Extended Abstract

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Research paper

The Effectiveness Of Animal Assisted Therapy On Improving Verbal Symptoms In Children With Autism Spectrum Disorder

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Introduction

Autism Spectrum Disorder (ASD) is a type of neurodevelopmental disorder. Since its initial recognition as a distinct category, significant changes have occurred in the field of autism, especially with the publication of the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) by the American Psychiatric Association(Lord et al, 2020). ASD is associated with numerous challenges in speech and language. Children with autism may not begin speaking until later ages. This delay can stem from underdeveloped language skills, often causing frustration both for the child and their parents (Maxi Moyes, 2023).To improve behavior and communication in children with autism, various therapeutic programs have been proposed. Among these, animal-assisted therapy has emerged as a leading intervention due to its acceptance and positive impact on communication.

Numerous studies have demonstrated the effectiveness of animal-assisted therapy. For instance, researchers have reviewed the use of farm animals and their benefits in both therapeutic and recreational contexts. The findings indicate improvements in social behavior, behavioral regulation, and a sense of normalcy among children receiving animal-assisted therapy (Dolechek et al, 2024). In Iran, Abedian et al. (۲۰۱۹) in a study titled “Investigating the Effectiveness of Animal-Based Therapy to Improve the Social Skills of Autistic Children,” found that animal-assisted interventions significantly enhanced the social skills of children on the autism spectrum. Although animal-assisted therapy has a long history in supporting children with ASD, most prior research has focused mainly on improving communication and social skills, with limited attention to language and verbal development. Given that ASD is a complex and diverse disorder, there is a growing need for new and complementary interventions to target both social and verbal abilities. Therefore, the current study aimed to investigate the effectiveness of animal-assisted therapy, specifically using rabbits, on improving verbal symptoms in children with ASD.

Method

The present study was a case study utilizing an A-B design with a follow-up phase. The A-B design consists of two experimental conditions: condition A and condition B. Condition A represents the baseline phase, during which the target behavior is measured before any intervention is introduced. Condition B follows, where a therapeutic intervention is applied, and then the dependent variable is assessed. In the baseline phase, the target behavior is observed and recorded before the start of the intervention. The study population included all children diagnosed with ASD. The sample consisted of one male student with ASD, who was randomly selected from the Bahar Welfare Center in Tehran in 2017 through convenience sampling. During the study, the first five sessions were dedicated solely to observation. Following this, the intervention

sessions commenced and continued for 15 sessions. Animal-assisted therapy was provided to a 12-year-old nonverbal boy with ASD, who, according to his teacher, communicated only through meaningless vocalizations. Diagnostic procedures involved reviewing the child's medical and psychological records, obtaining diagnoses from both a psychiatrist and psychologist, administering the Gilliam Autism Diagnostic Questionnaire, and securing informed consent from the child's guardians.

Inclusion criteria for participation in the study were a confirmed diagnosis of autism by a psychiatrist or psychologist and limited verbal ability, characterized by either uttering meaningless sounds or a complete absence of speech. The selection process began with purposeful sampling, initially identifying five children with ASD. After interviewing parents and teachers and conducting preliminary assessments, these children were introduced to the therapy animal in a group setting. Those who exhibited fear or caused harm to the animal were excluded from the study. Ultimately, the final participant, a 12-year-old boy, was selected based on these criteria. During the intervention, the animal was freely accessible to the child to facilitate communication. Before each session, the GARS questionnaire was completed with the assistance of the teacher to monitor the child's progress.

