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Canine-assisted occupational therapy interventions

- A scoping study

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Canine-assisted interventions in occupational therapy – a scoping review

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Abstract

Background: Animal Assisted Therapy has increased within occupational therapy. Occupational therapists may use animals within the profession, but the description of how these occupational therapy interventions are conducted is missing.

Aim: This study explored how canine assisted occupational therapy is described and conducted.

Material and methods: A scoping review method was applied to explore, summarize, and describe canine-assisted occupational therapy practice. Six databases and manual search of identified literature utilized search terms focusing on Animal Assisted Therapy and Occupational Therapy. Qualitative content analysis was used to identify emergent themes.

Results: From 148 papers, after duplicates removed, only four papers, representing two studies, met full inclusion/exclusion criterion, which focused solely on autistic children. Two themes emerged: social interaction with a therapy dog, and description of activities and skills the goals in canine-assisted interventions. The second theme consisted of subthemes: social interaction and motor skills practice and practicing activities of daily living with a therapy dog.

Conclusions: Therapy dogs were described as acting as agents to facilitate participant engagement and participating as a third member in the therapeutic process. Further research is needed to consider the extent to which CA-OT contributes to clients achieving their therapeutic goals.

Significance: This study highlights how canine-assisted therapy is described and used in occupational therapy.

Keywords:

Animal-assisted, dog-assisted, dog therapy, therapy, Occupational science

List of abbreviations

| | |
|--------|--|
| AAI | Animal assisted intervention |
| AAT | Animal assisted therapy |
| AAT-OT | Animal assisted Occupational therapy |
| ADHD | Attention-deficit/hyperactivity disorder |
| ADL | Activity of daily living skills |
| AOTA | American Occupational Therapy Association |
| ASD | Autism Spectrum Disorder |
| CA-OT | Canine-assisted Occupational Therapy |
| CP | Cerebral Palsy |
| HAI | human animal interaction |
| IADL | Instrumental activities of daily living |
| OT | Occupational Therapy, occupational therapist |
| TD | Therapy dog |
| QSA | Qualitative content analysis |

Canine-assisted occupational therapy interventions – a scoping review

Introduction

Theoretical background

Animal-Assisted Therapy (AAT) is used as an umbrella term for diverse therapeutic animal assisted interventions (AAI) [1,2] aiming to promote goal-directed functioning or welfare of the client [1,3] with individualized set, assessed and followed goals [4]. The use of AAT is not determined to be used within a limited profession or client group [5] and is proposed to be suitable for clients of all ages [2] and with varying functional abilities [6].

Occupational therapists (OT) may incorporate AAT and use of animals in their clinical practice with specialization in using AAT in therapeutic settings [6] within the scope of OT [4,7]. AAT-OT (Animal-assisted occupational therapy) is a process where the therapy session is facilitating the client's skill development by bringing and using an animal in the session (for example a dog) [7]. Canine, in other words dog, is an animal that is a predominant domesticated species that is considered to be practical to use and train in different settings [3]. Therapy dogs (TD) are trained to assist within the scope of therapeutic treatment [3,8] and to meet the specific therapeutic criteria of the process [1,6].

OT is a process where clients' involvement and participation in the occupations aims to support their abilities, routines, and self-esteem in daily life [6]. Occupations are often shared and done with others and participation occurs individually or with others [9]. Goal-directed use of AAT-OT requires formal OT training and understanding in OT rehabilitation, understanding of therapeutic environments, specific rehabilitation with different client groups, understanding of therapeutic intervention planning [5]. In Occupational therapy (OT) a positive therapeutic relationship with a client is essential

[6]. More recently, that lack of awareness of AAT standards of practice may impact on use of AAT by pediatric OTs; highlighting the need for OTs to have a greater understanding of the role of all team members, including the animal trainers and careers of therapeutic dog teams as well as how animals are used therapeutically [5].

Therapy animals are selected beforehand, and they should remain calm, unstressed and display behaviors that indicate that they are comfortable in their surroundings in the work with clients [3]. The client interacts with an animal in AAT interventions [2] that are utilized and built on human-animal bonds [6]. Interactions between the therapist, the client, and the animal [4, 9] are human-animal interactions (HAI) [3,10,11] that are referred to be a mutual, and which formulate a dynamic relationship between people and animals that have effects on the person's health and well-being [3]. OT and animals should be familiar with each other so that the OT can read the situation and is alert to react and respond in emerging situations in work with clients [12]. Active engagement in occupations has been reported to support and maintain health and participation [7]. Interactions which support attachment behavior during interventions [12], such as inclusion of dogs within therapeutic sessions may enhance engagement, in view of their sensitivity to human cues [3]. Client formulates a relationship with the dog, since the human-animal relationship is not inhibited by negative previous experiences with humans and the dog's unconditional acceptance and authentic behavior promotes quick trusting relationship [13].

OT Interventions are frequently pre-planned, and the therapy outcomes are assessed and evaluated [8]. The therapy dog (DG) is supposed to act as a modality to intervention by facilitating the development and skills needed by the client [7]. Interventions may facilitate sensory and cognitive stimulation, psycho-motor activities, social skills [4] as well as observable goal-directed skills such as motor, process, and social interaction skills that person uses while performing [14]. TD seems to act as the facilitator, a motivator or support mechanism by assisting in the achievement of the goals in AAT interventions [4,13].

State of art

The use of AAT has increased over the past decades, but the field is developing and the body of the empirical research concerning its effectiveness seems to be limited [15]. OTs are expected to use their professional knowledge (evidence) to guide and justify what they do in their clinical practice [16] and they should therefore be able to explain to their clients and professional connections what they do and why [17]. Evidence (knowledge) that supports their practice may support and demonstrate that the chosen OT interventions are clinically and economically effective and relevant for each client [18]. According to Sue, Winkle and Mulcahey [5] knowledge of therapy environments, or populations specific to rehabilitation, or an understanding therapeutic intervention are important elements for effective AAT-OT skills.

Velde et al [15] states that there is a lack of literature investigating the AAT from the OT perspective. Turner et al [19] mentioned that the ethnological analysis of the human/pet relationships scratch only the surface and that studies of the human/pet relationship interactions and observations are needed to understand the underlying mechanisms of the CA-OT, as well as to find a suitable animal and client, in order to gain evidence on how animals work as (co)therapeutic agents. Andreasen et al. [20] review highlighted the potential benefits of AAT with different client groups (ADHD, ASD, CP) albeit there were few empirical studies. Andreasen et al. [20] also suggests potential to improve in AAT-OT clients` motor skills, social skills, ADL and IADL, as well as social and emotional well-being. However, their study had methodological problems which affected the quality of findings. Therefore, AAT may have beneficial intervention within OT, however core ingredients and methods for delivery for beneficial outcomes are less clear [20]. Law and Baum [21] state that the unique contribution of the OT is that the OT practitioners create opportunities to practice and gain the skills and the confidence needed to accomplish meaningful and productive activities. It is important therefore to understand the mechanism of the therapy dogs' impact, descriptions of the interventions used, activities, and dog`s performance are needed.

