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Animal-Assisted Therapy in Occupational Therapy

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Abstract

Developing technology, rehabilitation services, and health definitions have brought about the use of different treatments as well as traditional treatments. Some of these methods are virtual reality, animal-assisted practices, and aqua therapy. Animal-assisted approaches are the therapeutic methods of eliminating and using the problems that an individual experiences in the physical, emotional, psychological, social, sensory, and environmental development areas by taking advantage of human and animal interaction. These methods consist of two basic chapters: animal-assisted activities (AAAs) and animal-assisted therapies (AATs). An interdisciplinary team is needed to implement the methods. This team is composed of personnel, such as occupational therapist (OT), physiotherapist, speech therapist, special education specialist, and a psychologist, who have been trained in this area. In recent years, these methods have been used to increase social interaction with physical structure and functions in neurodevelopmental disorders such as autism spectrum disorder and cerebral palsy. In addition, it is actively used in mental disorders such as depression and anxiety because an improvement is observed by providing the individual to feel safe. When participation is considered in the context of independence in daily life activities are very important, the use of animal-assisted in occupational therapy.

Keywords: animal-assisted, occupational therapy, rehabilitation

1. Introduction

Developing technology, rehabilitation services, and change in health definitions have brought about the use of different treatment methods as well as traditional treatments. Some of these methods are virtual reality, animal-assisted practices, and aqua therapy. Animal-assisted approaches are defined as using human and animal interaction in therapeutic methods to eliminate or decrease the problems that an individual experiences in the physical,

psychological, and social environments. These methods consist of two basic topics, namely animal-assisted activities (AAA) and animal-assisted therapies (AAT). Both AAA and AAT can be implemented in an interdisciplinary team approach. Occupational therapists (OTs), physiotherapists, speech therapists, special education specialists, and psychologists are core elements of these approaches. In recent years, these methods have also been used to increase social interaction with physical structure and functions in neurodevelopmental disorders such as autism spectrum disorder and cerebral palsy in addition to mental health disorders such as depression and anxiety to increase the independence in daily life activities and social participation.

2. Overview of animal-assisted therapy

The American Veterinary Medical Association has been involved in human and animal interaction as psychological and physical functions between human beings and animals. In this interaction, they define individual's quality of life as a structure that contributes positively to their improvement [1]. Animal-assisted rehabilitation, the inclusion of animals that can interact with humans such as cats, dogs, and horses, has an active role in the rehabilitation process with the aim of achieving rehabilitation goals [2, 3]. When such approaches are incorporated into rehabilitation programs, the general condition of the individual and the treatment principle that the rehabilitation team has followed are taken into account [4, 5]. Animal-assisted rehabilitation approaches, rather than a stand-alone approach, are a strategic concept where multiple professionals work together to achieve interdisciplinary goals within a single goal [5]. This framework consists of three basic questions. The first question is "what are the benefits of the individual animal and therapeutic activities including animals?" The second question is "how to include the animal to the rehabilitation process?" The third question is "what are the most appropriate activities for the individual?" [1] Based on the answers of these questions, animal-supported approaches are grouped under two main headings: animal-assisted activities (AAA) and animal-assisted therapies (AAT). When therapeutic properties of AAA are investigated, it has been found that it helps to reduce the level of stress and anxiety and indirectly increasing the self-confidence and socializing. It is stated that AATs were predominantly used to support neurodevelopmental substructures of individuals and make a positive contribution to their well-being [6].

3. History of animal-assisted therapy

3.1. Animal souls and spiritual healing

Animals play an important role in the history of the disease with different ideas about disease and its treatments. However, the precise characteristics of these roles depend not only on the prevailing views of animals but also on supernatural or "scientific" belief systems in which they are buried. Probably, the oldest of these belief systems, often called "animism," includes the concept that all natural beings, as well as other natural objects and phenomena,

