale - Second Edition (SRS-2) \( (n = 2, 18.18\%) \), demographic questionnaires \( (n = 2, 18.18\%) \), Childhood Autism Rating Scale- Second Edition (CARS-2) \( (n = 1, 9.09\%) \), Reading the Mind in the Eyes Test (RMET) \( (n = 1, 9.09\%) \), Social Language Development Test (SLDT) \( (n = 1, 9.09\%) \), Making Inferences and Supporting Peers Subtests \( (n = 1, 9.09\%) \), Service Satisfaction Scale (SSS) \( (n = 1, 9.09\%) \), Strengths and Difficulties Questionnaire (SDQ) \( (n = 1, 9.09\%) \), Screen for Child Anxiety Related Disorders (SCARED), Self-Control Rating Scale (SCRS) \( (n = 1, 9.09\%) \). Subjective well-being and coping with stressful life events were also investigated (in one study?) using a Likert scale \( (n = 1, 9.09\%) \).

In addition to outcome measures, three studies utilized interviews to gather data \( (n = 3, 27.27\%) \), one directly from the participants, one as an “informal” interview, and the other from the healthcare professionals involved in CAP interventions. In addition to utilizing informal interviews, data from various sources in a therapeutic case file (e.g., letters, drawings, paintings, and photographs) were used by one study \( (n = 1, 9.09\%) \). Finally, one study reported that they had an independent researcher randomly select 5-minute periods of the initial, middle, and last parts of the video recorded CAP sessions, which were then analyzed and coded with the following variables “(1) negative behaviors of the participant, including physical aggressive behavior, verbal aggressive behavior, repetitive smelling, obsessive staring, grabbing behavior, as well as self-absorption; and (2) positive behaviors of the participant, including affectionate behavior, play, visual contact, as well as smiling” (Silva et al., 2011; p. 656; \( n = 1, 9.09\%) \).
Table 3

Outcome Measures

<table>
<thead>
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<th>No.</th>
<th>1st Author</th>
<th>Outcome Measures</th>
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<tbody>
<tr>
<td>1</td>
<td>Hamama, L., et al.</td>
<td>1. Demographic Information&lt;br&gt;2. Exposure to traumatic event items taken from the DSM-IN criterion for PTSD&lt;br&gt;3. Subjective Well-Being was assessed on a four-point Likert scale&lt;br&gt;4. Coping with Stressful Life Events was indicated through the use of a Likert scale.&lt;br&gt;5. PTSD Checklist – Civilian Version (PCL-5)&lt;br&gt;6. The Short Center for Epidemiologic Studies Depression Scale (SCESD)</td>
</tr>
<tr>
<td>4</td>
<td>Silva, K., et al.</td>
<td>1. Observed portions of the video recorded CAP sessions and coded observations into relevant research variables</td>
</tr>
<tr>
<td>5</td>
<td>Prothmann, A., et al.</td>
<td>1. Basler Befindlichkeits-Skala (BBS)</td>
</tr>
<tr>
<td>6</td>
<td>Dietz, T.J., et al.</td>
<td>1. Demographic and abuse-related characteristics&lt;br&gt;2. Trauma Symptom Checklist for Children (TSCC)</td>
</tr>
<tr>
<td>7</td>
<td>Signal, T., et al.</td>
<td>1. Trauma Symptom Checklist for Children (TSCC)</td>
</tr>
<tr>
<td>9</td>
<td>Lange, A.M., et al.</td>
<td>1. Participant Interview</td>
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<tr>
<td>10</td>
<td>Lubbe, C., et al.</td>
<td>2. Books made by the participant which contained letters, paintings, drawings, and photographs.&lt;br&gt;3. Informal interview 1.5 years after the termination of treatment.</td>
</tr>
</tbody>
</table>
**Impact on Mental Health**

Research question two investigated the effect of CAP interventions on youth at risk or with mental health disorders. Of the 11 included studies in this review, the majority of them found at least one significant finding in utilizing CAP interventions ($n = 9, 81.82\%$), and two had no significant findings ($n = 2, 18.18\%$). Of the articles included in this review, most did not clearly report the impact of CAP for participants experiencing different diagnostic and mental health disorders. If the differences based on diagnostic symptoms, developmental symptoms, or disorders was offered, they were reflected into the categories below. The mental health disorders that were identified and explored are categorized below in the following order: Mood Disorders, PTSD, Anger Problems and Disruptive Behavior, Anxiety Disorders, and Other Diagnostic and Mental Health Disorders.

