

Pet ownership: a brief review

Nafis I Assad*

Laboratory Officer Frozen Semen Project Ranbir Bagh Jammu and Kashmir - India

Abstract: People keep pets for companionship, recreation and protection rather than for the specific healthcare considerations. However, a sizable body of literature supports the idea that companion animals can improve overall quality of life, including physical, social and psychological health. This phenomenon has been described as the 'pet effect'. Pet benefits to human health have also been described as Zooeyia. Zooeyia is the positive inverse of Zoonosis. Also, many recently conducted studies have revealed the positive influence of pets on office performance of employees as also their relationship with their employers. This article attempts to present a compilation of different studies, surveys and research findings pursuant to Zooeyia.

Key Words: pet ownership, dog, human animal relationship

* Corresponding Author: dnnafie2020@gmail.com

Introduction

Dog has been recognised as a companion and friend by mankind through a major part of evolutionary history. Some of what has been considered a mere work animal or vermin and even a pest in the past is today pampered and highly valued in households globally for enriching lives as pets. Pet is a term of endearment reflecting the bond people share with their companion animals (Walsh, 2009).

Among various pets kept by people, dogs and cats are most popular. People also keep other domestic species as companion animals such as birds, rabbits, hamsters, horses, guinea pigs, ferrets, and gerbils. The trend of non-conventional pets such as snakes, wild game, fishes, lizards, and turtles is also picking up. According to Global Animal Medicines Association, there are 223 million dogs and 220 million cats worldwide, excluding strays. Sixty-eight percent of North Americans live with at least one pet with 66 % of them considering pets as family members (Hodgson et al., 2015). Over three quarter of children in the United States live with pets. In Canada, 15% of families acquire pets every coming year (Perrin, 2009). The 2017-18 US Pet ownership and Demographics Sourcebook reveals that US alone has over 140 million pets with each household spending around 165 dollars on their pets each year. People usually keep pets for companionship, recreation, and protection. However, the role of a pet keeps evolving during the life of a person (Menor-Campos et al., 2019). Pets can complement the family structure: sometimes having the role of a child, for their infantile aspect (Gazzano et al., 2013); sometimes a working partner or companion. Pets can also act as replacement for family members by either augmenting or interfering with human dynamics (Hodgson & Darling, 2011). In the present internet-based computer driven life, where technology and social media has caught the imagination of one and all, pets are increasingly providing real life experiences to more and more people. It won't be an over statement to mention that during the present times of physical and social distancing due to COVID-19, many people get their only real-life experiences from their pets.

People intuitively believe that they derive health benefits from relationships with their animal companions. Many scientific studies performed over past 25 years support this belief. Numerous

studies have highlighted physiological, psycho-social and employment benefits of rearing and engaging pets. In times of family transition, such as illness or death, pets support coping, resilience, and recovery. Pets also provide significant support and stability during the disruptions caused by the relocation of a family member (Beck, 2005). Pets provide companionship and support, reduce stress and provide a sense of purpose to physically challenged human companions. Pets are actively integrated with everyday living. They participate in family rituals and ceremonies. Many families buy holiday gifts for their pets and often celebrate their birthdays.

In many instances, human health professionals contribute to the welfare of their patients by encouraging them to maintain bonds with their pets, even in the face of serious illnesses and other challenges. The significance of pets to human health has long been acknowledged by US National Institutes of Health. The consensus statement of NIH on the health benefits of pets concludes with a call for all future studies in human health to consider the presence or absence of a pet in the home and the nature of the relationship with the pet (NIH Consensus Development Program, 2014).

Of late the impact of pets on the employee-employer relationship and office performance has received much attention. Many companies including Google and Amazon are now allowing pet in their offices (Morris, 2017). Today's younger workers are particularly receptive to pet-friendly workplaces.

An overwhelming majority believe pets at work positively affect employees and company culture. In the Banfield Pet Hospital's Pet-friendly workplace Pawrometer Survey in 2017, more than half of millennials surveyed said they would be far more likely to stay at a company that allows pets in the office. Friday following Father's Day each year has been designated "Take Your Dog to Work Day" since 1999 (Pet Sitters International, 2017).