As presented above, OTs may incorporate AAT and use of animals in their clinical practice with specialization in using AAT in therapeutic settings [6] within the scope of OT [4,7]. Hence further research is needed to illustrate how OTs use CA-OT, how interactions are described between the TD, client and OT in practice, but also to demonstrate how interventions are conducted and facilitated to increase the client's skills development and what are these skills.

Aim

This scoping study explored how canine assisted occupational therapy (CA-OT) interventions with therapy dogs were described, conducted, and outlined within occupational therapy intervention.

Materials and methods

Scoping review

The scoping study method was chosen as it locates and summarizes potential research findings [22, 23], identifies research gaps [23, 24] and presents findings in narrative form [25]. This scoping study review followed Arksey and O'Malley's [23] framework for conducting the scoping study and the study process and was documented in the following steps: 1) research question identification 2) identifying relevant literature 3) study selection 4) charting the data and 5) collating, summarizing, and reporting the results. The framework's sixth optional consultation stage was not used in this study process.

Ethical considerations

This study was the thesis of the Master of science in major occupational therapy studies in Jönköping University, Sweden and did not have funding. A scoping study is a systematic method of reviewing literature by conducting electronic searches in databases. Scoping review method does not collect

deeply personal, sensitive, or confidential information from its participants [26]. This study did not involve any participants and ethical approval was not required [27]. The researcher has almost twenty years' clinical experience in working as an OT and twelve years' experience in developing and conducting CA-OT with her dogs in her clinical practice. The research about how these interventions are conducted in practice has been missing. Hence the researcher had a personal and professional interest in the study subject. Researcher attempted to reflect throughout the study process her positioning in this study, especially how to locate herself about the subjectivity to the subject as an outsider role, and how to stay in the researcher role recognizing in-depth thoughts, clinical experience and knowledge influencing positionality [28]. These aspects described above may have influenced the research process [29]. During data collection the effect of the researcher's personal connection to the subject and potential outcomes were consciously aimed to minimize so that this personal bias would not have an impact on the results [30].

Stage 1: Identifying the research questions

Research question identification was targeted to OT [31, 32] and to CA-OT descriptions. Research question for this scoping study was:

1. How are CA-OT interventions conducted and described in occupational therapy?

Followed sub-questions guided to stay in essence in this study [23]: How do OTs use CA-OT in practice? How is the interaction between the TD, client and OT described in practice? How are interventions conducted and facilitated? What are the skills and activities used in practice?

Stage 2: Identifying relevant studies

A comprehensive electronic literature search was conducted 26th June 2021 with the help of librarians. Table 1 shows the search matrix with details demonstrating the way the electronic searches were conducted. The searches were conducted in CINAHL, Medline, Eric, and Psycinfo. The first search was with advanced options and by using Boolean operators separately with the search terms “animal-

assisted”, “dog assisted”, “canine-assisted” or “pet-assisted” and the second with search terms “occupational therapy” or “OT”. After these two separate searches a new advanced search was conducted by combining all of the mentioned search terms with boolean operators. The publication year was selected to range from 2010 to June 2021 with full text access and English as the English as the publication language. Since electrical searches might miss important published studies [33], a supplementary search strategy was used in checking reference lists of included articles [34].

[Insert Table 1]

Stage 3: Study selection

Inclusion and exclusion criteria

The systematic methods, inclusion, and exclusion criteria (Table 2) were developed based on the research questions [23] that helped to identify what information was needed for the review [31]. The use of the inclusion and exclusion criteria in this stage of the review process ensured that only papers relevant to the research question were included [34]. Essential inclusion criteria were the AAT-OT perspective and as well as dog’s significance as a therapy animal. Included studies should contain all or at least one of the following issues: the description of the AAT-OT process, the description of the AAT-OT intervention, the descriptions of the interventions with a dog, the descriptions of the client - TD - OT interaction or the descriptions of dog’s participation. Included studies were published from 2010 to June 2021 in English and with a full text access. Inclusion and exclusion criteria were devised post hoc in this review process [23] to follow research questions’ frame. Even there were only a few findings the author's choice was to stay within the specified time frame.

[Insert Table 2]

After conducting four electronic searches, hits were found and after removing duplicates 100 remained. Each electrical database search formulated a listing from the findings on the in-title level. All the titles were read and if they seemed to meet the inclusion criteria, the abstract was read. If the abstract met the inclusion criteria, the full text of the article was read. A total of 9 full-text articles

were found and read, and from them 5 articles were excluded due to the parent's perspective, perspective with no description of the CA-OT, and the dog handler using own dogs with OT. After reading full-text articles, reference lists were checked for the included articles. Excluded titles were marked with the reason for their exclusion as described earlier. In qualitative synthesis 4 articles remained [35-38]. Flowchart (Figure 1) shows how the articles were selected for this scoping review [39].

[Insert Figure 1]

Articles that met the inclusion criteria were printed and saved as PDF-versions on the computer. Only four (4) articles met the inclusion criteria and were chosen for this review. As a result, in the end two (2) studies with four papers were the findings of this review. Three of the studies were published by the same researcher but with a combination of different research team members. They were re-read and outlined in the way that they relate to and answer the review question [33-34]. Included papers are shown in Table 3 with the descriptions of the publication year, study design and study location.

[Insert Table 3]

Stage 4: Data charting

The Arksey & O'Malley [23] framework's data charting matrix was used (Table 3). In data charting form general information of the included studies were recorded and summarized: 1) the author(s), the year of the publication, the title, and the study location (country) 2) paper's aim 3) the study methodology 3) the study population and 4) the important results related to the research question. Descriptive results related to the research questions were summarized.

[Insert Table 3]

Stage 5: Collating, summarizing, and reporting

Identification of the themes from each study were used by using a qualitative content analysis (QCA) [41-42]. Process is shown in Table 4. The main categories were formulated, and the focus of the analysis was on the descriptions of the CA-OT interventions, on the TD's participation and role in

the intervention and to give an overview of the found studies. CQA organized results into themes related to the research question. In the data matrix table (table 4) important results to the related research questions were divided into themes after the QCA. Each theme in the end was compared and reviewed. Themes were combined in case they were similar in their meaning. This data charting information was the basis for the analysis of this study [23].

Results

From 148 papers, after duplicates were removed, only four papers, representing two studies, met full inclusion/exclusion criterion. The first study included three papers from Australia from the same author with different combinations of research teams. The first paper was a qualitative descriptive study design [35], the second a pilot Randomized Control Trial [36], and the third a practice analysis [37] of ongoing randomized control [36]. The second study was a pilot study with quasi-experimental longitudinal study design [38] from Spain (see table 3). Both studies focused on children on ASD. All the studies and papers were published in peer reviewed journals (see table 4).