**Mood Disorders.** Of the five publications that investigated the utilization of CAP in treating mood disorder symptoms, most did not have significant findings ($n = 3, 27.27\%$). Hamama et al. (2011) found insignificant differences in scores on The Short Center for Epidemiologic Studies Depression Scale (SCESDS) between the intervention and comparison groups. Similarly, Hartwig (2017) found a significant difference in pretest and posttest means for the depression inventories, and that the HART intervention significantly decreased depression. However, there were no significant differences between the treatment and comparison conditions, with both conditions indicating significant decreases in symptoms of depression. Allen et al. (2022) found that on the MFQ, youth in both groups failed to note changes in depressive symptoms. Conversely, Becker et al. (2017) found that while both groups improved over time, participants in the experimental group showed a significant improvement on scales of Interpersonal Problems and Functional Problems subscales, more so than those in the control
group. Moreover, they found that change over time was significant for the CDI-2 total score and on subscales measuring feelings of self-worth and effectiveness. Additionally, the study by Prothmann et al. (2006) found a significant increase in all scale scores on the BBS after contact with a therapy canine, suggesting that the presence of a canine had a highly significant influence on the patients’ state of mind.

**PTSD.** Of the four studies that explored the utility of CAP in treating PTSD symptoms amongst youth, most had significant findings ($n = 3, 27.27\%$). Hamama et al. (2011) found that the intervention group showed a rapid decline in PTSD symptoms and a significant reduction in the proportion of participants with elevated risk for PTSD. Signal et al. (2016) found that PTSD symptoms were significantly reduced across two measured periods of time. Additionally, they identified significant main effects for Intrusion symptoms, Avoidance Symptoms, and Arousal symptoms between two different measured periods of time. As predicted, Dietz et al. (2012) found that the subscale scores in the Dogs With and Without Stories groups showed a significant reduction from the pretest to the posttest. Moreover, they found that the Dogs With Stories group saw a larger decrease in subscale scores than the Dogs Without Stories group. Dissimilarly to the aforementioned results, Allen et al. (2022) found that the TF-CBT group exhibited a rate of decline of symptoms that exceeded that of the TF-CBT + AAT group. Moreover, their findings indicated that both the intervention and comparison groups experienced significant declines in caregiver-reported internalizing concerns on the SDQ-Emotional Problems subscale, with an insignificant difference between groups.

**Anger Problems and Disruptive Behavior.** Four publications examined the effects of CAP interventions on anger problems and disruptive behaviors. Of the four studies, a majority had statistically significant findings ($n = 3, 27.27\%$). Silva et al. (2011), whose case study was on
a child diagnosed with Autism Spectrum Disorder, found that the frequency and duration of both physically aggressive behavior toward inanimate objects and verbally aggressive behavior toward the therapist were significantly lower in the sessions that included the canine than those that did not. They found that grabbing behaviors were reduced and the frequency and duration of those behaviors were significantly less when the canine was present. Moreover, they identified a significantly higher frequency and duration of visual contact, smiling, and affectionate behavior when a canine was present. Lange et al. (2006/2007) found that the most consistent benefit identified by all group members in an anger management group related to the calming effect that the canine had on them. Finally, Guzmán et al. (2022) found that emotional outbursts during the intervention were significantly less frequent on days when a canine was present than on days when a canine was not. However, unlike the named studies above, Hartwig (2017) found that disruptive behaviors in youth decreased significantly in both the treatment and comparison conditions when looking at pretest and posttest scores and that the incorporation of a canine did not significantly improve disruptive behaviors. Regarding the anger inventory, results did not show a significant change in either the treatment or comparison groups.

**Anxiety Disorders.** The two studies that examined the effects of CAP on anxiety symptoms both yielded insignificant results. While Hartwig (2017) found that there was a significant decrease in anxiety from the pretest to post-test conditions, these results were mirrored in both the treatment and comparison conditions and found that the incorporation of a canine is not significantly more effective in reducing symptoms of anxiety. Similarly, Allen et al. (2022) found that while the youth in the TF-CBT group did report significant improvements for anxiety on the SCARED, the youth in the TF-CBT + AAT group did not report significant improvements for anxiety.
Other Diagnostic and Mental Health Disorders. One other area of interest found across included publications was related to socialization and self-esteem. Lubbe and Scholtz (2013) found that incorporating the canine in treatment increased the participant’s awareness of social skills and, thus, led them to use words to describe their feelings, increased their ability to express feelings and establish social networks in a place of safety. While initially hesitant about interacting or socializing with others, the participant eventually began to greet one of the therapists spontaneously, when previously they had to greet the participant first. Additionally, it was found that the canine may have made the participant feel more positive and accepted which in turn may have raised their self-esteem in that someone wanted to be with them. While these studies suggested the benefits of CAP in these areas, the study by Hartwig (2017) found no significant change in self-concept between the pretest and posttest administrations in either the treatment or comparison group. The study by Becker et al. (2017) found no significant differences in the performance on the SLDT. Similarly, they did not find group differences on the Reading the Mind in the Eyes Task, or the Supporting Peers Subtests, suggesting that the incorporation of canines may not show an increase in prosocial behaviors among Autistic youth who are engaging in social skills training groups.