are circulated by an invisible soul, spirit, or “essence,” but with conscious bodybuilding, the carrier can act independently of the body when it dreams or is unconscious. In a typical animist worldview, all statements of illness or misfortune are the direct result of attacks by the other angry or evil spirits encountered during these periods of unconsciousness toward the spirit of the person or the “truth.” In some cases, these spiritual attacks are thought to be reprisals. It is the result of moral accusation that the person intentionally or mistakenly does. On the other hand, a person can be the innocent victim of a malicious shaman or the attack of souls acting in the name of witches. Tips about the root of spiritual attacks are provided by the contents of dreams or images just before certain illnesses, injuries, or misfortunes [7–9]. Animist belief systems carry the characteristics of all communities that engage in hunting, and disturbing animal spirits among these communities are often seen as the most common source of malicious mental influences. Many hunters believe that the souls of hunted animals in the tribe have the ability to seek revenge as the ghosts of killed people. To avoid this accretion, all animals, whether dead or alive, are treated with great respect [10]. In other hunting and feeding cultures, there were more specific moral associations between people and the animals they hunted for food. For example, many Native American and Eurasian peoples believe in the concept of personal “protective spirits” [7, 11]. Between Ojibwa (Chippewa) and the Algonian neighbors, these spirits were known as *manito* and were often represented as spiritual representations of wild animals or figures of their ancestors. Live animals were regarded as “honorable servants” of their own *manitos*, and this kind of spirit apparently presided over and represented all the worldly members of their species. For this reason, the hunters made contradictory ceremonies after killing an animal, so that the “essence” would return to *manito* with a convenient explanation of how it was processed. According to Ojibwa worldview, *manito*’s activities explained almost all conditions of everyday life. Every living thing, whether alive or dead, was equipped with spiritual powers and associated with any unfortunate *manito*, such as illness, injury, death, or hunting that resulted in failure or the lack of personalized intention of someone else [12]. It was believed that the protective spirits of the animals differed in power. The majority of insects and small animals, such as mice, rats, or squirrels, were referred to as not important species because there was the belief that these animals lacked the protective qualities. On the other hand, it was believed that animals such as the bear and eagle had good protective spirits and so they were considered valuable [7, 12].

3.2. Animals as socialization agents

The end of the seventeenth century which was called “Age of Enlightenment” brought some changes in the public perception of animals that are well documented by historians of the modern age [13, 14]. Among these changes, contrary to the pre-medieval and renaissance periods, sympathetic thoughts began to dominate attitudes toward animals and nature [15]. While perceptions of wildlife and threats to wildlife have diminished from prevalence, pet-feeding habits have expanded to aristocratic and middle-class communities living in newly founded cities. This change in animal-related attitudes and behaviors could at least partly reflect Europeans’ migration from rural areas to the towns and cities, and the rapid spread of the human population. This rural migration made it possible for the population to be adapted to systems designed for growth [8, 14]. The reformers of the eighteenth century, deriving their authority from the works of John Calvin and Thomas Hobbes, thought that they could

indirectly learns from the innate, unfavorable characteristics of children by using children's behavior to take care and control real animals [16]. Compassion and anxiety for the health of animals became one of the didactic themes of children's literature that lived in the eighteenth and nineteenth centuries; the main aim was to inspire the morality of the good and sex, respectively, especially in boys [17–19]. In the late eighteenth century, theories about the social effects on animal care were initiated in the treatment of mental illnesses. The best-documented studies took place in The York Retreat in England. The York Retreat used more innovative methods than the mental treatment methods used at that time. In this study, prisoners were encouraged to do handwriting, writing and reading books, and they were also allowed walking freely around the courtyards and gardens of the Retreat, where small pets were also part of the Retreat and prisoners could interact with them. In his description of the Retreat (1813, p. 96), Samuel Tuke, the founder's grandson, described how the internal courtyards of the Retreat were supplied "with a number of animals; such as rabbits, sea-gulls, hawks, and poultry. These creatures are generally very familiar with the patients: and it is believed they are not only the means of innocent pleasure; but that the interaction with the sometimes tends to awaken the social and benevolent feelings." In the nineteenth century, pets became an increasingly popular feature in the psychiatric departments of hospitals in the UK. For example, in a highly critical report on terrible conditions for patients in Bethlem Hospital in the 1830s, British Charity Commissioners proposed that the shelter of people with a mental problem is provided support for treatment of sheep, rabbits, apes or other domestic pets, they have also been described as social animals. Such recommendations are clearly taken seriously. According to a paper published in *Illustrated London News* of 1860, the regulations at Bethlem Hospital have been redesigned according to the stimulus [20]. It has been observed that animal companions have beneficial and therapeutic effects in the treatment of physical disorders. Florence Nightingale, for example, observed and wrote in *Notes on Nursing* (1880) that "a small pet is a particularly good friend, especially for the patient, long chronic cases" [21].