Technical Summary

People keep pets for companionship, recreation and protection rather than for the specific healthcare considerations. However, a sizable body of literature supports the idea that companion animals can improve overall quality of life, including physical, social and psychological health. This phenomenon has been described as the 'pet effect' (Allen, 2003). Pet benefits to human health have also been described as Zooeyia. Zooeyia is the positive inverse of Zoonosis (Diseases transmitted from animals to humans and vice versa). Also, many recently conducted studies have revealed the positive influence of pets on office performance of employees as also their relationship with their employers. This article attempts to present a compilation of different studies, surveys and research findings pursuant to Zooeyia. The beneficial effects of pets as revealed by various studies can be grouped under the following headings:

- Effect of pets on General health and well-being of pet parents.
- Effects of pets on various physiological parameters of pet parents.
- Effects of pets on Psychological and Mental Health of pet parents.
- Effects of pets on social interactions of pet owners.
- Effects of pets on children.
- Effects of pets on office performance and Employer-Employee relationship.
- Potential Risks of Pet ownership.

• Effect of pets on General health and wellbeing of pet parents:

Several studies document overall general health benefits of pet ownership and animal interaction. It is estimated that if adults engaged in 60 minutes of physical activity per day, 33% of all deaths related to coronary heart disease, 25% of deaths related to stroke, 20% of deaths related to type II Diabetes, and 20% of deaths related to hypertension would be avoided (Warburton et

al., 2007). A study at Cambridge University found that pet ownership resulted in improvements in general health of their owners in as little as one month. This continued over the course of 10-month study. Pet owners were found to suffer fewer ailments, such as headaches, colds and hay-fever. The health and wellbeing associated with pet ownership was found to reduce the use of healthcare services (Headey, 2002). Pet ownership is a great motivator for physical activity. Dog owners engage in about 300 minutes per week of moderate activity, compared with the average 170 minutes per week of non-dog owners (Kushner, 2006). Almost two-fifths (38%) of dog owners walk their dog every day. Regardless of age, four of every five women report walking their dog at least three times per week. Three-fifths (58%) of dog owners report achieving the target 150 minutes per week of walking, compared to 51% of those with no pets and 45% of those with other pets. Dog owners have higher hand grip strength compared to adults who do not own any pets (28.7 versus 26.6 kg) (Irish Life, 2019). Pets can also motivate healthy behavioural changes. The risk of pet's exposure to second-hand smoke can motivate pet owners to quit smoking, attempt to quit smoking, encourage other members of the household to quit, and/or prohibit smoking inside the home (National Center for Chronic Disease Prevention and Health Promotion, 2014).

Having pets encourage the owners towards regular exercise, healthy eating patterns and improve various physiologic parameters that improve the health and vitality of the pet parents (Levine et al., 2013). Pets affect determinants of health by enhancing feelings of happiness, security, and self-worth and reducing feelings of loneliness and isolation (Sable, 1995).

• Effects of pets on various physiological parameters of pet parents:

Patting a dog, playing with a cat or watching fish swim peacefully in an aquarium can help reduce stress and lower blood pressure (Anderson et al., 1992). One in every three American adults has high blood pressure. According to the American Heart Association, the presence of a pet has a significant and positive effect on their owner's cardiovascular reactivity to stress. Pets provide non-judgmental social support that buffers pathogenic responses to stress. In a randomized controlled trial, pets were found more effective than Angiotensin converting enzyme (ACE) inhibitors in controlling hypertension in response to a stressful event (Allen et al., 2001). Cat ownership significantly reduces the risk of cardiovascular diseases and associated deaths. This holds true irrespective of the patient's age, sex, ethnicity, systolic blood pressure, cigarette smoking, diabetes mellitus, serum cholesterol concentration, and body mass index (Qureshi et al., 2008). A National Institutes of Health study of 420 adults who had suffered heart attacks showed that pet owners were significantly more likely to live on a year later than their pet less peers, regardless of how serious the heart attack. It has been reported that engaging a pet causes a greater reduction in cardiovascular stress response as compared to presence of friends or spouses (Allen et al., 2002). Several other studies have also demonstrated transient decreases in blood pressure and/or heart rate in experimental human subjects in the presence of pet animals (Friedmann et al., 1979). Furthermore, it is believed that the reduction in blood pressure achieved through dog ownership can be equal to the reduction achieved by changing to a low salt diet or cutting down on alcohol. Presence of pets is associated with decreased risk factors for cardiovascular disease, particularly lower systolic blood pressure, lower plasma cholesterol and lower plasma triglycerides (Anderson et al., 1992). Elderly people watching fishes swim in aquarium are reported to exhibit decreased pulse rate, increased skin temperature, and decreased muscle tension (DeSchriver & Riddick, 1990).