Impact on Therapeutic Factors

Research question three investigated the impact of CAP interventions on the well-being of therapeutic factors involved in treatment. Of the 11 studies included in this review, a majority did not investigate the effects of CAP interventions on factors of benefit to the therapeutic process or participant welfare (i.e., therapeutic factors) \((n = 8, 72.72\%)\). Though it did not investigate the efficacy of CAP interventions on the well-being of therapeutic factors, one of the eight published studies by Lange et al. (2006/2007) did have key findings from qualitative data
that were relevant to this research question. Specifically, this study found that participants reported the canine provided humor relief in sessions, helped the participants feel safer in revealing more of themselves to the group, helped group members be more accepting of being in counseling by being less reluctant to attend sessions and help the adolescents “buy into” therapy.

The following outcomes were identified in the three studies with research questions related to therapeutic factors. The outcomes included: caregiver satisfaction, youth satisfaction, facilitating relationship building, communication between the participant and therapist, and attendance. Allen et al. (2022) investigated the effectiveness of CAP on the caregiver and youth satisfaction with treatment \( (n = 1, 9.09\%) \). This study found that both caregiver and youth satisfaction with treatment was high among the intervention and control groups, and the difference between them was not significant. Lubbe and Scholtz (2013) investigated the efficacy of CAP interventions in facilitating relationship-building between the participant and therapist through qualitative analyses \( (n = 1, 9.09\%) \). This study found that the presence of a canine may be useful, especially when a child does not feel safe or mistrusts the therapist, as the animal may form a relationship with the child and facilitate rapport between the therapist and the child. The authors also explored the effectiveness of CAP on building communication between the participant and the therapist \( (n = 1, 9.09\%) \), and found that the participant began using the canine as a medium to communicate with the therapist, thus, making them not feel threatened or exposed. As a result, the participant began interacting with the therapist “more and more” and began “making eye contact, smiling at the therapist, and speaking to them.” Eventually, this participant began to answer the therapist’s questions “without hesitation.” Finally, Guzmán et al. (2022) explored the relationship between CAP interventions and attendance rates among youth \( (n = 1, 9.09\%) \). Specifically, this study showed statistically significant differences in attendance.
rates between the days on which CAP was carried out vs. those not, with attendance rates being higher on CAP days. Thus, these findings suggest that CAP interventions positively impact factors of benefit to the therapeutic process by helping group members be more accepting of being in counseling, helping treatment buy-in, facilitating relationship building, increasing communication between the participant and therapist, and improving attendance rates.

**Quality Appraisal**

Of the 11 articles identified for inclusion in this review, over half were identified as “strong” during the quality appraisal phase. As displayed on Table 4, the results of the quality appraisal indicated that most studies were scored as “strong” \((n = 7, 63.64\%)\) followed by “adequate” \((n = 4, 36.36\%)\). Studies that were scored as strong typically had one or a combination of the following: strong literature foundations and rationales for the study, strong clarity and specificity of the research aims, strong quality of research design, strong sample selection and characteristics, and strong analysis of data. Adequate studies had one or a combination of the following characteristics: weak sample size and a sample that was not representative of the population of interest, weak or missing discussion of study limitations, weak quality of data collection tools, and weak or missing consideration of culture and diversity. Of these four studies, each had a score of “adequate,” “weak,” or “missing” on at least half of the measured characteristics, with three of the four articles scoring in those areas due to their lack of consideration of culture and diversity.

**Table 4**

*Quality Appraisal Breakdown*

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Chapter IV: Discussion

The primary objective of this systematic review on Canine Assisted Psychotherapy (CAP) was to synthesize and evaluate the current CAP literature and to develop an updated understanding of the impact of CAP interventions on youth at risk or with mental health disorders. Though similar reviews were previously conducted, this review was the first to identify and examine the role of canines in psychotherapy. Within this review, the characteristics of CAP interventions were identified and explored, including theoretical orientations, the nature of the interventions, the interactions between the participants, canines, and identified clinicians, the specific incorporation of canines, and the duration of treatment. Moreover, the impact of CAP interventions both on mental health diagnoses and symptoms and factors of well-being to the therapeutic relationship were identified and explored.