3.3. Psychotherapy and animals

Despite the success of animal-supported institutional care in scientific studies during the nineteenth century, with the development of evidence-based medicine in the early twentieth century, the use of animals in hospitals has declined dramatically [20]. For the next 50 years, animals were used in the context of zootomic illnesses, public health concerns, or psychoanalytic theories of the origin of mental illnesses. Sigmund Freud's ideas concerning the origins of neurosis tended to reiterate the Hobbesian idea of mankind's inherently beast-like nature [16]. According to Freud, infants and young children are in fact similar to animals, as long as they are governed by instinctual desires or could be influenced by organized basic biological functions such as nutrition, defecation, sexuality, and self-protection. Freud describes this basic and animal-like instinct of human nature as "identity." As children mature, their parents' behaviors will either cause too much impulsive behavior by reacting to the child's inner aggression or induce their sense of fear, guilt, and socialization. The suppression of these children under the consciousness of children ensures that their behavior in their daily lives is healthy. But they are like animals in their 30s. Freud refers to this as a bottled animal chart. It results in explosive situations where the individual cannot go out on regular outings [22]. Freud interpreted the

recurrent animal images of his patients' dreams and "freethinking" as metaphorical means that hid the unacceptable thoughts and feelings of humans. "The Wild Beast" he argued, "It makes him happy that other dreams come true while the passionate spirits of the dreamer are afraid of himself" [23]. These crude thoughts and impulses threaten the "ego" so deeply that they can be ignored in the dark corners of the consciousness in proportion to the capacity of the subconscious within the hours when at least one person is awake. According to Freud and his followers, the aim of psychoanalysis is to reveal these scary residents of the subconscious, to reveal them as they are in their true nature, and thus to neutralize them [24]. The notion of "id," Freud defines as the basic "animal" essence of human nature, contains more than a superficial resemblance to animistic and shamanic ideas about animal spirits and protective spirits, including bad thoughts/"evil self" or spiritual origins [24]. In the study on Carl Jung, especially his discussions of mythological archetypes in dreams and visions, and his concept of the "Collective Unconscious," this resemblance becomes more or less explicit [25]. It is also echoed in the writings of Boris Levinson, the founder of "pet-facilitated therapy." In his book *Pets and Human Development*, Levinson states that:

One of the chief reasons for man's present difficulties is his inability to come to terms with his inner self and to harmonize his culture with his membership in the world of nature. The rational man has become alienated from himself by refusing to face his irrational self, his own past as personified by animals [26].

According to Levinson, the solution to this growing sense of alienation is through positive relationships with the animals, as if dogs, pets, and other domestic animals are within themselves. It is emphasized that this relationship has increased the quality of life by positively contributing to the solution of the problems experienced by the individual in the spiritual sense [27]. Levinson went one step further to the idea that Freud propagated and suggested symbolic patterning system of things where we fear to confront animals; in order to argue that their relationship with animals is an important part of human evolution and that it is now an integral part of our present psychological well-being [26].

3.4. Animals, social support, and relaxation

There has been considerable development in the theoretical substructure of animal-assisted approaches during the last 20 years and, at least in part, in response to the skepticism shown toward blood-based medicine. This substructure offers the basis for demonstration as a psycho-mental mediator by providing relief from relatively metaphysical-based thoughts about animals [24]. The primary catalyst for this change of emphasis was a single, groundbreaking study of 92 outpatients from a cardiac care unit who, statistically speaking, were found to live longer if they were pet owners [28]. This finding prompted a whole series of other health-related studies as well as stimulating a lot of discussion concerning the possible mechanism(s) responsible for the apparent salutary effects of pet ownership. Of these, at least two have stood the test of time. According to the first, animals are able to induce an immediate, physiologically de-arousing state of relaxation simply by attracting and holding our attention. According to the second, companion animals are capable of providing people with a form of stress-reducing or stress-buffering social support [29, 30]. Although the de-arousing effects of animal contact have been demonstrated by a considerable number of recent studies, little evidence exists at present that these effects are responsible for more than transient or short-term