Cortisol is largely used to evaluate animal stress (Ogi et al., 2020; Mariti et al., 2020a; Uccheddu et al., 2018). Using this hormone as a measure of physiological stress, a research study found significant reduction in salivary cortisol in healthcare providers after as little as a 5-minute interaction with an unfamiliar therapy dog (Barker et al., 2005). Enhanced hormone levels of dopamine and endorphins associated with happiness and well-being and decreased levels of cortisol, a stress hormone, were seen in volunteers following a quiet 30-minute session of interacting with a dog (Odendaal, 2000).

People exposed to pets before 18 years of age reported protection against asthma and allergies as adults (De Meer et al., 2004). Research findings from the University of West Virginia show that simple, day to day hygiene and pet care can reduce allergic reactions by up to 95% (Ownby et al., 2002). Regular petting of dog has been reported to result in a significant increase in IgA (Immunoglobulin type A-responsible for membrane immunity) levels resulting in less frequent illness and less susceptibility to upper respiratory infection (Charnetski & Riggers 2004). Improved lung function and overall quality of life in lung transplant patients who are allowed to have a pet has also been noticed (Irani et al., 2006).

• Effects of pets on Psychological and Mental Health of pet parents:

Psychologists and social workers recognize the importance of pets in families and often include them in their therapeutic approach (Walsh, 2009). Anxiety disorders are most common health issues throughout the world. About 40 million (18% of population) US adults exhibit anxiety disorders. Interactions with pets alter tendency of patients of anxiety disorders to focus negatively on themselves thereby increasing their motivation to engage. This can result in a better quality of life (Anxiety and Depression Association of America, 2014). Pets can be agents of harm reduction as well. Patients who engage in high-risk behaviour can be adamantly unwilling to harm their pets. Pets can thus aid in patient's health in many ways as builders of social capital, agents of harm reduction, motivators for healthy behaviour change, and as active participants in treatment plans (Hodgson et. al., 2015).

The pet effects have been evaluated in multiple studies in many diseases. When a resident dog was introduced into a ward housing person with Alzheimer's disease, fewer problem behaviours were noted during the four weeks of study (Allen & Blascovich, 1996). Alzheimer's patients showed increased calmness and improved social interactions when they received visits from Golden Retrievers (McCabe et al., 2002). Nutritional intake and weight of Alzheimer's disease patients increased significantly when fish aquariums were introduced into their dining areas (Beyersdorfer & Birkenhauer, 1990). Alzheimer's patients still living at home with their pets had fewer mood disorders and fewer episodes of aggression and anxiety than did non-pet owners (Martin & Farnum, 2002). A study of AIDS patients, found that patients with AIDS reported that their pets provided companionship and support, reduced stress, and provided a sense of purpose (Garrity et al., 1989).

The evidence in favor of the mental health benefits of interaction with pets has led to a rise in the use of animal-assisted interventions (AAI) in structured visitation programs to organizations such as nursing homes and schools. Animal-assisted therapy (AAT) can effectively reduce the loneliness of residents in long-term care facilities (Edwards & Beck, 2002). A single, brief session of animal-assisted therapy significantly reduced patients' fear by 37% prior to a serious medical procedure like electroconvulsive therapy (Banks & Banks, 2002). Elderly schizophrenic patients that participated in animal-assisted therapy had increased independent self-care, mobility and interpersonal contact (Barker et al., 2003). Psychiatric disability patients who participated in a 10-week horseback riding program had increased self-esteem and an augmented sense of self efficacy (Barker & Barker, 1988).

Recently widowed women who owned pets experienced significantly fewer symptoms of physical and psychological disease and reported lower medication use than widows who did not own pets (Barker & Barker, 1988). In bereaved elderly subjects with few social confidants, pet ownership and strong attachment were associated with less depression (Akiyama et al., 1986).