Intervention Characteristics

While most studies of CAP fail to identify specific intervention characteristics, this review aimed to close the gap in the literature and identify these characteristics in order to support future replicability. A variety of intervention types were utilized in the identified publications including individual and group counseling. Not all studies clarified the duration of treatment, however, those that did identified dosages spanning between 2.5 to 36 hours of total treatment. Setting locations also varied, with some studies identifying schools, community counseling centers, mental health treatment centers, and hospital settings as their treatment locations. While a few studies offered insight into the structured and unstructured interactions between the youth and canines, very few studies offered detailed descriptions of these interactions, making it difficult to decipher whether structured or unstructured interventions were better at facilitating benefit to the youth.
Six of the included studies noted that the participant-canine interactions were a core component of the CAP intervention and that the therapy interventions were centered around these interactions (Allen et al., 2022; Becker et al., 2017; Hamama et al., 2011; Hartwig, 2017; Lange et al., 2006/2007; Silva et al., 2011). Conversely, two studies did not indicate a similar structure, noting that canines were only included in a portion of the treatment (Dietz et al., 2012; Signal et al., 2016). Three studies failed to offer clarity on how the canines were incorporated, making it difficult to draw definitive conclusions (Guzmán et al., 2022; Lubbe et al., 2013; Prothmann et al., 2006). While this review found that overall, across most studies CAP was efficacious in reducing symptoms of mental health disorders and increasing therapeutic factors, it is unclear which interactions between the canines and participants (e.g., consistent, or sporadic) were more effective in symptom reduction. Thus, this is a valuable area of continued research.

Regarding the underlying theories utilized in the CAP interventions described in the 11 publications included in this review, only two studies were noted using structured interventions from a specific theory (Allen et al., 2022; Hartwig, 2017). The remaining interventions did not identify a specific theoretical underpinning. They were instead rooted in the theory that the presence of a canine has been found to have positive effects on mental health disorders and the therapeutic relationship between individuals and clinicians.

While most of the publications included in this review offered information regarding the characteristics of the interventions utilized, these broad and often general descriptions make it impossible for future researchers to replicate the studies. Some of the studies offered brief descriptions or program outlines of the interventions utilized, but none offered a thorough description of said interventions. As it was noted above, CAP interventions can vary significantly in time, structure, frequency, and setting. Therefore, future researchers can put
particular emphasis on the specificity of these characteristics in order to learn the impact of differing CAP interventions on youth and inform future treatment. Without this distinction, it is difficult to draw definitive conclusions about CAP treatment and replicate findings as the varying factors can potentially impact the efficacy.

**Canine Characteristics**

Similar to intervention characteristics, canine characteristics are also incredibly important and can impact treatment due to the integral role that canines play in CAP. While no previous review of CAP aimed to identify canine characteristics (e.g., breed, age, gender, and certification/training), this review aimed to identify these characteristics to then determine whether there were differences between CAP treatments due to these characteristics. Very little information regarding canine characteristics was offered in the identified publications in this review, making replicability difficult and affecting the ability to draw conclusions about the impact of different canines on treatment. Of the articles that identified the breed of the canines utilized in their CAP interventions (Allen et al., 2022; Guzmán et al., 2022; Lange et al., 2006/2007; Prothmann et al., 2006; Silva et al., 2011), none offered any specifics about where the canines were from or why those breeds were chosen. Moreover, those who utilized multiple breeds within their studies failed to specify which canines were working with which participants or groups, again weakening future replicability due to lacking specificity. As identified in the results, the age and gender of the canines were even more sparsely noted by the available studies. While two studies did note the age of the canines utilized in their CAP interventions, one of the two failed to specify the exact age of each canine.

Canine characteristics and their training and certification are important aspects of CAP due to the role that canines play in these treatments and the potential variation of findings that
might relate back to the canines. However, this information was minimally addressed in the included studies. Of those articles that did note how the canines in their studies were trained or certified, none offered specific information about the duration of the training, the structure of training, or training goals. A few of the publications did offer information about what testing the canines completed, but none offered enough information for future researchers to replicate the study design using canines trained the same way. Additionally, none of the studies identified in this review investigated the potential moderating role that canines play in the efficacy of CAP interventions in addressing mental health disorders among youth. This review aimed to explore variations in canine characteristics, specifically, training and certification, in order to identify the differences between the efficacy of these interventions due to these characteristics. While the literature identifying these characteristics is currently sparse, this offers another area for future researchers to explore, particularly due to the significant role that canines play in this work.

The information regarding canine characteristics proved to be dim and minimal in part by the researchers of the identified publications. Future research should include thorough specifics of how the canines incorporated in CAP interventions are trained and certified in service of enhancing future replicability. Canines are an integral component of CAP interventions yet are often looked over and neglected within the literature and the present study highlighted this notion.