The following themes were formulated after QCA: social interaction with a TD in the CA-OT, and Description of activities and skills the goals in CA-OT interventions. The second theme consisted of the following three subthemes: social interaction skills practice with a TD in CA-OT, Motor skills practice with a TD in CA-OT and Practicing ADL with a TD in CA-OT.

Theme 1: Social interaction with TD in the CA-OT

First study's third paper [37] authors outlined that child's therapeutic goals in the CA-OT were reported to be linked and depend on the intervention implementation. Based on the author's interpretation, intervention tasks were shown to have a clear goal in which the TD could facilitate the child into achieving this goal.

In the first study's paper [37] the interpretation of the authors was that the TD acts as a friend by providing unconditional and non-judgmental support for the child. Authors reported that the children were likely relating better to TDs than to a human partner. As well as TD acted and behaved in various

ways throughout the therapy session by requesting the child to play, begging for food from the child or requesting physical action or play from the child. The interpretation of the authors in the first paper [35] was that OT may progress onto goal-directed therapy faster when including the TD into the sessions.

In the second study [38], communication and social interaction between the child, the TD, and the OT, was promoted in the interventions. OTs are reported to intervene in the interaction between children and TD in order to encourage children to interact with TD. OTs reported how to show examples on how to talk to and hug and how to point out TD's body parts and ask to give paws from the TD. In the first study's first paper [35], connection between the child and TD was reported through the interaction and described as creating a special bond in interaction. Whereas secure attachment development was facilitated during interactions in the third paper [37]. In the first paper [35], the relationship seemed to act as a bridge and assisted to build trust in the OT based on observations in interactions. A secure relationship between the child and the TD was described to be important in order to succeed in the CA-OT as it also influences the relationship between the OT and the child.

In the first study's first paper [35], the child was described to respond positively and seemed to feel calmer in the presence of the TD. The calming presence and non-judgmental relationship of the TD was characterized by assisting children to regulate their activities. In the second study [38], the OT was reported to encourage exploration and bonding with the TD by introducing the TD and by guiding the child to take visual, verbal, and tactile contact with the TD. The connection with the TD was described as speaking to, pointing out body parts, asking the TD to give their paw and stroking, hugging, and snuggling with the TD.

Theme 2: Descriptions of activities and skills the goals in CA-OT interventions

Social interaction skills practice with TD in CA-OT

In the first study's first paper picture visualization and social story narratives of the TD in emotional regulation activities were conducted [35] and utilized in discussions and drawings that describe the

TD's emotions, body cues and triggers in different feelings and situations in the third paper [37]. In the paper [35] of the first study, discussion about the child's self-regulation strategies and emotions at home were implemented while the child brushed or patted the TD. In practice of the body perception, the TD body parts were described to be named first from TD and then from the child's. In the first study's second paper [36], the use of visualized Zone of regulations color program was utilized for practicing emotional regulation skill development. Which was described to use by modeling how the TD would look (feel) in different zones (colors) of the program (blue, green, yellow, and red) in various situations and in the current moment. That after talking about TD's triggers were facilitated and illustrated by using visual material, by showing in which `color` dog was at the moment, and what we're calming the strategies for the TD in different feelings (colors) and how TD could get back (regulate feelings) to the green (feeling ok). In the second study [38], TD was reported acting as an example for the child and using its own behavioral calming strategies such as going to quiet places to calm down or to drink water when showing examples to calm down.

In the first study's third paper [37], interventions were described to include TD's active and passive participation. The second paper [35] represented that the TD assisted engagement and interventions became thus more purposeful and meaningful for the child as interventions were observed to be more productive, and everything seemed to happen more naturally. This was reported to increase the interest and concentration toward the therapy. In the second study [38] it was stated that AAT-OT intervention could act as a facilitator of social participation for the child.

In both studies [35-38] it was reported that in **board games** the child interacted with the TD while the TD acted as their play partner. In the first study's third paper [36] it was described that children practiced independent turn taking with the TD by waiting for its turn and TD waited for its turn. TD rolled the dice on command in its turn and the child waited for him. Both, child and TD practiced winning and losing in the board games. In the second study [38] games that required interaction, was represented to encourage cooperating skills practice in common tasks, such as sharing materials

during games, respecting others` turns, making requests, and fulfilling these, expressing enjoyment or embracing TD.

TD was reported to act as a play partner in first study's papers [35-37] in **pretend and imaginary play games**. First paper [35] described that when playing and interacting, opportunities to discuss the perceptions concerning the play partner`s body language, emotional triggers and social boundaries were made. Whereas second paper [36] represented that while practicing how to ask a friend to play, a visualized social story of the necessary steps was conducted first for the TD and then by the child. In the third paper [37] the first visual story was described to develop first for the TD and then for the child when developing visual social stories with pictures expressing (saying) `asking for help` or saying `hi to the friends`, `sharing`, `asking to play` and `stop I don't like it`. Also, third paper [37] highlighted that when practicing the understanding of others' personal space and boundaries, the DT`s body clues and meaning behind them may be used as an example in practice at first.

Motor skills practice with a TD in CA-OT

In all of the first study`s papers [35-37] motor skill activities were represented. Drawing the TD`s picture when practicing handwriting and typing skills such as the pencil grip, fluency, and motor accuracy in the letter formation was given as an example of motor skill practice activities in two papers from the first study [35, 37]. The third paper [37] described that motor skills practice can be conducted while coloring pictures and whereas second study [36] illustrated that coloring cartoon bones can visualize the number of treats the child would be able to give the TD at the end of the session. In the first study` papers [36-37] represented motors skill practice by making a Christmas card for the TD. In the first paper [35] writing a trick journal according to instructions of how to teach a trick for the TD was represented [35]. Playing fine motor games with TD was highlighted in the first paper [35], in second fetch boll game as a motor skill practice [36] and catch in the third paper [37]. In the first paper, playing together with the TD, training tricks to TD and taking the TD through

an obstacle course were described. According to the first paper [35], children can practice community access by going to various places together with the TD.

Practicing ADL with a TD in CA-OT

In the first study's papers [36, 37] visual narrative schedules for step-by-step were represented through ADL activities so that first it can be conducted for the TD and then for the child. This was considered to help the child to think and perceive necessary morning and evening routines from others perspective. In the third paper [37] it was mentioned that the child takes in therapy and conducts visual schedules home with him and uses them in visualizing morning and evening routines.

In the first study's papers, tooth brushing activity, were outlined as child brushes first the TD's teeth [35, 37] before their own [36]. Outcomes considered sensitivity to various textures and needs to become more tolerant of them, the child explores textures together with a TD [35]. The interpretation of authors in paper [36] was that the child becomes more accustomed to the texture of the brush and toothpaste when practicing the act of brushing together with a TD.

In the first study's paper [35] authors of the study interpreted that practice of daily routines such as toilet training can be executed step by step with a TD. In the third paper [37] authors considered practicing together with TD might help children to recognize and talk about their own body cues (feelings) for needing to go to the toilet, when practicing how to express the need.