• Effects of pets on social interactions of pet owners:

While companion animals have long been recognised as a source of companionship and support to their owners, their role as a catalyst for friendship based social support networks among humans has received little attention. Research does suggest that pets can work as a catalyst for several dimensions of human social relationships in neighbourhood settings, ranging from incidental

social interaction and getting to know people, through to formation of new friendships. There are many accounts where pets have facilitated relationships from which their owners derived both practical and emotional support. Given the growing evidence for social isolation as a risk factor for development mental health issues, and conversely, friendships and social support as protective factors for individual and community well-being, pets may be an important factor in developing healthy neighbourhoods. Pet ownership thus seems to be an under-recognized conduit for individual and community wellbeing (Wood et. al., 2015). When housing and community environments are supportive of animal ownership, the human-animal relationship is strengthened (Allen & Blascovich, 2002). Over half of dog owners get to know their neighbors as a result of their pet; over 80% converse with other pet owners on their walks (Wood et al., 2005).

Studies focused on service dogs have shown overall improved quality of life for their human companions. For individuals with visible disabilities who may frequently be avoided by others in settings such as nursing homes, the role of pets as social catalysts is especially important. A study found that elderly people living in mobile homes and walking their dogs in the area had more conversations focused on the present rather than in the past as compared to those people who walked without their dogs (All et al., 1999). Observations of passers-by encountering persons in wheel-chairs revealed that passers-by were encouraged to smile and converse more often when a service dog was present (Hart, 1987). Physically challenged individuals in wheelchairs accompanied by service dogs during shopping trips received a median of eight friendly approaches from strangers, versus only one approach on trips without a dog (Crowly-Robinson & Blackshaw, 2008). Mobility-impaired individuals indicated increased "freedom to be capable" since receiving an assistance dog. Participants additionally reported increased independence and self-esteem, decreased loneliness, and experienced frequent friendliness from strangers (Rew, 2000).

Studies carried out using homeless subjects, showed that homeless pet owners that were attached to their pets, often reported that their relationships with their pets were their only relationships, and most would not live in housing that would not allow pets (Siegel et al., 1999; Ferrigno, 2015). Over 40% of homeless adolescents reported that their dogs were a main means of coping with loneliness (Singer et al., 1995).

The dog is a good communicator (Mariti et al., 2017b), and it exhibits a strong attachment bond with the human (Riggio et al., 2021; Mariti et al., 2013; Mariti et al., 2018; Mariti et al., 2020b; Carlone et al., 2019). All family members tend to bond with their companion animals, particularly children. The human-animal bond is especially significant for children in single-parent families and those without siblings (Wells, 2009). Dog owners were found to be as emotionally close to their dogs as they were their closest family members (Flynn, 2000). Female pet-owners that have suffered physical abuse report their pets are an important source of emotional support (Fritz et al., 1995). Pets can lessen the feelings of isolation and loneliness and provide a sense of purpose for older people. Caring for pets brings sunshine to the day, satisfies the human need to nurture and provides a feeling of fulfilment.

Assistance dogs can be seen regularly helping physically challenged people (the disabled, blind and deaf people) in their everyday needs and perform several tasks to facilitate people's lives from opening and closing doors to helping people undress, to emptying washing machines.

• Effects of pets on children:

Pets foster positive psycho-social development in children. Children with pets demonstrate enhanced empathy, self-esteem, cognitive development, and greater participation in social and athletic activities (Daly & Morton, 2006). Besides all the fun elements associated with owning a pet, pets can bring many educational benefits to children. According to The Pet Health Council report of 2007 owning a pet can teach a child about responsibilities and mutual trust. By feeding and exercising a pet children can develop an understanding of daily care. Pets also help children develop in various areas including sensory-motor and non-verbal learning; responsibility,

nurturance, competence, nurturing humanness, ecological awareness, and ethical responsibilities (Lockwood, 1983). Children who own pets are often less self - centred than those who do not. Children exhibited a more playful mood, were more focused, and were more aware of their social environments when in the presence of a therapy dog (Blue, 1986). Psychological studies reviewing the relationship between animals and children have revealed that mere presence of animals positively alters children's attitudes about themselves and increases their ability to relate to others (Kirton et al., 2004).