Impact of CAP on Mental Health Disorders/Symptoms

CAP interventions may be useful in addressing symptoms of mental health disorders among youth, and the results of this review support this finding. Interestingly, however, the findings were not universal. Mixed results were found regarding mood disorders, PTSD, anger problems, and disruptive behaviors (e.g., Dietz et al., 2012; Hamama et al., 2011; Hartwig, 2017;
Silva et al., 2011). Additionally, of the two studies that investigated the utility of CAP interventions for anxiety (Allen et al., 2022; Hartwig, 2017), both studies yielded insignificant results, suggesting that CAP interventions are not useful in reducing anxiety disorders or symptoms among youth. While these results suggest that CAP interventions do not reduce symptoms of anxiety among youth, it is important to note that factors related to the quality of the studies (e.g., sample size) may have impacted the strength of statistical analyses and subsequent findings. Moreover, factors such as the participant's diagnostic and mental health disorder, intervention characteristics, and canine characteristics, may have each impacted the findings. While these studies do not particularly support the incorporation of canines into the treatment of youth with anxiety disorders, neither of them notes that including a canine in treatment will negatively impact youth or increase symptomology.

Due to the limited research on CAP interventions and the novelty of this topic, few previous publications have investigated the utility of CAP in addressing mood disorders (e.g., Jones et al., 2019). Of those that have explored these diagnoses, the findings in this review are consistent with the literature, namely that CAP interventions are not more helpful than treatment as usual (i.e., without a canine) in reducing some symptoms of mood disorders (Jones et al., 2019). However, these findings were not universal amongst the five publications that addressed symptoms of mood disorders among youth. The differences in these findings can be due to a variety of factors (particularly intervention and canine characteristics) as well as methodological factors (e.g., sample size). Additionally, they may be due to the diagnoses that the different study populations were diagnosed with. While most studies denoted in this review did not find CAP to significantly impact mood disorders, Becker et al. (2017) did find that amongst Autistic youth, symptoms of mood disorders were lowered significantly more than those in the control group.
Moreover, though the research suggests that CAP interventions may not be more effective than standard treatment without the inclusion of canines, it is important to note that these findings do not suggest that incorporating canines will increase symptoms of mental health disorders. Neither this review nor those previously conducted suggest that CAP interventions increase the impact of clinical symptoms experienced by youth. Therefore, these results highlight an area of future research wherein the specifics of CAP interventions and canine characteristics are identified, and the impact of these specifics is explored. Overall, these findings suggest that incorporating a canine in treatment will not necessarily lead to symptom reduction, however, they will also not negatively impact treatment.

Though the findings between the publications identified in this review were not universal, literature on PTSD found that CAP interventions were successful in alleviating symptomology among youth (Dietz et al., 2012; Hamama et al., 2011; Signal et al., 2016). This finding is consistent with previous research that has found that CAP interventions have positive effects on childhood trauma (e.g., Hoagwood et al., 2017) and symptoms of PTSD (e.g., Altschuler, 2018). However, one important dissimilar finding pertains to the incorporation of canine interventions with TF-CBT. Previous studies found CAP interventions to be helpful when incorporated with trauma-focused therapy (e.g., Dravsnik et al., 2018), and the present study identified a review wherein opposing results were found. Specifically, the incorporation of canines in TF-CBT was found to yield less significant results than the classic TF-CBT group, suggesting that the addition of a canine may have had a suppressing effect on the gains made by the participants (Allen et al., 2022). While these results differed from previous literature, a variety of factors may have impacted the findings. Previous literature on utilizing CAP with abused and traumatized youth has been critiqued on methodological grounds due to poor metrics, small sample size, lack of
randomization, and absent or confounding control groups (Allen et al., 2022). Allen et al. (2022) aimed to highlight these discrepancies and offered the first known study of a randomized controlled trial of animal assisted therapy treatment of abused youth. However, they also had a small sample size ($n = 33$) which decreased statistical power, and this may have impacted the detection of differences between groups. Thus, this particular finding offers an area for further research, as these results were inconclusive. Overall, the findings of most articles in this review that explored the impact of CAP on PTSD symptoms suggest that it is an effective treatment in reducing symptoms of trauma among youth.

Symptoms of anger and disruptive behaviors, anxiety, and other mental health disorders are sparsely identified in previous literature regarding CAP. A consensus regarding the impact of CAP on these diagnoses cannot currently be determined due to the inconsistent findings within this review, highlighting the importance of continued research on this topic. Moreover, additional research on those diagnoses previously explored in the literature (e.g., mood disorders and PTSD) would also be beneficial, as these findings were also inconsistent within this review. Therefore, while definitive conclusions cannot be drawn at this time, there is evidence to suggest that CAP interventions work as well as (or better than) treatment as usual (i.e., without a canine) in addressing symptoms of mental health disorders amongst youth.