In the first study's paper [35] authors described that TD 'pretends' to go and stay in the toilet when a child takes TD to toilet and the child practiced expressing the need to go to toilet vocally. In the second paper [36] authors described that when a child practices to dress TD, the TD does all the same steps that the child will do when dressing herself. In the first study paper [35] the child cuts the treats, prepares lunch, and feeds the TD in nurturing activities. In the second study [38] authors outlined that later in interventions the various types of tasks and responsibilities were involved in the TD care such as brushing, feeding, and taking TD out for walks is introduced to the child.

Discussion

This scoping study explored how CA-OT interventions are conducted and described in OT. Of 148 hits, only four papers representing two studies met full inclusion/exclusion criteria. The first study consisted of three papers, from which the first paper was descriptive interpretive design and paper data was analyzed inductively and coded manually. The second paper was quantitative study design with control group (RTC) and third was a practical analysis of previous RTC study. The second study was A pilot study with quasi-experimental longitudinal study design with descriptive data analysis that summarized the results with categorical variables through frequencies and percentages.

Social interaction with TD in the CA-OT (theme 1) described the interaction, performance, and role of the TD in the sessions. Hence these findings were limited, findings showed potential interaction, roles, and performance of the TD in sessions. In the light of these few research findings, it seems that TD is active and inactive, plays example, facilitates, assists, acts roles, plays friend and is an equal participant in interventions. TD interacts in sessions and builds relationships with clients. TD seems to act as the facilitator, a motivator or support mechanism by assisting in the achievement of the goals in AAT interventions [4,13]. Kielhofner [10] defines interaction skill as an observable goal-directed action that a person uses while performing and collaborating with other people. As well as AOTA [9] describes, occupations are often shared and done with others and the occupational participation occurs individually or with others. These study findings highlighted interaction between client and TD and may also support the possibility that the people and the TD could be considered as 'others' as Kielhofner [10] described. Finally proposed, these limited study findings support the idea that TD assists within the scope of the therapeutic treatment and meets a therapeutic criterion in the therapeutic process of CA-OT like Kruger and Serpell [1] states.

Theme 2 composed of *descriptions of the activities and skills in CA-OT*. This theme demonstrates CA-OT in practice: what are the chosen activities and skills in practice. These study findings illustrate how OTs may incorporate AAT and use of animals in their clinical practice and within the scope of

OT [4,7]. As presented earlier, TD is supposed to act as a modality to intervention by facilitating the development and skills needed by the client [7]. Also, Ristol and Doméneec [4] suggests that interventions utilizing animals may facilitate sensory and cognitive stimulation, psycho-motor activities, social skills and motor, process, and social interaction skills that a person uses while performing [14]. *Theme 2 consists of three subthemes: social interaction and motor skill practice in CA-OT and Practicing ADL with a TD in CA-OT.* These few study findings highlighted the importance of relationship and social interaction skill practice and self-regulation between children and TD through play, cooperating together and practicing executive functions in play, motor activities and ADL. In the light of these study findings, social interaction may be used as a therapeutic method to conduct CA-OT with children with ASD, like AOTA [9] defines as essential the positive therapeutic relationship with a client. Like Fine et al. [6] describe, OT is a process where clients' involvement and participation in the occupations aims to support their abilities, routines, and self-esteem in daily life. Child practices and learns to understand what the ADL routines are and that after transfers these routines into their own daily life when like Ristol & Doméneec [4] argues. In the light of these few study findings of motor skill practice descriptions, all of the motor skill activities illustrated that activities were done together with TD or as the motor activity was proposed for the TD. In these few findings, the client practiced, among other things, fine motor skills by pencil work, drawing, writing, making a card, cutting, or playing fine motor games with TD.

Conclusions

The aim of this scoping study was to summarize how CA-OT was described in OT. These findings highlighted the use of dogs to contribute to social engagement in session and social and ADL, limited to autistic children. Findings highlighted a few descriptions of practicing social skills and social interaction, motor skills and ADL with a TD in CA-OT with autistic children in the light of these two studies of the review. The TD may act both as an active and inactive participant in interventions with

different roles of being friend, play partner, facilitator, as a model and object of the therapy with the aim to improve therapeutic outcomes. More research is needed to understand the mechanisms of change and influence on outcomes from the use of TDs within occupational therapy practice.

Significance

The CA-OT field is still developing and research in this field is emerging. AAT with different client groups (ADHD, ASD, CP) was considered in 2017 to be beneficial and evidence supports the use in improving clients motor skills, social skills, ADL and IADL, only two articles with one client group (ASD). But these findings support the idea that practicing social skills and social interaction, motor skills and ADL with a TD in CA-OT with the clients of ASD is possible, but descriptions of the interventions are still few.

Larger scale research regarding CA-OT intervention descriptions and TD's performance in interventions is needed from different client groups and countries viewpoint. Further research might highlight and summarize the essence of the CA-OT interventions and demonstrate what extra value the TD brings to the sessions and why it is beneficial to use with different client groups. Comparing therapy processes and outcomes in using CA-OT and OT without animals with ASD clients would be interesting to investigate. As described earlier, OT's can proceed faster into the goal-directed work in the use of CA-OT, research regarding the effects of the therapy process duration and outcomes is required to also include cost-effectiveness.

Methodological consideration

Strengths and limitations of the study

This topic was selected based on the author's professional interest to find scientific support for the clinical practice in conducting CA-OT. A potential limitation of this study was that the researcher was a novice and scoping study was not a familiar method. At the time the electronic searches were

conducted, it seemed that the knowledge in AAT and even in DA-OT was increasing, but still the number of published studies were few. Electronic searches and formulation of the search terms were conducted in collaboration with librarians. The search terms were potentially too limited, unequivocal, and strictly framed. A more expansive literature search was required to meet the scoping review objectives. A more comprehensive search in books, google, websites and related organizations would have brought more findings to this review. Search terms may also have been limited and did not capture a broader range of uses of AAT for children with or at risk of other disabilities/special needs. In future research, additional information and practical papers might bring additional value to future literature research.

Findings of this scoping review were from 2010 - June 2021. It is not known if a wider time frame would have identified further papers, limitations more likely due to constraints of databases and search terms. It was underestimating the time required for data extraction to describe and analyze findings. Authors' understanding about the AAT, and how to conduct CA-OT in practice helped to summarize findings as a whole but may have been influenced by positionality. The author tried to stay neutral and objective in this process, but the personal connection and experience might have affected the review process and how the findings are displayed. Frameworks' sixth optional consultation stage was not unfortunately used in this study process due to the time restraints. Three included studies were from Australia and had the same author with different assemblies of research team members. One article was from Spain. As most of the articles had the same authors, it needs to be taken into consideration how this potential affected the findings' diversity compared to that if all articles had different authors.