Companion animals can also provide benefits in clinical situations. For example, for children with particular conditions such as autism who are usually distressed in clinical settings (e.g. physical examinations or hospitalisation). In such cases the use of companion animals has been found to decrease procedure-induced stress as well as help develop rapport between the therapist and child (Nagengast et al., 1997). AAT increased attendance, decreased violent behaviour, and increased language and social skills in children with Attention Deficient Hyperactivity Disorder-ADHD. One study found that the presence of a dog helped to channelize the child's attention and responsiveness towards the therapist. Quality of life improved in families of epileptic children when a dog that responds to seizures was present in the home (Valentine et al., 1993). Perceived pain significantly reduced in children undergoing major operations after participation in pet therapy programs (Sobo et al., 2006).

Many studies documented those children exposed to pets in early life experience enhanced immune function. Fewer allergies, less wheezing and asthma was reported in children exposed to pets during infancy (Gern et al., 2004). Also significantly less absenteeism from school through sickness among children who live with pets has been reported.

• Effects of pets on office performance and Employer-Employee relationship:

With growing interests in the value of animal companionship to human health and increasing business awareness of promoting work-based health innovations and improving employees' feelings of support, there has been a rise in interest about allowing dogs in the workplace. Society for human resource management in its 2018 report on employee benefits notes that workplace pets have consistently increased from 3% in 2013 to 9% in 2018, with 12% of employers allowing pets at workplace. "Take your dog to work day" initiative was started by Pet Sitters international in 2015.

A healthy trend to allow pets to workplaces is picking steam in the companies that report positive anecdotal reactions by employees and customers. The reactions are consistent with the research findings on human-animal interactions, thus supporting the role of pets as a form of non-evaluative social support which may extend to the workplace to enhance interpersonal interactions, positively affect employee morale and turnover, and reduce stress reactions (Barker et al., 2012). Bringing pet to work means companionship, a social icebreaker and not having to worry that pets are home alone. They can boost morale, build a sense of community, and get people out for regular walking breaks – all things that are good for health and collaboration. That's why more and more employers are exploring pet-friendly workplace programs. Not only are the employers exploring pets in work places but also the employees. A survey by Ziprecruiter, an online job marketplace found that pet parents are willing to sacrifice some non-pet perks to have their pets in the office. Despite much promise, there have only been a few studies that have explored the effect of dogs in the workplace.

An epidemiological study of Chinese women found that pet owners exercised more, slept better, felt more physically fit, and missed fewer days from work than women without pets (Herzog, 2011). Other studies generally indicate that the majority of dog owners would prefer to bring their dog to work than leave it at home or seek day care (Norling & Keeling, 2010). In a study conducted to evaluate the work induced stress among dog owners and non-dog owners, it was noticed that both dog owners and non-dog owners perceived stress increases over the working day, pet owners who had their dog with them reported decreased stress over the day (Barker et al., 2021).

This could have important implications for businesses, since work-based stress increases cognitive strain and diminishes motivation and memory processes, reducing employee performance (LePine et al., 2005) and increasing absenteeism and dysfunction (Colligan & Higgins, 2006).

Wells & Perrine in 2001 surveyed employee perceptions in several small companies permitting pets. The overwhelming majority (84%) of those bringing pets to work in these companies consisted of business owners or managers. The most strongly endorsed benefit of having pets in the workplace was perceived lowering of stress, although some endorsement of improved health and organizational satisfaction were also noted (Wells & Perrine, 2001). In another study conducted on the same subject, a significant difference was found in the stress patterns for the dog-present group on days their dogs were present and absent. On dog absent days, owners' stress increased throughout the day, mirroring the pattern of the non-dog group (Christa et al., 2016). Participants in the dog-present group working on interactive problem-solving tasks displayed more verbal cohesion, physical intimacy, and cooperation. Also, the behaviour in dog-present groups was rated as more cooperative, comfortable, friendly, active, enthusiastic, and attentive (Colarelli et al., 2017).

A 2017 Banfield Pet Hospital's Pet-Friendly Workplace Pawrometer Survey found that, 88% of employees at pet-friendly workplaces said having pets at work improves sense of well-being, 83% said it reduces stress, 83% said it gives them greater company loyalty, 81% said it improves worklife balance, 80% said it improves morale, 79% said it improves work relationships and 66% said it increases productivity. Employees also felt that being pet-friendly is a great recruiting and PR message.

