

Demonstrating the Efficacy of Animal-Assisted Therapy

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Abstract

A pre-posttest quasi-experimental design was used to evaluate the effectiveness of a manualized eight-week AAT group protocol on four behavioral domains in adults with intellectual disabilities. Raters completed the Measurement of Pet Intervention (MOPI) to measure attention span, physical movement, communication, and compliance among fourteen participants in a treatment group with a live dog compared to six participants in a control group with a stuffed animal. Results from a repeated MANOVA revealed that participants in both groups improved over time, but there were no significant differences between groups. However, anecdotal reports suggest that the participants were motivated by the chance to interact with the dogs. This research carries implications for future human-animal interaction studies regarding the need for manualized treatment protocols for AAT, larger sample sizes, and more investigations into one-on-one AAT interventions utilizing treatment manuals.

Keywords: adults, alternative intervention, Animal-Assisted Therapy (AAT), efficacy, Human/Animal Bond (HAB), intellectual disability, therapy

1. Introduction

1.1 In any exploratory endeavor to investigate the complex relationship between animals and humans, one must consider how to define the human/animal bond (HAB). Currently, multiple definitions exist that describe HAB (Davis & Balfour, 1992, as cited in Fine & Beck, 2010, as cited in Fine, 2010); most definitions stipulate that the relationship between the animal and human must incorporate the following key factors: be ongoing, bidirectional, voluntary, and reciprocal (Russow, 2002, as cited in Fine & Beck, as cited in Fine; Tannenbaum, 1995, as cited in Fine & Beck, as cited in Fine). Several terms describe manifestations of HAB that are pertinent to the research literature. Chandler (2012, p. 5) differentiated between animal-assisted therapy (AAT) and animal-assisted activities (AAA), noting that the former “strategically incorporates human-animal interactions into a formal therapeutic process” while the latter “involves mostly social visits with a therapy animal.” AAT was utilized in the current study in that specific, manualized, goal-directed activities with dogs were applied as therapeutic interventions for a group of adults with intellectual disabilities.

The research literature supports the goal of the current study in that therapeutic human-animal interactions generally have a positive effect on humans, and these effects have been documented for years, at least anecdotally. Only recently have researchers begun scientifically examining the effect of animals on human well-being. For example, the Quakers utilized animals in the treatment of mentally ill individuals at England’s York Retreat as early as 1792. After World War One, veterans undergoing rehabilitation interacted with farm animals as part of a therapeutic regimen (Hooker, Freeman, & Stewart, 2002). The seminal work of child psychiatrist Dr. Boris Levinson in the 1960’s marked the beginning of the empirical evaluation of the use of pets in therapy when Dr. Levinson recorded his observations that the presence of his pet dog facilitated communication in one of his clients (Hooker et al., 2002). Since then, researchers and theorists have applied a plethora of pre-existing psychological theories in their attempts to explain why animals tend to have such positive effects on a variety of human problems.

1.2 Theories explaining these positive effects generally fall within biochemical, social, cognitive, and behavioral categories. Proponents of biochemical theories cited the seminal study by Friedmann, Katcher, Lynch, and Thomas (1980) in which patients who owned pets had increased survival rates one year after being discharged from a hospital for severe heart problems (i.e., heart attack). Authors (e.g., Fine & Beck, 2010, as cited in Fine, 2010) cited studies by Odendaal (2000) and Odendaal and Meintjes (2003) that perpetuated the Friedmann et al. study findings; in these more recent endeavors, the researchers found that simple physical contact with pet dogs (e.g., petting, holding) decreased blood pressure, heart rate, and cortisol levels while increasing levels of oxytocin, beta endorphins, and dopamine among the pet dogs' owners. These findings support the biophilia hypothesis that humans are genetically predisposed to be drawn to other living creatures as an evolutionary survival mechanism (Wilson, 1984, as cited in Kruger & Serpell, 2010, as cited in Fine, 2010).

Learning theory as proposed by Brickel (1985, as cited in Kruger & Serpell, 2010, as cited in Fine, 2010) offers a behavioral explanation for the human animal bond. Learning theory ties in to the biochemical theories as a way of understanding the anxiolytic effects animals can have on humans. In this theory, behavioral concepts of positive reinforcement explain how humans learn to associate friendly animals with positive therapeutic experiences. In other words, many people view therapy as a potentially uncomfortable or even painful experience, but introducing an appropriate animal into a therapeutic setting can assuage these views as people have encouraging interactions in such a setting and then associate that setting with positive feelings and experiences.

