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Effect of Animal Assisted Therapy as a Mediator on Various Domains in Persons with Disabilities

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Abstract
Persons with disabilities show improvement with various kinds of interventions, which assist them with their understanding of the world. Some interventions show a wide range of changes in individuals' psycho-motor domain, cognitive domain, social skills, communication skills, and cognitive skills. Animal Assisted Therapy (AAT) integrates animals as a mean of providing therapy to persons with disabilities, and has shown significant improvements in the aforementioned domains. This paper aims to check the impact of animal assisted therapy on various domains such as psycho-motor domain, cognitive domain, social skills, communication skills and cognitive skills. The results show a significant positive correlation between various domains where Animal Assisted Therapy was kept as a moderator.

Keywords- AAT, Psychomotor domain, Social Skills, Communication Skills, Cognitive Skills and Emotional Capability.

Introduction-
Disability is outlined as limitation of a person's ability to participate in activities of daily living, to the extent that he or she may have facilitated in doing this. The Americans with Disabilities Act (ADA) of 1990 defines the disability, as 'physical or a mental impairment that substantially limits one or many other major life abilities of a person's life'.
Impairment would mean "any loss or abnormality that can be the cause of psychological, physiological or complex body part or operate like loss of limb, organ or different anatomical structure, as well as impairment would also reflect as a defects or loss of a mental operates. The definition of 'disabled person' consistent with the Declaration on the Rights of the Disabled Persons announced by the United Nations Assembly on 9th December, 1975 is: "any person unable to ensure by himself or herself, wholly or partly, the necessities of a normal individual and/or social life, as a result of deficiency, either congenital or not, in his or her physical or mental capabilities."
Intellectually impaired adolescents with varied degrees of functioning, share common activity and bodily function characteristics. However, such adolescents show low level of fitness and have perceptual-motor difficulties that have an effect on their learning and daily functioning. The foremost issue that these people faced are language comprehension barriers and their failure to understand directions. additionally, some could possess physical characteristics, that create limitation in

learning and activity motor skills.

Animal motor-assisted medical aid (AMAMA) uses a variety of medical aids that involve assistance through animals. WHO considers human-friendly animals like dogs as a means of medical aid to train the individual and enhance their skills by making persons with disabilities participate in activities with medical aid animals designed to enhance functionality in selective areas such as the psychomotor domain or cognitive domain. Dogs are commonly utilised medical aid animals in India as they respond well to humans.

Psychomotor domain- As per Bloom's taxonomy, bodily function or psychomotor domain includes "physical movement, coordination, and the use of motor-skill areas". Development of these skills/needs are measured in terms of speed, accuracy, distance, procedures, or techniques in the execution of a specific task.

Social skills- Social skill domain of development involves communication-related skills in goal-oriented contexts. Pacific Crest (1997) outlines the following areas in the social skill domain: a) communicating, b) relating with others, c) relating culturally, d) managing, and e) leading. A bit like the other domains, the social domain processes encompass a hierarchy of complexities ranging from basic or foundational human activities to complicated tasks such as managing and leading.

Communication skills- Communication, at its simplest, is outlined because of the act of transferring data from one place to a different. It's transferred vocally (using voice), or in written type (using written or digital media like books, magazines, websites or emails), visually (using logos, maps, charts or graphs) or non-verbally (using visual communication, gestures and also the tone and pitch of voice). In general, communication is usually performed with verbal and non-verbal skills. Of all the life skills in a person's life, having the ability to speak effectively is maybe the most necessary of all.

Cognitive Skills- the core skills our brains use to assume, read, learn, remember, reason, and listen. Operating along, the psychological feature skills take incoming data and transfer it into the bank of information that we have a tendency to use daily at college, at work, and in life.

Each of the psychological feature skills play a crucial role in processing new data. Most of the learning struggles are caused by one or a lot of weak psychological feature skills. Psychological feature skills include perception, attention, memory, motor skills, language etc.

Emotional capability- The construct of emotional ability is stock- still within the understanding of emotions as being traditional, helpful aspects of being human. the flexibility to precisely control emotions is an essential part of anyone's life. However, equally important is the ability to grasp, interpret, and respond to emotions of others.

Literature review

AAT showed moderate results, effectively providing outcomes in four major areas: Autism-spectrum symptoms, medical difficulties, behavioural issues, and emotional well-being. Animal assisted activities provide opportunities for psychological feature, academic, recreational, and/or therapeutic advantages to improve quality of life. Animal-assisted activities are delivered by specially trained professionals, paraprofessionals, and/or volunteers, in association with animals that meet specific criteria.