A detailed study was conducted by Nationwide in partnership with Human Animal Bond Research Institute (HABRI) on effectiveness of pet friendly work places in 2017-18. This study was conducted on over two thousand full-time employees who spend a majority of their time working in an office environment with businesses that have 100+ employees. The main highlights of the study are listed hereunder:

Engagement: 91% of employees who work for a pet friendly company feel engaged with their work as against 65% who work in non-pet friendly workplaces. 83% of employees who work for a pet friendly company feel their work is rewarding and exciting versus 46% who work in non-pet friendly workplaces.

Attraction: 88% of employees who work for a pet friendly company would recommend their place of employment to others as against 51 % who work in non-pet friendly workplaces.

Retention: 88% employees who work for a pet friendly company plan to stay with the company for the next 12 months versus 73% who work in non-pet friendly workplaces. 72% of employees who work for a pet friendly company would decline a job offer with another company at similar pay as against 44% who work in non-pet friendly workplaces. 91% of employees who work for a pet friendly company feel the company supports their physical health and wellness versus 59% who work in non-pet friendly workplaces. 91% of employees who work for a pet friendly company feel the company supports their mental well-being versus 53% who work in non-pet friendly workplaces.

Relationships: 52% of employees who work for a pet friendly company report a positive working relationship with their supervisor versus 14% who work in non-pet friendly workplaces. 53% of employees who work for a pet friendly company report a positive working relationship with their co-workers versus 19% who work in non-pet friendly workplaces.

Absenteeism: 85% of employees who work for a pet friendly company reported they rarely miss a day of work for well-being or recuperation versus 77% who work in non-pet friendly workplaces.

Exercise: On average, pet owners surveyed reported exercising 3.5 days per week, compared to non-pet owners, who reported exercising 2.8 days per week, on average. Workplaces with pets

present or those with pet supportive policies have employees who feel healthier overall, suggesting that benefits of these policies extend beyond the workplace to impact employees' holistic self.

Mental Health: 98% of employees in a pet-friendly workplace reported good mental health in a self-evaluation, compared to 81% of employees in a non-pet-friendly workplace.

Physical health: 97% of employees in a pet-friendly workplace reported good physical health in a self-evaluation, compared to 75% of employees in a non-pet-friendly workplace.

Also the pet friendly policies of the pet friendly work places encouraged pet ownership among the employees and greater engagement of employees with pets was noticed.

• Potential Risks of Pet ownership:

The influence of pets is not entirely positive. Pets can infect people with disease, cause injury, and challenge resource prioritization within the family. There are certain diseases known as Zoonotic diseases that affect both humans and animals and can spread from one to the other (Mallon, 1992). The young, old, pregnant, immune-compromised, and mentally challenged are at higher risk of contacting such diseases (e.g., Rabies, Echinochocosis, Dermatophytosis, Toxoplasmosis, Toxocariasis, Giardiasis, etc.). It certainly is not a good idea to let the pets lick you on the mouth, ears and around ears. If you want to kiss your dog or cat, the top of her or his head is the preferred place to plant such kisses. It is therefore highly recommended for the pet parents to get their pets vaccinated against the core diseases listed for the pets.

Bites are quite common (85-90%) from dogs, most often the dog is known to the victim (family dog or neighbour) and the attack occurs within the family home (Beck et al., 2002). However, the consolation is that in relation to the total estimated dog population, at most 0.07 percent of the dogs are dangerous to humans and about 0.1 percent of the dogs constitute a risk for other dogs (Ohr, 2014).

High levels of grief may also be experienced in the event of a pet's death. Extreme levels of attachment to a pet may result in a reluctance to prioritise health interests if it conflicts with the human-pet relationship (Arhant-Sudhiret al., 2011). Pets can also challenge a family's prioritization of financial and social resources.

Other aspects include cost, time, and behavioural problems (Mariti et al., 2016; Mariti et al., 2017a, c; Pirrone et al., 2019) that may lead to further stress, anxiety, and loneliness. Although these factors must be considered, many can be reduced or prevented if properly managed (Chur-Hansen et al., 2018). Many people have allergies to animals as well (Bayliss et al., 2007).

References

Akiyama H., Holtzman, J., Britz W. Pet ownership and health status during bereavement. Omega. 17: 187-193; 1986.

All A.C., Crane L.L., Loving G.L. Animals, Horseback Riding and Implications for Rehabilitation Therapy. J. Rehabilitation. 65: 49-57; 1999.