**Impact of CAP on Therapeutic Factors**

Psychologists and other mental health professionals using CAP are attentive to the impact of CAP on therapeutic factors, particularly on engagement and retention (Jones et al., 2019). Of the limited research investigating the utility of CAP in facilitating benefits to the well-being of the therapeutic process, the findings within this review were consistent with previous literature. Similar to previous studies that found CAP interventions to be effective in increasing attendance
and retention rates (e.g., Stefanini et al., 2015; 2016), this review found that CAP interventions increased attendance amongst youth. Moreover, previous studies found that CAP made treatment more engaging for youth and increased rapport between youth and clinicians (e.g., Van Fleet & Faa-Thompson, 2010) which was consistent with findings in this review wherein CAP interventions were found to help participants remain more accepting of being in counseling and helped increase “buy-in.” The findings in this review also indicate that CAP facilitates positive relationship building between the therapist and participant, increases communication between the therapist and participant, and receives high remarks in both caregiver and youth satisfaction surveys (Allen et al., 2022; Lubbe et al., 2013). This preliminary evidence suggests that, overall, CAP interventions impact the well-being of therapeutic factors involved in treatment by facilitating increased well-being. Continued research in this area may be useful in further bolstering these claims as this is still a new and emerging field with limited, yet promising, findings.

**Strengths and Limitations**

The following section will highlight the notable strengths and limitations of this review. This review was the first of its kind to explore the impact of CAP on a broad range of youth spanning between the ages of 0 – 20 and having clinical implications for a variety of populations. It also included notable methodological strengths including the study design, data collection and extraction processes, and data analysis. The inclusion of multiple research assistants, numerous audits to the data collection and extraction, and need for consensus between the stages of the review are all strengths as they prevent potential bias. Additionally, the clearly defined search terms and search plan make replicability of this review feasible for future researchers. While the results of this review did not answer all research questions, there were still important findings
regarding the impact of CAP on both diagnostic symptoms and therapeutic factors, overall suggesting that CAP is an efficacious treatment when working with this population. Moreover, this review highlighted a need for continued research, primarily investigating the characteristics of canines (e.g., breed, age, gender, training, and certification) and CAP interventions. Therefore, the noteworthy findings of this review add to the growing literature on this topic and enhance what is already known about utilizing CAP interventions with youth.

This systematic review provided insight into the application of CAP, however, there were some limitations. The review was limited by the small number of studies included and examined (11 total), of which, some conclusions could be drawn. This may be due to the novelty of this topic area and limited research on CAP interventions, specifically for use with youth. Moreover, due to the newness of this topic area, there was limited literature and research available to thoroughly respond to each of the research questions delineated in this review, serving as another limitation. In addition, of the articles identified in this review, four received an adequate score on their quality appraisals, due to having a score of “adequate,” “weak,” or “missing” on at least half of the measured characteristics, such as: Strength of Literature Foundation and Rationale for Study \((n = 2)\), Clarity and Specificity of Research Aims/Objectives/Questions \((n = 4)\), Quality of Research Design or Methodological Approach \((n = 2)\), Sample Selection and Characteristics \((n = 2)\), Measures / Data Collection Tools \((n = 4)\), Data Collection Procedures \((n = 2)\), Analysis of Data \((n = 2)\), Discussion of Study Limitations \((n = 4)\), and Consideration of Culture and Diversity \((n = 3)\). This measured lack of quality was another limitation.

The missing variables described above also speak to the limitations of this review, particularly those that pertain to culture and diversity as that limits the generalizability of these findings. Many of the studies lacked or did not attend to issues of culture and diversity.
Moreover, another challenge to the generalizability of these findings was the small sample sizes, some of which were as small as one participant.

Additional limitations include the variance in the nature of the CAP interventions described, as a clear consensus cannot currently be drawn from these results. The inability to opt for randomization amongst many of the studies served as another limitation, as the youth often chose to be part of intervention groups or were aware of the potential presence of a canine, suggesting that bias may have impacted which youth ended up in which groups. The lacking and often missing information regarding the interventions, inclusions of the canines, and canine characteristics all serve as limitations. Finally, additional limitations included the lack of specification by the studies regarding the impact of CAP between participants (e.g., of different ages or with different diagnoses).

**Recommendations and Future Research**

Though this review offered some clarity regarding the impact of CAP on youth with mental health disorders, several questions still remain regarding the specifics of these interactions. As noted, clarity regarding the intervention characteristics and canine characteristics is of great importance and is an area of future exploration.