Social Skills

There has been a huge impact of incorporating animals in therapy to showcase certain skills to persons

with disabilities. Animals aid immensely in medical care, as well as with conditions such as Down Syndrome. Down Syndrome is typically associated with challenges with social relationships and stress; and although it may be a spectrum disorder with extremely personal difficulties, social deficits represent the core underlying feature of impairment (Carter, Klin, 2005). The presence of animals has been connected to enhanced social interaction among communities (e.g., Wood, Giles-Corti, & Bulsara, 2005). Animals act as social agents between persons with disabilities and those around them (e.g., Sams, Fortney, & Willenbring, 2006). Animals have been recorded to elicit social interaction, in addition to alternative objects of engagement like toys (O'Haire, McKenzie, Beck, & Slaughter, 2013). People with disabilities may lack opportunities for positive peer interaction (White, Keonig & Scahill, 2007), so if associate animals give an exciting motive to people to follow social interactions in representational surroundings, their presence can foster social development and symptom-reduction through Animal-Assisted Interventions. Most of research echo a positive impact of animal motor-assisted therapies on social skills, with observed changes in social interaction (MdYusof & Chia, 2012). Chandler et al. (2010) matched AAT with counselling interventions and found that AAT is "effective in increasing positive social behaviours and decreasing behaviour problems" (Fick, 1993).

Psychomotor Domain

Studies conducted by Jorge et al. showed that participation in Animal Fun activities using animals for improving motor balance actually improved children's one leg balance at post-test and follow-up stages as compared to children of the control group, regardless of pre-test motor proficiency, age, gender, or pre-test cognitive performance. Participation in Animal Fun also improved throwing skills of children with poor motor proficiency as compared to the control group with poor motor performance. Interaction with associate animal resulted in change in the neurotransmission within the brain, which in turn induced relaxation. This association is also helpful in reducing arousal as a psychological symptom of chronic diseases, as well as physical and mental disabilities (Richeson, 2003; Kongable, L.G.; Buckwalter, K.C.; Stolley, J.M, 1989).

Communication Skills

Nimer and Lundahl (2007) report that the most important benefit of AAT was found in alleviating the symptoms of spectrum disorders (d=0.7), within which the greatest issue observed were deficits in social and communication skills. Studies reported excess communication and use of language as a result of AAI for Autism Spectrum Disorder (Krsˇkova´ et al. 2010; Martin and Farnum 2002; Redefer and Benjamin David Goodman 1989; Sams et al. 2006; timberland et al. 2011). An increase in the use of language within the presence of the animal has also been reported (Sams et al. 2006). Studies have reported a considerably greater frequency and period of speaking regarding animals instead of unrelated topics when compared to conditions where animals were not involved. (Martin and Farnum 2002). 3 studies collected survey-data on language and communication (Gabriels et al. 2012; Keino et al. 2009; Memishevikj and Hodzhikj 2010).

The notion of wanting to replicate applicable behaviours through observing others' behaviour is common within the literature on animal-assisted interventions (Fine, 2000; Rice et al., 1973; Taylor, 2001; Vidrine et al., 2002). Another benefit typically ascribed to AAI is the ability of animals to assist humans understand social interactions, and also the cause-and-effect of their behaviour (Brooks, 2001; Nebbe, 1991). Fine (2006) suggested that animal-assisted interventions have increased psychophysiological

health and healing. According to Holcomb and Meacham (1989), AAT magnified consumer motivation to participate in medical care, and further added the client's sense of calm and safety. Kinsley, Barker and Barker (2012) observed a significant reduction in anxiety in recreation medical care once animals were introduced, compared to when animals weren't included within the same recreation activity. Fine (2006) has extensively written about the positive effects of the presence of an animal and its effect on the perception of the healer as a non-threatening and trustworthy person. Odindaal (2000) observed that lightly touching the dog and a little conversation with pet dogs doubles levels of endocrine, exaggerated beta-endorphins and Dopastat production, and attenuate force per unit area and Hydrocortone levels providing individuals with stress reducing social support.

Emotional intelligence

Positive outcomes of animal-assisted education for children embody positive attitudes toward faculty and learning, reduced stress, development of positive emotions, empathy, higher task performance, improved schoolroom cohesion, prosocial behaviours, and decreased aggression (Brelsford et al; & McCardle et al; 2017). Results show that animal motor-assisted interventions have been effective in rising Emotional comprehension (EC) in kids, because the assessed mental level of EC exaggerated considerably within the experimental cluster compared to the management cluster (Scandurra et al, 2021). Involving pets in school rooms also enhances children's social interactions (O'Haire et al, 2014; & Esposito et al, 2011). Previous studies have examined the impact of dogs on the classroom dynamics, showing that the presence of an associate animal is directly associated with increased social cohesion and reduced aggression among kids aged 6–10-years (Hergovich et al, 2002; & Kotrschal et al, 2003), as well as increased psychological feature task performance among kids aged 3–5-years (Gee et al, 2012; & Hall et al, 2016).

Methodology-

Scope of the study- The study was conducted on persons with disabilities who were receiving Animal Assisted Therapy.