Social theories such as attachment theory, the social mediation hypothesis, social cognitive theory, and the stress-coping model abound within the AAT literature as well. Beth Ellen Barba (1995, as cited in Fine & Beck, 2010, as cited in Fine, 2010) expanded attachment theory developed by Bowlby (1969; 1980, as cited in Fine & Beck, as cited in Fine) and Ainsworth (1989, as cited in Fine & Beck, as cited in Fine) to explain the human/animal bond (HAB) in terms of animals serving as attachment figures and transitional objects that provide comfort, security, and stress alleviation for humans; these benefits are often reciprocated by pets with whom humans have formed a deep attachment (Kruger & Serpell, 2010, as cited in Fine, 2010; Winnicott, 1971, as cited in Kruger & Serpell, 2010, as cited in Fine, 2010). The social mediation hypothesis is based on the "observation that animals can serve as catalysts or mediators of human social interactions, and may expedite the rapport-building process between patient and therapist" (Kruger & Serpell, 2010, as cited in Fine, 2010, p. 39). Anecdotally, people often mention that owning a dog has helped them meet people since dog ownership generally draws people outside and into social spaces and can indeed serve as a conversation starter.

Individuals with disabilities may have an even greater need for the incorporation of companion animals into therapeutic interventions; thus, the social mediation hypothesis is applicable with that population. Regarding individuals with disabilities, Hart (2010, as cited in Fine, 2010) stated, "The dog normalizes the social environment for the person with a disability who might otherwise be ignored or treated awkwardly" (p. 70). Relatedly, both observations and investigations into the motivating effects of companion animals support the hypothesis that pets can be utilized to increase goal-directed behaviors in humans. The Reading Education Assistance Dogs (R.E.A.D.) program, in which school children practice reading skills by reading to dogs, is an example in which the presence of a dog acts as a buffering agent to self-consciousness and fears of harsh judgment children unfortunately sometimes endure while learning to read (Hart, as cited in Fine).

Social cognitive theory offers another framework to explain why the presence of companion animals can be normalizing, comforting, and motivating for humans. The observation of companion or therapy animals can help individuals form positive associations with certain behaviors and settings, and they can then learn and practice desirable behaviors (Allen, 2000, as cited in Fine, 2010; LaJoie, 2003, as cited in Fine); doing so is essentially an application of Bandura's modeling theory (1961, as cited in Kruger & Serpell, 2010, as cited in Fine). Finally, the stress-coping model as developed by Spence and Kaiser (2002, as cited in Fine) can aid in the understanding of AAT as an intervention to normalize social environments for individuals with disabilities. According to this model, the mere act of petting and feeling welcomed by a companion animal alleviates stress, which can lead to more adaptable ways of coping with that stress (i.e., the stress of living with a disability).

1.3 Nimer and Lundahl (2007, as cited in Chandler, 2012) reviewed 49 studies researching AAT and conducted a meta-analysis suggesting that "AAT was associated with moderate effect sizes in improving outcomes in....Autism-spectrum symptoms, medical difficulties, behavioral problems, and emotional well-being" (p. 225).

Redefer and Goodman (1989, as cited in Chandler) reported decreased problematic behaviors and increased pro-social behaviors in 12 children with autism, while Sams, Fortney, and Willenbring (2006, as cited in Chandler) found improved language use and social interaction in 22 children with autism. Another study found that ten children with pervasive developmental disorders exhibited improved mood, attention span, and social and environmental awareness after interacting with a therapy dog (Martin & Farnum, 2002). Heindl (1996, as cited in Chandler) successfully utilized AAT to decrease problematic behaviors and increase pro-social behaviors in children enrolled in a day treatment program. Finally, Heimlich (2001) found that AAT resulted in positive effects for the majority of severely disabled children in her study on the same variables that will be measured in the proposed study (attention span, physical movement, communication, compliance) as measured by the same instrument to be used in this study (Measurement of Pet Intervention, MOPI).

2. Current Study

While the body of research regarding AAT has grown substantially and has expanded from mere anecdotal accounts to experimental studies, nearly all the authors of the aforementioned literature cite the need for more studies documenting the efficacy of this therapeutic modality. Furthermore, studies examining the effects of AAT on adults with intellectual disabilities are noticeably absent in the literature. Therefore, this study will answer the call for more well-controlled experimental studies using a modality which is still regarded by some (i.e., Chandler, 2012) as a new area of research.