**Intervention Characteristics**

Information on the impact of the intervention duration, intervention setting, and overall protocol would be highly helpful in clarifying what is meant when “CAP” is used to describe a treatment modality. Of particular interest is the impact of group versus individual settings on the overall effectiveness of these interventions. Moreover, an investigation on whether structured or unstructured interactions with canines are better received and effective would help determine what forms of CAP interventions are most effective in addressing mental health disorders among
youth. Areas of further exploration also include whether CAP interventions are more effective when the canine is a central component of the intervention or is present but not actively incorporated into the treatment protocol. Finally, continued exploration regarding the utility of CAP in conjunction with a standardized and evidence-based practice (e.g., CBT) would be a promising area for future exploration.

**Canine Characteristics**

Although this review aimed to answer questions about specific canine characteristics, many questions still remain unanswered. Questions regarding the impact of the differences in canine breed, age, gender, training, and certification are all of extreme importance given the significant role canines serve in these interventions. Thus, future research should aim to offer clarity regarding these details and the impact that the differences between these areas have on the overall efficacy of CAP interventions. More information regarding canine temperament and the impact of the difference in temperament on outcomes should be investigated.

**Conclusions**

The findings in this review suggest that CAP may be effective in improving symptomatology among at-risk youth or youth with mental health disorders, particularly youth who experience symptoms related to exposure to trauma. CAP may also increase factors of benefit to the therapeutic process and participant welfare, such as attendance, acceptability of treatment, buy-in, communication, and relationship building between clinicians and their clients.

Many questions remain unanswered regarding the characteristics and utility of CAP interventions. The author of this review has presented many of the areas of further exploration for future researchers as a way to fill in the gaps regarding these interventions. Information about
the characteristics of the interventions, the characteristics of the canines, and the overall impact of these interventions on mental health disorders among youth remain unanswered.
REFERENCES


treatment in a children’s Mental Health Day Hospital. *Animals, 12*(20), 2841. https://doi.org/10.3390/ani12202841


APPENDIX A

List of Search Terms
# APPENDIX A

## List of Search Terms

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APPENDIX B

Search Plan
## APPENDIX B

### Search Plan

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APPENDIX C

Search Documentation
### APPENDIX C

#### Search Documentation

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APPENDIX D

Screening and Selection Record
APPENDIX D

Screening and Selection Record

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Inclusion/Exclusion Criteria:
- **INCLU**: Yes/No
- **EXCLU**: Yes/No

Factors:
- Therapeutic Non-Psychotropics
- Psychotherapy Format
- Reviewer Decision/Date
- Country Study Conducted
- Secondary/Confirmatory Decision
- Final Consensus (If Needed)
- Final Decision Date
- Decision Notes
APPENDIX E

PRISMA Flow Diagram
APPENDIX E

PRISMA Flow Diagram

Identification

Identification of studies via databases
Records identified from Databases
(n = 2701)

Records after duplicates removed
(n = 1839)

Records excluded based on Title,
Keywords, and Abstract
(n = 1704)

Records removed before screening:
Duplicate records removed
(n = 862)

Screening

Records screened by Title,
Keywords, and Abstract
(n = 1839)

Reports not retrieved
(n = 0)

Included

Reports sought for retrieval
(n = 135)

Full-text Reports excluded
(n = 124)

Reports assessed for eligibility
(Full text)
(n = 135)

Studies included in this review
(n = 11)
APPENDIX F

Data Extraction Form
# APPENDIX F

Data Extraction Form

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APPENDIX G

Quality Appraisal Form
# APPENDIX G

Quality Appraisal Form

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**Publication Author(s):**

## PART I

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<td>Do the collected data address the research questions?</td>
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<td>1.2</td>
<td>Are the qualitative data collection methods adequate to address the research question?</td>
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<td>Are the findings adequately derived from the data?</td>
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<td>Is the interpretation of results sufficiently substantiated by data?</td>
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<td>Is there coherence between qualitative data sources, collection, analysis, and interpretation?</td>
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<td><strong>2 Quantitative Randomized Controlled Studies</strong></td>
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5.3 Are the outputs of the integration of qualitative and quantitative components adequately interpreted?

5.4 Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?

5.5 Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?

PART II

1. Specific Design/Inquiry Approach:

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2. Strength of Literature Foundation and Rationale for Study:

(POSSIBLE CONSIDERATIONS: current and relevant references, background literature sufficiently comprehensive, Need/Rationale for study clearly stated, etc.)