improvements in physiological parameters, such as heart rate and blood pressure. On the other hand, pets serving as a source of social support seem to provide a relatively high level of evidence for the longer-term benefits of animal companionship [31]. Cobb has defined social support as “relationships that direct, to emphasize and give importance to, to describe that it is the pattern of mutual obligations.” However, the newer authors have expressed it as “perceived social support” and “social networking” characteristics. The first represents a qualitative definition of the degree of satisfaction from the support that one receives from certain social relations; the second is a more quantitative measure involving the number, frequency, and propensity of the person’s general social interactions [32]. However, the importance of social support to human well-being, which we wanted to describe, has been regarded as one of the top-down issues throughout history. Loneliness—lack of social support—has always been seen as a painful and distasteful phenomenon; since ancient times, societies have used single-cell imprisonment, exile, and social mobilization as methods of punishment. This, in fact, shows that loneliness is actually the basic punishment method. In addition, religious themes explain in detail the psychological effects of autobiographical, social isolation that homeland traitors and prisoners of war wrote. Many of them describe physical torture in a way that will emotionally, often sharply, up to the apex of gradual descent. This decrease in pain is associated with the onset of a serious indifference and hopelessness, which usually requires catatonic deprivation [29]. In the last 10–15 years, a comprehensive medical literature has emerged confirming that there is a strong and positive link between social support and improved human health and survival [33–35]. There is a great deal of social support in reducing the adverse effects of stress, which chronic life has brought. With the controversy still underestimating these effects, many authorities now accept the judgment that the main benefits arise from the buffering or healing capacities of long-term effects of supporting social relations [36]. Theoretically, this beneficial effect of social support should be applied to any positive social association. It has been observed that positive behaviors are exhibited within the two parties in relation to which one is loved or respected. Despite the increasing evidence for anthro-zoological research in the recent past, the idea that animal attendants contribute socially to human health, however, received very limited medical attention [8].

4. Animal-assisted therapy in occupational therapy

4.1. The role of animal-assisted approaches in rehabilitation

AAT is used as a therapeutic approach in rehabilitation. AAT approaches are being used all over the world in order to improve not only the emotional and psychosocial states but also the physical, sensory, and cognitive skills positively for individuals with various diseases or of different ages [37, 38]. Rehabilitation practices include holistic approaches, with divergence toward children, adolescents, adults, and elderly people.

It is known that there are many neurological, physiological, and genetic diseases seen in children, and the rehabilitation practices are widely used in these children [39]. In literature, AAT is commonly used in children with cerebral palsy, developmental neurological disorders,

autism spectrum disorders, sensory processing disorders, degenerative neurological and muscle disorders that mainly focus on control of muscle tonus, mobility, and balance [40]. When the elderly and adult population rehabilitation applications are examined, it is seen that animal-assisted approaches are preferred in the treatment of diseases such as multiple sclerosis, head trauma, post-traumatic neurological conditions, Alzheimer Disease, dementia, anxiety, and depression [41–43]. These diseases can cause a reduction in postural symmetry and control, and deterioration in cognitive skills like attention, memory, and executive functions [37].

All of these patients with diseases, whether young or old, were psychologically affected, and their motivation decreased during rehabilitation. It is known that sensory, emotional, and physical characteristics of animals can be utilized to increase the level of motivation in rehabilitation. In fact, in most developed countries today, health-care providers employ animal-assisted therapy in a wide range of settings, including rehabilitation centers, acute care, psychiatric centers, and outpatient clinics. For example, doctors' consulting rooms have fish tanks in their waiting rooms to promote a sense of calm [44]. It is now well known that the presence of animals can induce relaxation, increase positive emotions, reduce resistance to treatment, and put patients' minds at ease.