3. Method

3.1 Participant Characteristics

The sample in this IRB-approved study consisted of 20 adults (13 women, 7 men, age range: 17-50 years, $M_{\text{age}} = 26.95$, $SD = 9.87$) with intellectual disabilities who attended a summer day program at an organization to serve the needs of members of this population in a large city in the mid-south region of the United States. Seven participants identified as Black and 13 identified as White. Staff members at the organization selected participants for the current study based on their familiarity with the program attendees. Participants had varying degrees of intellectual disability and were excluded if they harbored phobias or allergies to dogs or if they or their guardians objected to participation.

3.2 Measures

One of the doctoral student authors of the current study trained staff members of the organization where the study occurred to utilize the Measurement of Pet Intervention (MOPI; Schiro-Geist & Heimlich, 1997) to measure four behavioral dimensions of each participant. Schiro-Geist and others created the MOPI specifically to evaluate behavioral functioning in individuals with intellectual and other types of disabilities. Each behavioral construct on the MOPI (attention span, physical movement, communication, and compliance) has two components: (a) general level or quality of the construct and (b) amount of time or frequency of the observed behavior. Raters choose whether this behavior is below, average, or above comparable performance, or not applicable (if the behavior is not observed) based on a nine-point Likert scale, with one indicating that the observed behavior is below comparable performance and nine indicating that the observed behavior is above comparable performance. At this point in time, the MOPI has demonstrated face validity of its ability to accurately measure the behavioral constructs, but future efforts will determine this instrument's reliability and other forms of validity.

3.3 Procedure

The authors of this study, two doctoral students and a professor in a local university's counseling and counseling psychology programs, designed this 8-week manualized AAT program using Lind's (2009) book on AAT activities as inspiration. The study took place at the previously described organization with each 20-minute session occurring twice a week during the 8-week time span in the summer of 2013.

Before the study began, the authors and others involved in the project undertook several important tasks. The authors visited the site and its staff members distributed detailed consent forms for the parents or guardians of the program attendees to sign and return. As was already mentioned, one of the authors trained the staff members in using the MOPI. Staff members of the organization where the study occurred were selected for their familiarity with the summer program attendees. In keeping with the study's pre-posttest design, staff members completed the MOPI by rating each participant on the four behavioral domains, comparable to participants' peers (i.e., the average expected behavior of peers at the summer program).

At the end of the eight weeks, staff members completed the MOPI on each participant again to determine the intervention's success at impacting the behaviors of interest, with the comparable performance being that of the baseline. Before the intervention phase began and to ensure accurate understanding of the tasks entailed, the authors went over the manual they created with trained dog handlers and the therapy dogs, a Golden Retriever and a Great Pyrenees, all of whom are affiliated with and trained by a local therapy dog organization.

Staff members organized the participants into treatment and control groups; the treatment group had 14 participants, while the control group had six participants. The handlers conducted the intervention with the live therapy dogs, while another handler used a realistic-looking stuffed animal dog with the participants in the control group. This differentiation between the live and the stuffed dogs relates to the authors' hypothesis that the benefits in the therapeutic activities are due to the participants' interactions with another living being.

3.4 Intervention

There were originally two treatment groups, each with a dog handler and a live therapy dog, and one control group, with a dog handler and a stuffed animal dog. After six weeks of the program's implementation, however, one of the dog handlers and her dog had to leave the study due another obligation. Therefore, the two treatment groups were combined into one group with one dog handler and one live dog; the control group remained as it was. Regardless of group assignment, handlers with the dogs (live or stuffed animal) demonstrated each task for the participants, after which the participants took turns practicing the activity. The authors selected activities that combined elements of the four behavioral domains being assessed; the activities gradually became more complex each week. At the end of the first four-week cycle, the program started again from the beginning to enhance learning and practicing of the skills. The activities involved pet care, following instructions, social interactions, manual dexterity, and play, all designed to enhance attention span, physical movement, communication, and compliance. For example, participants began by simply greeting and petting the dog, then moved to brushing the dog and giving treats, and finally progressed to preparing for and taking the dog on a walk. Respect for and appropriate interactions with the dog were integral to each activity. For the complete manual of the 8-week program, please contact the researchers.

4. Data Analysis and Results

All analyses were conducted utilizing the Statistical Package for the Social Sciences (SPSS). Preliminary analysis entailed running correlations between participant scores on the MOPI, demographic variables, and number of treatment sessions attended, and determining internal reliability via Cronbach's alpha for the MOPI. Although 32 participants received the intervention (24 treatment, 8 control), 12 participants were removed from analyses due to missing data on the number of sessions attended or low program attendance (fewer than six sessions). Preliminary reliability analysis resulted in an acceptable Cronbach's alpha of .859. Due to the small sample size, results of all correlations were inconclusive. Further analysis through a repeated measure analysis of variance (MANOVA) was conducted.