1. Research design- The study employs action research design, which is solution-driven and helps to carry out various observations by making solution-based interventions. The study will include descriptive accounts, and correlation between domains will be made after keeping AAT as mediator for 3 months.
2. Participants- Initially, 20 participants were the part of the study but 3 participants were not able to continue. Hence, 17 participants were part of the study.
3. Sampling technique- Purposive sampling technique was employed as a method of selecting sample for the study.
4. Material/measures used for data collection- A structured questionnaire was used based on the dimensions chosen as the area of the study i.e. psycho-motor domain, social skills domain, communication skills domain, emotional skills domain and cognitive domain.
5. Procedure for data collection- Data was collected by means of observations made by the therapist providing Animal Assisted Therapy over a time period of 3 months.
6. Data analysis- Data analysis was done using SPSS.

Result

Table 1- Descriptive statistics Before and After receiving Animal Assisted Therapy for 3 months

	Descriptive Statistics					
Time Duration		N	Minimum	Maximum	Mean	Std. Deviation
Before providing AAT	Psycho-motor Skills	17	45.00	142.00	75.35	28.38
	Social Skills	17	11.00	31.00	21.12	6.01
	Communication Skills	17	13.00	33.00	22.06	5.85
	Emotion Skills	17	26.00	60.00	41.76	9.78
	Cognitive Skills	17	20.00	40.00	28.00	5.16
After 3 months of providing AAT	Psycho-motor Skills	17	43.00	141.00	88.59	27.03
	Social Skills	17	11.00	32.00	22.18	6.41
	Communication Skills	17	13.00	38.00	26.00	6.73
	Emotion Skills	17	26.00	58.00	41.82	9.24
	Cognitive Skills	17	21.00	46.00	31.65	7.06

Table 1 shows the mean values of the domains before and after providing Animal Assisted Therapy (AAT) for 3 months. The mean scores obtained by the participants before providing Animal Assisted Therapy across various domains are Psycho-motor domain (75.35), Social skills (21.12), Communication skills (22.06), Emotion skills (41.76), and Cognitive skills (28). The mean scores after providing Animal Assisted therapy for 3 months are Psycho-motor domain (88.59), Social Skills (22.18), Communication skills (26), Emotions (41.82), and Cognitive Skills (31.65).

Table 2- The correlation between various domains of the study before and after providing AAT.

Domains	Effect	Psycho-motor Skills	Social Skills	Communication Skills	Emotion Skills	Cognitive Skills
Psycho-motor Skills	Before	1	.660**	.805**	-.436	.730**
	After	1	.802**	.862**	-.216	.773**
Social Skills	Before		1	.795**	.074	.578*
	After		1	.860**	.144	.721**
Communication Skills	Before			1	-.110	.748**
	After			1	.005	.872**
Emotion Skills	Before				1	-.128
	After				1	.111
Cognitive Skills	Before					1
	After					1

Table 2 shows the correlation between various domains among persons with disabilities before and after providing Animal Assisted Therapy (AAT). There was a significant positive correlation of Psycho-motor skills with Social skills (.660**, .802**), Communication skills (.805**, .862**), and Cognitive skills (.730**, .773**). Social skills have a significant positive correlation with Communication skills (.795**, .860**), and Cognitive skills (.578**, .721), and Communication skills have a significant positive

correlation with Cognitive skills (.748**, .872**) before and after the administration of AAT respectively at .01 level of significance. The Pearson correlation value for after the administration of AAT was more than the correlation value before the administration of AAT.
Emotion skills do not have any significant correlation with any domain of the study.

Discussion

The results depict that Animal Assisted Therapy does have an impact in enhancing skills among persons with disabilities. The Pearson correlation value shows that positive correlation existing between various domains got stronger when Animal Assisted Therapy was provided to them as a form of intervention. The positive correlation between the psycho-motor skills, social skills, communication skills, emotion skills and cognitive skills showed that when psycho-motor skills of the individual improved, there is also an enhancement in social skills, communication skills and cognitive skills of the person and vice versa (Borrego et al., 2021). Social skills also have a significant positive correlation with communication and cognitive skills, which means that social skills also have a significant effect on the communication and cognitive skills of the person. People with good social skills are also good communicators and have the skill to express themselves well, which in turn enhances cognitive skills i.e. arranging thoughts for communication, evaluating what to say and what not to say. Appropriate communication requires good cognitive skills. Persons with disabilities, after being exposed to Animal Assisted Therapy as an intervention showed that the correlational value existing between these domains increased post-intervention. Animal Assisted Therapy as a mediator does have a positive effect on persons with disabilities.

Conclusion

There are many benefits of including animals in interventions for persons with intellectual disability in order to bring about improvements in various life domains such as the psycho-motor domain, cognitive domain, social skills, communication skills and emotional intelligence. Many studies have been conducted in this regard, and give empirical evidence of the success of Animal Assisted Therapy. But very few studies have been conducted on understanding the measurable effect of Animal Assisted Therapy on persons with intellectual disability of all age groups, and is also no special scale that measures improvement across various domains. Future research needs to focus on exploring this path and the benefits of Animal Assisted Therapy by measuring activity-based progress which could lead to tasks designed based on individual needs.

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