Awareness of the advantages and disadvantages of the animals and species used by the professional practitioner team in rehabilitation practices involving many health disciplines involved in this area positively affect the effectiveness of rehabilitation [6]. At the same time, it also emphasizes the importance of knowing the animal's unique structure and instincts in these studies [6, 37]. Most studies and programs in AAT utilize animals such as livestock, dolphins, dogs, cats, birds, hamsters, or horses [45]. All animals have certain advantages and disadvantages within themselves, so that the practitioner can make arrangements according to the individual and individual's needs.

4.1.1. Therapy with livestock

It is mentioned in the literature that all farm animals can be easily included in treatment approaches as long as they are checked by the veterinarian for good health and reliability. The benefits and difficulties of incorporating livestock into therapy approaches may vary according to the therapist's rehabilitation goal. These animals are preferred by the occupational therapists (OTs) in rehabilitation applications, in particular for those individuals who have difficulty in independent daily living skills, in terms of a large living space, and special need for care. There are also studies showing that AAT with livestock affects individuals' motor and cognitive functions positively [46, 47]. They are preferred by OTs because they can help improve their equilibrium, hand-eye coordination, executive function, and hand skills of individual.

4.1.2. Therapy with dolphin

AAT in individuals with both physical and cognitive impairment is a useful method for facilitating human interaction, stress reduction, relieving depression, and increasing

motor and cognitive functions in therapeutic purposes. The dolphin is one of the most important animal species that provide them. There are two main reasons for choosing the dolphin in therapy session when compared to other species: the first is the dolphin's intelligence and learning style and the second is water as stress reduction [45]. On the other hand, there are also some difficulties or disadvantages to working with dolphins. Researchers suggest that the dolphin has some risks due to the fact that it is not a domestic animal, the results of evidence-based studies are very low, and treatment conditions come with very high costs [48].

Dolphin-assisted therapy is commonly used in people with head injuries, schizophrenia, cancer, or other chronic diseases for improving both gross and fine motor skills, developing sensory integration, and increasing communication skills. Nathanson et al. indicated that measurable improvement was observed in the functioning in children with autism spectrum disabilities when dolphin therapy was conducted 5 days per week for at least two weeks [49]. It is suggested that the dolphin should be used as a supportive therapy in the healing and motivational aspects as well as the positive aspects in human beings.

4.1.3. Therapy with dogs

One of the animals frequently used in therapy by professionals working in various fields is the dog to improve the physical, cognitive, functional, and social skills of individuals. The most important areas of use are autism spectrum disabilities in children and visually impaired individuals [50]. Many studies mentioned that the degree of independence in daily living activities improved when using dogs as a therapy companion [50, 51]. It is observed that dogs, one of the most important parts of AAT, interact better with people than other animals [6]. Dogs are highly preferred by experts because they are both AAA and AAT suitable for use in therapeutic approaches.

Dogs are often preferred for both children and adults in therapy because they are friendly, sympathetic, obedient, and playful. They are also used as a guide for the blind, as walking aids for physically challenged, and a hearing assistance for the deaf. Many studies have shown that dogs offer vital benefits in terms of reducing functional disability and facilitation of communication and interaction in humans [38, 52]. Therefore, it is important to remember that dogs can be used for animal-assisted approaches toward therapy, primarily for all ages and patients with diagnosis.

4.1.4. Therapy with cats

Cats can often help in both AAA and AAT like the dogs [53]. They are free spirited and can interact with humans and provide sensory and emotional support to individuals. Due to these characteristics, cats have shown that they especially affect individuals' well-being and quality of life positively [6]. It is known that they can be easily used in supplied everywhere as well as in the living space of the individual. However, it can be said that the most common disadvantage of using cats in therapy is their allergic furs [54]. It is therefore necessary that the therapist who applies the animal-assisted approach to patients has to understanding and know the patient's allergic conditions and chronic diseases.

Interest in AAT is increasing day by day in the literature. While it is generally believed that cats are widely used in AAT, we found no qualified studies that used a cat [37]. So, there is a need for OTs to investigate the disadvantages of utilizing a cat in the therapeutic approaches on patients with having a disability in daily life skills.

4.1.5. Therapy with small animals

Pets that are described as small pocket animals, feathers and furs of varying lengths, color, and characteristics that vary in appearance are categorized in this section. Small animals consist of fish, birds, hamsters, turtles, and rabbits, which can be found easily in the classrooms, offices, or schools rather than other large animals. OTs can benefit from the use of these animals in the development of activities in areas requiring community participation.