Results

Table 1. Intra- and inter-situational visual analysis variables

Inter-situational		Intra-situational		
A with B	1.Position comparison	B	A	1. Position sequence
	2.Trend changes	15	5	2. Position length
	2-1 Change direction			3. Level
Positive	2-2 Target-dependent effect	16	21	3-1Middle
Stable to Stable	2-3Change stability	16/26	21	Average 3-2
	Change in level 3.	14 -21	21 -21	Range of changes 3-3
14/25 to 21	Relative change 3-1	Stable	Stable	3-4 The range of changes in the stability chamber is 20% of the .median of each position
21 to 21	Absolute change 3-2			4. Level change
16 to 21	Median change 3-3	-14/25 17/25	21 -21	4-1 Relative change
16/26 to 21	Average change 3-4	14 -21	21-21	4-2 Absolute change
	4. Data Overlap			5. Trend
%93/33	PND 4-1	Ascending	Descending	Direction 5-1
0	4-2POD	Stable	Stable	Stability 5-2

The results obtained from the analyses indicate that applying the independent variable (animal-assisted therapy) led to positive changes in the verbal symptoms of the child with autism spectrum disorder (PND = 33.93) .In the intra-situational visual analysis, the "length of situations" section shows the number of data points recorded for the participant in both phases: A (baseline) and B (animal-assisted therapy). The median and mean sections present the median and average values in both the baseline and intervention phases. The range of changes refers to the difference between the first and last data points within each phase. The stability range is defined as 20% above and below the median of the phase, helping to assess consistency. The relative change and absolute change in the table reflect the difference between the initial and final observations in both the baseline and animal therapy conditions. With the research goal being to improve the child's verbal abilities, the trend direction section shows that the child's verbal output in the baseline

phase (A) remained at a low (declining) level, but after the animal-assisted therapy sessions, it shifted to a high (increasing) level.

The stability of the trend refers to the predictability and consistency of the data over time. In other words, if the data are unstable, it is difficult for the researcher to make predictions course of the measured variable. In the inter-situational visual analysis, the trend direction change shows a shift from a downward trend (during baseline) to an upward trend (during the animal therapy phase). The goal-related effect section indicates that the treatment model effectively achieved the intended research goal. The PND (Percentage of Non-overlapping Data) represents the proportion of data points in the animal-assisted therapy phase that fall outside the variability range observed during the baseline phase. A PND of 33.93% suggests a meaningful improvement. Additionally, the examination of relative, absolute, and average changes between baseline and treatment sessions provides further evidence for the effectiveness of the animal-assisted intervention in increasing and improving the child's verbal symptoms.

Discussion and Conclusion

The purpose of the present study was to investigate the effectiveness of animal-assisted therapy on improving the verbal symptoms of children with ASD. The findings demonstrated that the animal-assisted educational model was effective in enhancing the verbal abilities of children with ASD and can be considered a useful intervention. These results are consistent with the findings of Dolchek et al. (2024), Rehn et al. (2023), Dimolarova and Dunn (2021), Avila-Alvarez et al. (2020), Saremian et al. (2015), Ahmadi et al |(2011) , all of which have supported the efficacy of animal-assisted therapy for children with autism. In explaining these findings, it can be argued that the effectiveness of animal-assisted therapy for children with ASD is not surprising, given the natural inclination of these children to establish connections with animals. Ren et al. (2023) highlighted, the presence of animals in therapeutic and educational contexts promotes improved communication, increased attention, better compliance, and greater group participation. Furthermore, in the present study, efforts were made to ensure that each interaction between the child and the animal incorporated a verbal component, encouraging the child to use even short or simple words during the sessions. This structured integration of language within the therapy sessions likely played a key role in improving verbal symptoms. Additionally, as Xiao et al. (2024), reported, engaging in play and caregiving activities with animals can foster a sense of responsibility, enhance feelings of empathy, boost mood, reduce loneliness, and ultimately improve social interactions in children with ASD. In other words, animal-assisted therapy acts as both a facilitator and a unique therapeutic element that supports the success of intervention efforts and encourages greater verbal engagement. By creating a lively, motivating, and non-threatening environment, animal-assisted therapy helps increase the child's willingness to interact verbally and socially, thus advancing key developmental goals.

Ethical Considerations

Ethical Code

This research paper is a derivative of a bachelor's thesis in education and postgraduate studies, Allameh Feiz Kashani Non-Profit Higher Education Institute.

Funding and Conflict of Interest

This study did not receive any financial support. The authors have no other conflicts of interest..

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