3. Clarity and Specificity of Research Aims/Objectives/Questions:

4. Quality of Research Design or Methodological Approach:

(POSSIBLE CONSIDERATIONS: provides rationale for design chosen, appropriateness for research questions, clear description of design and methodological approach, strength of design characteristics utilized (e.g., randomization, blinding, triangulation, etc.), potential confounds identified and addressed in some way, consideration of internal and external validity in design, specific design-based “risk of bias” criteria)

5. Sample Selection and Characteristics:

(POSSIBLE CONSIDERATIONS: adequacy of sample size in context of design, detailed description of sample characteristics, representativeness of sample, adequacy of sample characteristics in the context of research aims, detailed description of recruitment and selection of participants, the extent of selection or sample bias,)

6. Measures / Data Collection Tools:

(POSSIBLE CONSIDERATIONS: rationale for selection, appropriateness for assessing variables, development of new tool clearly described, psychometric properties (reliability, validity, utility) described, adequacy of psychometric properties, sufficiently comprehensive, etc.)
7. Data Collection Procedures:
   (POSSIBLE CONSIDERATIONS: data collection procedures clearly described,
   intervention strategies and implementation described in detail, quality of data collected,
   attrition, etc.)

8. Analysis of Data:
   (POSSIBLE CONSIDERATIONS: appropriateness of analysis for research questions and
   type of data, power and effect size presented, results presented clearly and
   comprehensively, etc.)

9. Discussion of Study Limitations:
   (POSSIBLE CONSIDERATIONS: identifies and discusses limitations in the context of
   design/strategy utilized (e.g., various forms of bias, internal validity, external validity
   (generalizability), ecological validity, transferability, credibility, transparency, etc.),
   comprehensiveness of limitations identified)

10. Consideration of culture and diversity:
    (POSSIBLE CONSIDERATIONS: attention to diversity within the sample,
    includes culturally appropriate methods and tools, avoids biased language, uses
    appropriate terminology, etc.)

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11. Overall Rating
   Exemplary (27)
   Strong (22-26)
   Adequate (16-21)
   Weak (0-15)
APPENDIX H

Extended Review of the Literature
## APPENDIX H

Extended Review of the Literature

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<td>1</td>
<td>Hamama, L., et al.</td>
<td>2011</td>
<td>A preliminary study of group intervention along with basic canine training among traumatized teenagers: A 3-month longitudinal study</td>
<td>Children and Youth Services Review</td>
<td>Israel</td>
<td>Quantitative</td>
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<td>5</td>
<td>Prothmann, A., et al.</td>
<td>2006</td>
<td>Dogs in child psychotherapy: Effects on state of mind</td>
<td>Anthrozoös: A multidisciplinary journal of the interactions of people and animals</td>
<td>Germany</td>
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<td>10</td>
<td>Lubbe, C., et al.</td>
<td>2013</td>
<td>The application of animal-assisted therapy in the South African context: A case study</td>
<td>South African Journal of Psychology</td>
<td>South Africa</td>
<td>Qualitative</td>
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<td>11</td>
<td>Guzmán, E., et al.</td>
<td>2022</td>
<td>The Benefits of dog-assisted therapy as complementary treatment in a children’s mental health day hospital</td>
<td>Animals</td>
<td>Spain</td>
<td>Mixed – Methods</td>
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REFERENCES


APPENDIX I

IRB Exemption Notice
APPENDIX I

IRB Exemption Notice

PEPPERDINE UNIVERSITY
Graduate & Professional Schools Institutional Review Board

April 7, 2023

Protocol #: 40723

Project Title: A Review of Canine Assisted Psychotherapy for Youth At Risk or With Mental Health Disorders

Dear Hedieh:

Thank you for submitting a “GPS IRB Non-Human Subjects Notification Form” for A Review of Canine Assisted Psychotherapy for Youth At Risk or With Mental Health Disorders project to Pepperdine University’s Institutional Review Board (IRB) for review. The IRB has reviewed your submitted form and all ancillary materials. Upon review, the IRB has determined that the above-titled project meets the requirements for non-human subject research under the federal regulations 45 CFR 46.101 that govern the protection of human subjects.

Your research must be conducted according to the form submitted to the IRB. If changes to the approved project occur, you will be required to submit either a new “GPS IRB Non-Human Subjects Notification Form” or an IRB application via the eProtocol system (http://irb.pepperdine.edu) to the Institutional Review Board.

A goal of the IRB is to prevent negative occurrences during any research study. However, despite our best intentions, unforeseen circumstances or events may arise during the research. If an unexpected situation or adverse event happens during your investigation, please notify the IRB as soon as possible. We will ask for a complete explanation of the event and your response. Other actions also may be required depending on the nature of the event. Details regarding the timeframe in which adverse events must be reported to the IRB and documenting the adverse event can be found in the Pepperdine University Protection of Human Participants in Research: Policies and Procedures Manual at https://community.pepperdine.edu/irb/policies/.

Please refer to the protocol number denoted above in all further communication or correspondence related to this approval.

On behalf of the IRB, we wish you success in this scholarly pursuit.

Sincerely,

Institutional Review Board (IRB)
Pepperdine University

cc: Mrs. Katy Carr, Assistant Provost for Research
    Dr. Judy Ho, Graduate School of Education and Psychology IRB Chair