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Appendixes

Appendix 1

Table 1. The search processes.

| Database | Date | Search terms | Hits | After removing duplicates | Screened | Chosen articles |
|----------|----------|---|------|---------------------------|----------|-----------------|
| CINAHL | 20210625 | “Animal assisted” OR “Canine assisted” OR “Dog assisted” OR “Pet assisted” AND “Occupational therapy” OR “OT” | 30 | 28 | 7 | 3 |
| Medline | | | 35 | 7 | 1 | 1 |
| Eric | | | 6 | 5 | 1 | 0 |
| Psycinfo | | | 77 | 64 | 0 | 0 |
| | | | 148 | 104 | 9 | 4 |

Table 2. Inclusion and exclusion criteria

| Inclusion criteria | Exclusion criteria |
|--|---|
| AAT-OT perspective | Only OT perspective or AAT-OT |
| Dog as a therapy animal | Other therapy animal (horse, elephant, dolphin) |
| Therapy dog owned by the OT | Service dogs or therapy dog teams |
| Description AAT-OT process Intervention in practice client, dog, and therapist interaction the dog performance and interaction | No description of the process |
| Published 2010- June 2021 | Published before 2010 or after June 2021 |
| full text access | No full text access |
| Published in English | Published in foreign languages |

Figure 1. Flowchart of database searches identification, screening and including studies

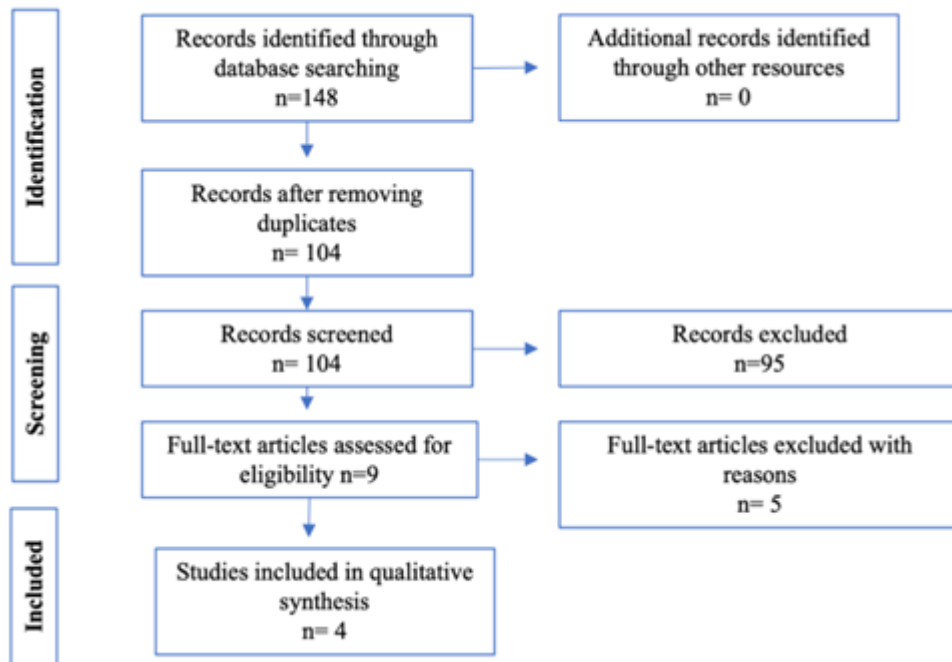


Table 3. Included papers, publication year, study design and study location.

| Author | Publication year | Study design | Study location |
|--|------------------|---|----------------|
| Hill, Ziviani, Driscoll [35] | 2020 | Qualitative descriptive study design | Australia |
| Hill, Driscoll, Teoh, Chua, Cawdell-Smith [36] | 2020 | A pilot RCT | Australia |
| Hill, Ziviani, Driscoll, Cawdell-Smith [37] | 2020 | Practice analysis | Australia |
| Àvilá-Àlvarez, Alonso-Bidegain, De-Rosende-Cereiro, Vizcaino-Cela, Larrañeta-Alcalde & Torres-Tobío [38] | 2020 | A pilot study with quasi-experimental longitudinal study design | Spain |

Table 4, Data extraction and summary of content analysis

| Article title & journal | Authors, year of publication & origin | Aims / purpose | Study population / sample size | Methodology (method, data collection and analysis) | Limitations | Themes related to research questions |
|---|---|--|--|---|---|--|
| <p>“The connection just happens”: Therapists’ perspectives of canine-assisted occupational therapy for the children on the autism spectrum.</p> <p><i>Australian Occupational Therapy Journal</i></p> | <p>Hill, J. R., Ziviani, J. & Driscoll, C. (2020)</p> <p>Australia</p> | <p>To develop an understanding of the experience of delivering canine-assisted occupational therapy on the autism spectrum, from the perspective of the occupational therapists.</p> | <p>6 occupational therapists, who completed face-to-face training on canine assisted therapy and experienced working with ASD both with and without a therapy dog.</p> | <p>Qualitative descriptive study design.</p> <p>Data collection: a semi-structured interview format and interview schedule. Interviews were audio-recorded and transcribed verbatim. Thematic analysis of the data was used to manually code the information which emerged from the transcribed data.</p> | <p>Hill et al 2020: Study sample size/study population due to the infancy of canine-assisted therapy with ASD children only 6.</p> <p>Only those OT were included who continued working in canine-assisted therapy.</p> <p>Hills research groups 1/3 paper from 2020.</p> | <p>Social interaction with a TD</p> <p>Social interaction skill practice with TD</p> <p>Motor skill practice with TD</p> <p>Practicing ADL with a TD</p> |
| <p>Canine Assisted Occupational Therapy for children on the Autism Spectrum: A Pilot Randomized Control Trial.</p> <p><i>Journal of Autism and Developmental Work</i></p> | <p>Hill, J., Z., Driscoll, C., Teoh, A.L., Chua, M. J. & Cawdell-Smith (2020 April).</p> <p>Australia</p> | <p>To explore the impact of canine assisted occupational therapy on- task behaviors and goal attainment of autistic children when compared to occupational therapy as usual.</p> | <p>Participants were 22 children, aged 4 to 6 years and 11 months with ASD.</p> <p>The treatment group (n=11) and the control group (n=11) were randomly placed.</p> | <p>A Pilot Randomized Control Trial.</p> | <p>Hill et al (2020):Small sample reduces the confidence in which these results can be generalized.</p> <p>how therapists’ professional skills and facilitation to stay on-task had influenced with or without the therapy dog?</p> | <p>Social interaction with TD</p> <p>Motor skill practice with TD</p> <p>Practicing ADL with a TD</p> |