Results from the repeated MANOVA revealed that participants in both groups improved from pre- to post-test, but there were no significant differences between groups and thus no interaction effect. However, this analysis showed that the treatment did not adversely affect any of the participants on the behavioral domains being measured on the MOPI.

5. Discussion

The aim of the present study was to assess the effectiveness of a manualized 8-week AAT intervention focused on improving four behavioral domains in adults with intellectual disabilities. It was hypothesized that the participants who interacted with the live dog would have significant improvements in attention span, physical movement, communication, and compliance as determined by higher ratings on the MOPI scale. This hypothesis connected to the early preexisting literature in which the interaction with a live animal produced positive physical benefits for humans (Friedmann, Katcher, Lynch, & Thomas, 1980). Participants in the live interaction group and the stuffed animal group both improved over the course of the 8-week manualized treatment program.

Previous studies have highlighted the ongoing, bidirectional, voluntary, and reciprocal nature of successful human-animal therapeutic interactions, all of which were characteristic of the human-animal interactions that occurred in this study (Russow, 2002, as cited in Fine & Beck, as cited in Fine; Tannenbaum, 1995, as cited in Fine & Beck, as cited in Fine).

However, the results revealed an insignificant difference in improvement between the groups. Though the data produced inconclusive results, anecdotal evidence from the staff at the summer group program suggests greater improvement in the behavior of the participants. In particular, one participant began the program nervous around dogs and was able to pet and groom the dogs by the end of the program. Furthermore, this participant surprised family members by being unaffected by the family keeping a neighbor's dog several months after the conclusion of the study. This suggests that the manualized program may have long-term positive effects and can be useful in generating lasting behavioral changes.

The results of this study augment the numerous previous research endeavors that examined the effects of AAT with children, in that adults comprised the current sample, thus filling a void in the literature. Despite the inconclusive results, anecdotal accounts of participant engagement suggest the benefits of using human-animal interactions as therapy for improving certain behaviors in the population of adults with intellectual disabilities.

6. Limitations and Future Directions

The researchers acknowledge that this study was not without limitations. Many of these limitations are struggles that occur when operating in an uncontrolled environment. First, there was some inconsistency of attendance by participants due to the voluntary nature of the summer program in which the treatment was being conducted. This inconsistency likely decreased the effectiveness of the manualized treatment program, as some participants did not receive all of the interventions in the prescribed manner. Additionally, there was inconsistency in the amount of interaction that the participants in the treatment groups received. As the group sizes varied from three to nine participants in any given session, some participants received more interaction with the dog than others. Future studies should explore this manualized treatment program in a more controlled environment with smaller groups to take full advantage of the intervention and to determine a more accurate efficacy level.

Second, as the manualized program was conducted by trained AAT instructors in a dynamic summer program for adults with intellectual disabilities, it is possible that the program was not followed exactly due to various factors. Future research should examine the difference in effectiveness of AAT handlers and their respective dogs. Furthermore, future studies should employ a more rigorous training to ensure that the treatment is followed as prescribed.

Third, the AAT instructors and group facilitators reported some difficulty in keeping the groups separated as the majority of summer program participants were interested in interacting with the dogs. This difficulty may have been due in part to the fact that both the treatment and control groups were conducted in the same room, divided only by room partitions. Therefore, the control group participants expressed a desire to be a part of the treatment group. Lastly, this study could have been strengthened with more intensive and rigorous training for the MOPI raters to ensure accurate responding and understanding of the MOPI as well as the needs of the research study.

This area of research could be advanced by future studies exploring the effectiveness of this 8-week manualized program in other settings. Additionally, it would be helpful to further understand any differences in effectiveness based on gender, age, or disability. While it has been shown that the MOPI has face validity, it may be useful for future studies to further examine the reliability and inter-rater reliability of the MOPI scale.

7. Implications for Practice

Though the results of this study were insignificant, the improvements experienced by the participants suggest that animal assisted therapy can be an effective form of treatment to improve attention span, physical movement, communication, and compliance within a population of adults with intellectual disabilities. This alternative form of therapeutic intervention may provide other options for this particular population and may be helpful in conjunction with other therapies to provide a holistic therapeutic environment. Useful as an intervention in itself, this manualized 8-week AAT program can also be a motivator for this population to cooperate in other areas of treatment.

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