These animals often carry on with their lives as an ordinary part of the circle. But at this time, it is especially used in therapeutic approaches for both children and psychiatric patients in terms of learning to take responsibility for animals [43, 55]. These animals have a disadvantage in terms of the limited span of life (2–5 years) which can hamper rehabilitation process [56]. Although these animals are preferred in performing small tasks in AAA, the number of studies in the literature is inadequate.

4.1.6. Therapy with horse

Among animal-assisted approaches, horses are the most commonly used animals in therapeutic approaches toward patients [6]. When examining thousands of years of history, no matter how much the environmental conditions change, there has always been an intense relationship between societies and horses [57]. In the literature review on the therapeutic use of horses, the concept of AAT is under two headings: therapeutic riding and hippo-therapy. These concepts are named differently as both methods are different but basically with the same goal [58].

Although there is a belief that horses were tamed and ridden and used in the treatment of the human beings in B.C., there is no definite evidence on this subject [59]. Looking at history and the use of horses as therapeutic agents, horse riding was considered as a physically during exercise in the sixteenth and seventeenth centuries. This aspect was also observed during the 29 rehabilitation of war veterans after the World War II [58]. The use of horses for disabled people has been intensified since the middle of the twentieth century. The best example regarding this was the treatment process, which resulted in Lis Hartel, professional horse-rider, participating in the Olympics and winning a medal while losing lower extremity functions due to polio. After this excellent success, equestrian federations have been established in many developed countries, mainly in England, and AATs are being covered under universal health insurance [60].

Hippo-therapy, one of the commonly used methods of therapeutic intervention, is derived from the ancient Greek word “Hyppos.” With this method, horses can be used to develop or rehabilitate the individual’s physical, sensory, cognitive, and social functions through the use of horseback movements. Since 2010, American Hippo-therapy Association has created a conceptual framework that includes sensory integration, including dynamic systems theory and

motor learning. This conceptual framework takes into account the natural rhythm or movement of the horse that can affect the participants' neurological, motor, vestibular, sensory, and functional considerations to achieve the intended goals or outcomes [61].

Choosing the appropriate horse for the therapy session helps the individual to meet the rehabilitation needs with the individual and the horse feeling more comfortable. The features of an ideal therapy horse are an average age of 10–12 years, an average height of 150–160 cm to help control horses and riders and side holders to about 45° tilt (the stepping stones will get harder as the angle of the bog is lowered), and being calm and gentle [6, 60]. The sessions with hippo therapy, which consist of meeting, warming, working, relaxation, and farewell, are planned by interdisciplinary professionals. Hippo-therapist, occupational therapist, physiotherapist, special education specialist, private horse instructors, and volunteers who have been educated about hippo therapy may be included in the rehabilitation sessions in menaj [61].

As a treatment strategy, hippo therapy may primarily be dependent on the theory of sensory integration because the movement of the horse provides a sensory experience for the rider. The role of therapists is to determine the amount of sensory stimulation and the input [61]. For example, walking slowly cannot be enough incentive to allow the rider to join a relative. On the other hand, brisk walking or jogging can increase the attention span. In addition, riding bareback can help the rider get the maximum possible proprioceptive input. As an alternative approach, stirrups (used with a saddle or backpack) can help proprioceptive input by gravity on the hard surface. Sans, Fortney, and Willenbring [71] argue about this approach of sensory integration as a rider. In addition, this internal drive can be further improved through the connection between the rider and the horse.

At a hippo-therapy session, the horse changes motion by an average of 2000 steps, which means that the rider is also taking 2000 strokes—about 2000 muscle contractions. It has been proved that the increased number of repetitions support motor learning. Therefore, the increase in the number of repetitions due to hippo therapy is the most important parameter supporting the development of static-dynamic balance, weight transfer, motor planning, and motor skill in the direction of the individual's motor learning principles [62]. During hippo-therapy intervention, following the provision of a suitable position for the rider, the three planes are prepared in accordance with the principles of movement, rhythm, motor learning, and motivation. It has a positive effect on coordination, reaction time, sensory processing, respiratory control, motor planning, and postural control [6, 62]. This multifunctional approach helps to increase the positive effect of the therapy and success of the therapy.