| | | | | | | |
|---|--|---|--|---|---|---|
| | | | Hills research groups 2/3 paper from 2020 April | | Only on-task behavior and goal attainment reported, and it is difficult to ascertain what the underlying mechanisms within the therapy were. How did the inclusion of the therapy dog impact on the child's engagement? | |
| Canine-assisted occupational therapy for the children on the autism spectrum: challenges in practice. <i>British Journal of Occupational Therapy</i> | Hill, J., Ziviani, J., Driscoll, C. & Cawdell-Smith, J. (2020 may). Australia | To describe challenges in practice of Canine assisted Occupational Therapy for the children on the ASD. What makes AAT different from simply having an animal present within a therapy session. | The trial involved canine assisted occupational therapy with 22 children on ASD between 4:0 and 6:11 years, involved 8 weeks. Publication of the Trial: Hill, J., Z., Driscoll, C., Teoh, A.L., Chua, M. J. & Cawdell-Smith (2020 April). | Practice analysis Reflection of clinical practice based on ongoing randomized control trial by Hill et al. 2019. therapy sessions, lasting one hour with the inclusion of the therapy dog. | Hill et al (2020): the need of having guidelines for the clear practice guidelines about canine-assisted occupational therapy. No description of how the practice analysis was conducted. Hills research groups 3/3 paper from 2020 may | Social interaction with TD Social interaction skill practice with TD Motor skill practice with TD Practicing ADL with a TD |
| Improving social participation of the children with autism spectrum: Pilot testing of an early animal-assisted intervention in Spain. | Àvilá-Àlvarez, A., Alonso-Bidegain, M., De-Rosende-Cereiro, I., Vizcaino-Cela, M., | To explore the feasibility of animal assisted intervention at the earliest ages. To examine the impact of AAI on the social | Participants were 19 children aged 30 months and 6 years with ASD, who received therapeutic care | A pilot study with quasi-experimental longitudinal study design. The Assessment of communication and interactional skills | Àvilá-Àlvarez et al (2020): Absence of a control group. How other received treatments (pharmacological | Social interaction with TD Social interaction skill practice with TD Practicing ADL with TD |

| | | | | | | |
|--------------------------------------|---|---|--|---|---|--|
| <p><i>Health and Social Care</i></p> | <p>Larraneta-Alcalde, L. & Torres-Tobío, G. (2020). Spain</p> | <p>participation of children with ASD by assessing its effects on communication and social interaction.</p> | <p>in the Care unit of the Teresa Herrera Hospital during April and November 2016.</p> | <p>4.0 (ACIS) and Animal-assisted therapy flowsheet was used as a data collection instrument. Descriptive data analysis summarized the results. categorical variables that were described through frequencies and percentages.</p> | <p>therapy) influenced the results? Lacking information of the participants diagnose severity, participants were a non-probability convenience sample.</p> | |
|--------------------------------------|---|---|--|---|---|--|

Appendix Qualitative content analysis

| Meaning unit | Considered meaning unit | Code | Subcategory | Category | Theme |
|---|---|-------------------------|---|---|----------------------------|
| “Interventions include active and passive participation of the therapy dog within the therapeutic session.” | TD acts actively and inactively. | TD interaction and role | TD assists to facilitate motivation towards sessions. | TDs interaction, performance and role in the sessions | |
| “The inclusion of the therapy dog assists with facilitating autonomous motivation to sessions.” | TD assisting to facilitate motivation. | TD interaction and role | TD assists child’s engagement. | TDs interaction, performance and role in the sessions | Social interaction with TD |
| The therapy dog assists children’s engagement.” | TD assist engagement. | TD interaction and role | TD provides support for the child. | TDs interaction, performance and role in the sessions | Social interaction with TD |
| Therapy dogs provide unconditional and non-judgmental support for the children.” | TD provides support for the children. | | | | |
| “The calming presence and non-judgmental“ | TD is calm and non-judgmental. | TD interaction and role | TD acts as a friend. | | Social interaction with TD |
| “Therapy dog acts as a friend” | TD acting as a friend. | TD interaction and role | TD acts a play friend | TDs interaction, performance and role in the sessions | |
| “Dog playing as a play partner in board games” | TD acting as a playfield in boardgames. | | TD plays a role in games. | | |
| “dog rolls the dice on command” | TD rolling the dice. | TD interaction and role | Therapy dog rolling the dice. | | Social interaction with TD |
| “Dog playing the patient in the game of doctor” | TD playing a role in games. | TD interaction and role | | | |
| “Pretend play games with the | | | | | |

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|---|---|-------------------------|---|---|------------------------------------|
| therapy dog as a play partner” | TD playing pretend games | | TD acts a play partner | TDs interaction, performance and role in the sessions | |
| “Dog playing the the patient in the game of doctor” | TD acts as a play partner in pretend play. | TD interaction and role | | | |
| “Dog as a play partner” | TD is incorporated as a play partner. | | | | Social interaction with TD |
| “Incorporating the therapy dog as a play partner” | | | TD acts as an example for the child. | | |
| “Therapy dogs frequently have different behaviors through the therapy session.” | TD offers different behaviors through sessions | TD interaction and role | TD requesting activities, food and to play. | TDs interaction, performance and role in the sessions | |
| “Requesting to play” | TD requests to play. | | | | |
| “Requesting for food” | TD requests food. | | | | |
| “Requesting physical activities” | TD requests physical activities. | TD interaction and role | | | |
| “The relationship and activity with the dog were used as an intervention method.” | The relationships and activity with TD as an intervention method. | | | | |
| “The child has visual, verbal and tactile contact with the dog” | Multisensory contact with TD. | | | | |
| “The relationship with the therapy dog seems to reduce anxiety and help children to complete a difficult task.” | The relationship seems to reduce anxiety and help children to complete a difficult task | | Relationship with TD | TDs interaction, performance and role in the sessions | Social interaction skills practice |
| Relationship of the therapy dog assists children to regulate | The relationship with the therapy dog | TD interaction and role | | | |

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|---|--|---|--|--|--|
| <p>throughout the activities.”</p> <p>“The relationship between child and the dog appears to act as a bridge and assists breaking down barriers for the child to rapport with the therapist.”</p> <p>“Connection forms between child and therapy dog and creates a special bond.”</p> <p>“Children seem to relate better with the therapy dog than to a social partner.”</p> <p>“Child responds positively to the dog and feel automatically calmer in presence of the therapy dog”</p> <p>“All tasks need to have a clear goal, in which the therapy dog can facilitate “</p> <p>“Dogs provide opportunities to discuss topics such as body language, emotional triggers and social boundaries.”</p> <p>“The therapy dog assists to use calming strategies. going quiet place or</p> | <p>assists children to regulate throughout the activities.</p> <p>Relationships between child and TDs assist to break down barriers for the child to rapport with the therapist.</p> <p>Connection between child and therapy dog creates a special bond</p> <p>Positive responses and feeling calmer in the presence of a therapy dog.</p> <p>TD facilitates children to achieve goals.</p> <p>TD provides opportunities to discuss.</p> | <p>TD interaction and role</p> <p>TD interaction and role</p> | <p>Learning to calm down from TD’s Example</p> <p>TD facilitates children to achieve goals.</p> <p>The relationship and multisensory contact with the therapy dog assists children to regulate through activities.</p> | <p>TDs interaction, performance and role in the sessions</p> | <p>Social interaction skills practice</p> <p>Social interaction skills practice</p> <p>Social interaction skill practice</p> |
|---|--|---|--|--|--|

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| getting drink of water” | TD as an example in the use of calming strategies. | | | Description of the interventions and skills | Social interaction skill practice |
| “A secure relationship between child and the therapy dog is important in order to succeed in the canine-assisted occupational therapy.” | TD enables us to talk about body language, emotional triggers and social boundaries. | Description of the activities and skills | TD is not removed from the therapy room as a consequence of undesired behavior. | | Social interaction skill practice |
| “The therapists ensure that the bond between the child and the therapy dog doesn't fracture accidentally.” | Therapists ensure that the bond between child and therapy dog doesn't fracture accidentally. | | | Description of the interventions and skills | Social interaction skill practice |
| “Therapist is not removing the therapy dog from the room as a consequence of undesired behavior” | Therapists ensure that the bond between child and therapy dog doesn't fracture accidentally. | | TD helps OT to work goal-directed | | |
| “The therapist is able to progress onto goal-directed therapy faster when including therapy dog into sessions” | Inclusion of the therapy dogs into the sessions helps to work goal-directed faster. | Description of the activities and skills | | | Social interaction skill practice |
| “Intervention goals are dependent on the child's goal.” | Intervention goals are dependent on the child's goals, TD facilitates to achieve these. | | | | |
| “All tasks need to have a clear goal, in which the therapy dog can facilitate the achievement of this goal. | Intervention goals are dependent on the child's goals, TD facilitates to achieve these. | | | | |
| “Everything in the therapy is for the dogs and the | Everything in the therapy is for the TD and the child is not in | Description of the activities and skills | Working with TD increased motivation. | | |

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|--|--|---|---|--|--|
| <p>children no longer saw therapy activities as a chore”</p> | <p>focus of the therapy, including activities.</p> | | | <p>Description of the interventions and skills</p> | <p>Social interaction skill practice</p> |
| <p>“The inclusion of the therapy dog in the interventions and activities appears to be easier for the children, as activities could be presented the way that the child is not the focus of the intervention.”</p> | <p>Children's motivation to practice at home and to show improvement to the therapy dog in the next session.</p> | | <p>Motivation to practice at home and to show improvement to the therapy dog in the next session.</p> | | |
| <p>“Children voiced wanting to continue practicing the specific activities, where they have shown in the past resistance.</p> | | <p>Description of the activities and skills</p> | <p>Activities encourage motivation and interest.</p> | <p>Description of the interventions and skills</p> | <p>Social interaction skill practice</p> |
| <p>Willingness to practice at home helped to achieve therapeutic goals faster. Children were motivated to show the therapy dog their improvement in the next session.”</p> | <p>TD motivates to practice at home</p> | | <p>Activities are purposeful and meaningful for the child.</p> | <p>Description of the interventions and skills</p> | |
| <p>“as the activities are more purposeful and meaningful for the children”</p> | <p>Activities encourage motivation and interest.</p> | <p>Description of the activities and skills</p> | <p>Repertoire activities.</p> | | <p>Social interaction skill practice</p> |
| <p>“Therapeutic activities promoted to encourage children's motivation and interest.”</p> | | | <p>Knowledge of the dog</p> | <p>Description of the interventions and skills</p> | <p>Social interaction skill practice</p> |
| | <p>Simple activities</p> | | <p>Practicing through play.</p> | | |

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|---|--|---|--|--|--|
| <p>“Used activities were simple and interactive.”</p> | <p>Interactive activities</p> | | | | |
| <p>“Therapists presented the repertoire activities.”</p> | <p>Repertoire activities.</p> | <p>Description of the activities and skills</p> | <p>Practice of skills to maximize the impact of the therapy.</p> | <p>Description of the interventions and skills</p> | <p>Social interaction skill practice</p> |
| <p>“Used activities focused on knowledge of the therapy dog.”</p> | <p>Knowledge of the therapy dog activities.</p> | | <p>Practice choosing.</p> | | <p>Social and interaction skill</p> |
| <p>“Activities focused on the care of the animal.”</p> | <p>Practicing through play.</p> | | <p>Free play with the therapy dog.</p> | | <p>Social and interaction skill</p> |
| <p>“The animal activities were combined with those that were playful in the approach as the intervention progressed”</p> | | <p>Description of the activities and skills</p> | | | <p>Social and interaction skill</p> |
| <p>“To ensure therapy focus and maximize the impact of the Therapy dog, also additional practice skills are required”</p> | <p>Additional practice skills are required to ensure therapy focus and maximize the impact of the therapy.</p> | <p>Description of the activities and skills</p> | <p>Independent turn taking and waiting practice.</p> | <p>Description of the interventions and skills</p> | <p>Social and interaction skill</p> |
| <p>“The control of choice of what activities were encouraged to have the child.”</p> | <p>Child is encouraged in choosing what to do.</p> | | | | <p>Motor skills</p> |
| <p>“In child-initiated activities each child was allowed to have free play moments with therapy dog”</p> | <p>Free play with the TD</p> | <p>Description of the activities and skills</p> | | | <p>Motor skills</p> |
| <p>“Practicing independent turn taking during structured games”</p> | | | | | <p>Motor skills</p> |

| | | | | | |
|--|--|---|---|--|---------------------|
| <p>Practicing independent turn taking.</p> <p>Practicing turn taking.</p> <p>“Co-operating in common tasks”</p> <p>“Sharing materials”</p> <p>respecting turns”</p> <p>“Making requests and fulfilling these”</p> <p>“Waiting”</p> <p>“Turn taking.”</p> <p>winning and losing during board games”</p> | <p>Practicing independent turn taking and waiting</p> | <p>Description of the activities and skills</p> | <p>Practicing losing and winning.</p> <p>Training tricks for the TD.</p> <p>Playing pretend play with TD.</p> | <p>Description of the interventions and skills</p> | <p>Motor skills</p> |
| <p>Practicing winning and losing.</p> <p>Training tricks for the therapy dog.</p> <p>“To train tricks”</p> <p>“Pretend play games with the therapy dog as a play partner in increasing imaginary play”</p> | <p>Winning and losing</p> <p>Training tricks for TD.</p> | <p>Description of the activities and skills</p> | <p>Practicing asking a friend to play.</p> | <p>Description of the interventions and skills</p> | <p>Motor skills</p> |
| <p>“Pretend play: Puppy tea party”</p> <p>Practicing pretend play.</p> <p>“and then practicing asking to play a game... practicing a friend to play”</p> <p>“Providing a child, a picture with a therapy dog”</p> | <p>Pretend to play games.</p> | <p>Description of the activities and skills</p> | <p>Expressing emotions in interaction.</p> <p>Pointing and naming first TDs the body parts, then child’s.</p> | <p>Description of the interventions and skills</p> | <p>Motor skills</p> |