4.1.7. Animal-assisted therapy and occupational therapy

Occupational therapy is a client-centered approach to these individuals in rehabilitation practices. The assessment and intervention of occupational therapy are aimed to improve the participation in their daily living activities more meaning and oriented [63]. Occupational therapists use a lot of approaches in their practice to improve quality of life and well-being in their patients. A range of target areas that can be addressed with the help of therapy animals are listed in the book for AAT interventions for OT: motor skills (gross and fine motor), neuro-musculoskeletal skills (range of motion, strength, balance), sensory functioning (tactile,

visual, auditory), cognitive skills (orientation, attention, executive functions), weight bearing, communication skills (expression and acculturation language, cooperation), psychosocial skills (well-being, motivation), perception processing skills (body perception, depth perception, spatial relationships), and respiratory function (diaphragm force, positioning) [6, 64].

According to OTs' views and perceptions of evidence-based practice, AAT is one of the methods used in rehabilitation. Some researchers have investigated the impact of AAT on elderly participants who were diagnosed with psychiatric, physical, and developmental disabilities in long-term care settings [65]. Van Fleet and his colleagues describe an animal-supported occupational therapy as a learning process in which a professional therapist carries out a therapy session, using a dog, to facilitate the development of the skills needed by the child to have an independent function in self-help, playgrounds. A therapy dog may become part of the learning process when learning everyday tasks related to the animal [66]. OTs may add a wrist weight to gain strength from the weak arm or use a customized brush with a special handle to help the child hold the brush. Thus, the child becomes more motivated and excited to participate in the treatment. Thus, this method helps OTs, and the child can reach the child's treatment goals more quickly and easily [67]. In another study, AAT was also applied on patients with post-traumatic stress disorder generally seen in personnel during military service; AAT was found to provide positive benefits. It was also observed that new gained in combat veterans learned new skills using trained dogs [68].

Dogs are a popular choice for many occupational therapists. OTs showed that treatment with dogs, which are often preferred for treatment, has improved social skills, motivation, having an interest in the environment, and self-awareness of children with autism spectrum who had behavioral problems [6]. A study performed on OTs found that senior citizens in a walking program at an assisted living facility walked further when with a dog than when they walked alone, indicating the potential value of pets in physical conditioning [69]. Due to the earlier studies mentioned, the OTs believed AAT impacted individuals through internal responses to the animal and thorough responses to the external environment. On the other hand, horses proved to be effective in treatment programs, especially for physically disabled people. Among the reasons for preferring the horse in these types of patients include; it can be said that walking on the horse can feel like as the walking accent, walking distance can be adjusted by the therapist or rider if necessary, and positive feeling can increase the motivation of the person [6, 70].

In almost all studies on AAT, animal interaction increased motivation of individuals:

- Those who refuse therapy may come to therapy sessions more often and easily when they know that animals are present.
- Interaction with animals raises morale of long-term care residents.
- People feel better socially people feel better about themselves the idea of ownership of animals and the responsibility for care given to them increases the daily devotion
- Sense, motor, perception, cognitive, and social skills improve.
- Participation in functioning and daily living activities are facilitated.

OT should focus on the use and participation of meaningful activities to improve the quality of life of an individual in AAT intervention. For these purposes, it is aimed to develop correct posture and walking pattern, mobility of the pelvis and hip region, head and trunk control, muscle tone and strength, sense regulation, social communication, self-confidence and empathy, motor and cognitive skills. It is thought that the ability of individuals to improve their skills, function, and quality of life can be improved by pet ownership, care of animals, and regular interaction during therapy.

The frequency of use of the AAT and AAA in the field of rehabilitation for the last 10 years has been rapidly increasing. Animal-supported approaches from different countries and disciplines showed positive effects on sensory, emotional, and cognitive functions, especially the physical structure and functions of individuals at different ages and diagnoses. OTs emphasize the effectiveness of this method in studies conducted in the field of occupational therapy. At the same time, we believe more qualitative and quantitative research and more detailed studies are still needed and OT's and OT intervention programs focusing on therapeutic use of animals in rehabilitation must continue.

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