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|--|--|---|---|--|-------------------------------|
| <p>“Providing the children with a postcard picture of the therapy dog with the five likes on the back. this allows to discuss their common interests”</p> | <p>Practicing asking a friend to play.</p> | | <p>Facilitating discussion about regulation strategies.</p> | <p>Description of the interventions and skills</p> | <p>Motor skills</p> |
| <p>“Expressing enjoyment through smiling or embracing”</p> | <p>Expressing emotions in interaction.</p> | <p>Description of the activities and skills</p> | <p>Pictures and narratives in self-regulation activities,</p> | <p>Description of the interventions and skills</p> | <p>Practicing ADL with TD</p> |
| <p>“To develop social stories of saying asking for help or sharing asking to play, and stop I don't like it by doing one first for the dog and then for the child”</p> | <p>Pointing and naming the body parts.</p> | <p>Description of the activities and skills</p> | <p>Practicing self-regulation strategies by using Zones of regulation programs.</p> | <p>Description of the interventions and skills</p> | |
| <p>“Pointing the body parts” “To map dog's body first and then child's”</p> | | <p>Description of the activities and skills</p> | | | |
| <p>“To facilitate discussion about child's regulation strategies at home when brushing/patting the therapy dog”</p> | <p>Facilitating discussion about regulation strategies.</p> | | | <p>Description of the interventions and skills</p> | |
| <p>“To discuss of the dog's emotions, body cues and triggers. in working social emotional regulation”</p> | <p>Pictures and narratives of the TD in emotional regulation activities,</p> | <p>Description of the activities and skills</p> | | <p>Description of the interventions and skills</p> | |
| <p>Incorporating pictures and narratives of the therapy dog in emotional</p> | | | | | |

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| <p>regulation activities”</p> <p>“Modeling with assistance how the therapy dog would look like in different zones, her triggers as well as calming strategies from Zones of Regulation program, when assisting child to develop emotional regulation skills”</p> <p>“The dog’s body cues and meaning behind them may be used as a therapeutic moment... such as understanding others personal space”</p> <p>“Giving a calm down teddy”</p> <p>“Taking TD through an obstacle course”</p> <p>Taking Therapy dog through an obstacle course.</p> <p>“Playing catch with the dog.”</p> <p>“Drawing a dog’s picture of a dog.”</p> <p>“Coloring cartoon bones to symbolize the number of treats the child would be able to give to the therapy dog”</p> | <p>Practicing self-regulation strategies by using Zones of Regulation program.</p> <p>Practicing self-regulation strategies.</p> <p>Taking TD through an obstacle course</p> <p>Playing catch/fletch.</p> <p>Drawing.</p> <p>Coloring.</p> | <p>Description of the activities and skills</p> <p>Description of the activities and skills</p> <p>Description of the activities and skills</p> <p>Description of the activities and skills</p> | <p>Practicing self-regulation strategies.</p> <p>Playing catch and fletch.</p> <p>Drawing.</p> <p>Coloring.</p> <p>Writing instructions how to teach therapy dogs a new skill.</p> <p>Making a card for the TD.</p> <p>Cutting treats and dog food.</p> <p>Playing fine motor and boardgames</p> | <p>Description of the interventions and skills</p> <p>Description of the interventions and skills</p> <p>Description of the interventions and skills</p> <p>Description of the interventions and skills</p> | |
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| <p>“To write a trick journal with the instructions how the therapy dog would do the trick and then the child teaches the trick for the dog”</p> | <p>Writing instructions teaching therapy dog a new skill</p> | | <p>Stroking, hugging and snuggling TD</p> | <p>Description of the interventions and skills</p> | |
| <p>“Making a Christmas card for the dog when increasing letter accuracy in letter formation”</p> | <p>Making a Christmas card.</p> | | <p>Taking TD to community/walk.</p> | <p>Description of the interventions and skills</p> | |
| <p>“Cutting the treats and dog food.”</p> | <p>Cutting treats and dog food</p> | | | <p>Description of the interventions and skills</p> | |
| <p>“Playing fine motor games” ” playing board games with the dog,</p> | <p>Playing fine motor games</p> | | <p>Social stories of ADL, TD as an example.</p> | <p>Description of the interventions and skills</p> | |
| <p>“Stroking” “hugging” “Snuggling with the animal”</p> | <p>Stroking, hugging and snuggling TD</p> | | | <p>Description of the interventions and skills</p> | |
| <p>“To visit the therapy dog in practice of community access”</p> | <p>Taking TD to community/walk.</p> | | | <p>Description of the interventions and skills</p> | |
| <p>“Developing visual morning schedules for the dog, before developing one for the child”</p> | | | <p>Practicing brushing teeth first from TD, then child. TD as an example.</p> | <p>Description of the interventions and skills</p> | |
| <p>“Developing a social story first for the dog and then for the child”</p> | | | | <p>Description of the interventions and skills</p> | |

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| <p>To develop a visual morning and night schedule for the therapy dog. when working with visuals for the children to take home”</p> <p>“To incorporate the therapy dog as a narrative about how to go to the toilet”</p> <p>“Discussing the steps including bathing routine”</p> <p>“Child brushes TDs teeth, discussing the type of toothbrush and toothpaste, time and pressure used before child allowing to brush her own teeth”</p> <p>“Child introduced in the different types of tasks related to the responsibilities involved with dog care”</p> <p>“Child prepares new food for the dog... increasing the child's willingness to try new foods”</p> <p>“Nurturing behaviors toward the therapy dogs,</p> <p>“Allowing child to participate in nurturing tasks”</p> | <p>Developing visual schedules and social stories in different ADL-functions.</p> <p>Practicing brushing teeth first from TD, then child.</p> <p>Practicing taking care of TD</p> | | <p>Practicing taking care of TD</p> <p>Practicing giving and preparing food for TD.</p> <p>Building and maintaining a</p> | <p>Description of the interventions and skills</p> <p>Description of the interventions and skills</p> | |
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| <p>“feeding” “feeding” “Allow children to give a treat at the end of the sessions”</p> <p>“Making lunch for the dog” “Feeding” “Providing the dog water”</p> <p>“Making dog treats” “Child feeds the dog (desensitization of the food)”</p> <p>“Dog’s morning grooming routine”</p> <p>“grooming”</p> <p>“Providing the dog water”</p> <p>“Bathing the therapy dog”</p> <p>“Brushing” “Brushing the dog's teeth”</p> <p>“In tactile defensiveness exploring different textures in toothbrushes and hairbrushes to trial with the therapy dog”</p> <p>“Dressing; using dress up with the dog”</p> <p>“Discussing about the possible body cues of</p> | <p>Practicing giving and preparing food for TD.</p> <p>practicing morning routines and steps involved in the routines.</p> <p>Practicing brushing hair, teeth and going bath.</p> <p>Exploring different textures of hairbrushes and toothbrushes</p> <p>Practicing dressing.</p> | <p>relationship with the therapy dog</p> | <p>Description of the interventions and skills</p> | |
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| <p>needing to go to the toilet”</p> <p>“Therapist and the child take the therapy dog to the toilet. this experience helps child to recognize and discuss their own body cues”</p> | Toilet training. | | | | |
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