Allen K., Shykoff B.E., Isso J.L. Jr. Pet ownership, but not ACE inhibitor therapy, blunts home blood pressure responses to mental stress. Hypertension. 38: 815-20; 2001.

Allen K., Blascovich J. The value of service dogs for people with severe ambulatory disabilities: a randomized controlled trial. J.A.M.A. 275: 1001-1006; 1996.

Allen, K.M., Blascovich, J. Cardiovascular reactivity and the presence of pets, friends and spouses: the truth about cats and dogs. Psychosomatic Medicine. 64: 727-739; 2002.

Allen K. Are pets a healthy pleasure? The influence of pets on blood pressure. Curr. Dir. Psychol. Sci. 12: 236-9; 2003.

Anderson W.P., Reid C.M., Jennings G.L. Pet ownership and risk factors for cardiovascular disease. Medical J. Australia. 157: 298-301; 1992.

Anderson W.P., Reid C.M., Jennings G.L. Pet ownership and risk factors for cardiovascular disease. Med. J. Aust. 157: 298-301; 1992.

- Anxiety and Depression Association of America. Facts and statistics. Silver Spring, MD; ADAA. Available from: http://www.adaa.org/about-adaa/press-room/facts-statistics. Accessed November 11, 2014.
- Arhant-Sudhir K, Arhant-Sudhir R, Sudhir K. Pet ownership and cardiovascular risk reduction: supporting evidence, conflicting data and underlying mechanisms. Clin. Exp. Pharmacol. Physiol. 38: 734-8; 2011.
- Associations of pet ownership with health and wellbeing in community-dwelling adults aged 50 years and over in Ireland study done in 2019 by Health research board in partnership with Irish Life.
- Banks M., Banks W. The effects of animal-assisted therapy on loneliness in an elderly population in long-term care facilities. J. Gerontology: Med. Sci. 57: 428-432; 2002.
- Barker S. & Barker R. The Human-canine bond: closer than family ties. J. Mental Health Couns. 10: 46-56; 1988.
- Barker S.B., Pandurangi A.K., Best A.M. Effects of animal-assisted therapy on patients' anxiety, fear, and depression before ECT. J. ECT. 19: 38-44; 2003.
- Barker S. B., Knisely J. S., Mccain N. L., Best A. M. "Measuring stress and immune response in healthcare professionals following interaction with at therapy dog: A pilot study." Psychol. Reports. 96: 713-729; 2005.
- Barker R.T., Knisely J.S., Barker S.B., Cobb R.K., Schubert C.M. Preliminary investigation of employee's dog presence on stress and organizational perceptions. Int. J. Workplace Health Management. 5: 299-315; 2012.
- Bayliss E.A., Bosworth H.B., Noel P.H., Wolff J.L., Damush T.M., McIver L. Supporting self-management for patients with complex medical needs: recommendations of a working group. Chronic Illness. 3: 167-75. 2007.
- Beck A. M. Review of pets and our mental health: the why, the what, and the how. Anthrozoos 18: 441-3; 2005.
- Beck R.S., Daughtridge R., Sloane P.D. Physician-patient communication in the primary care office: a systematic review. J. Am. Board Fam. Pract. 15: 25-38; 2002.
- Beyersdorfer P. & Birkenhauer D. The therapeutic use of pets on an Alzheimer's unit. Am. J. Alzheimer's Care and Related Disorders and Research. 5: 13-17; 1990.
- Blue G.F. The value of pets in children's lives. Childhood Educ. 63: 84-90; 1986.
- Carlone B., Sighieri C., Gazzano A., Mariti C. The dog (Canis familiaris) as part of the family: A pilot study on the analysis of dog bond to all the owners. Dog Behavior. 5: 1-14; 2019. 10.4454/db.v5i1.90.
- Charnetski C.J., Riggers S. Effect of petting a dog on immune system function. Psychol. Reports. 95: 1087-1091; 2004.
- Chur-Hansen A, Winefield H, Beckwith M. Reasons given by elderly men and women for not owning a pet, and the implications for clinical practice and research. J. Health Psychol. 13: 988–95; 2008,
- Colarelli S., McDonald M., Christensen M.S., Honts C. A companion dog increases prosocial behaviour in work groups. Anthrozoos. 30: 77-89; 2017.
- Colligan T. W. & Higgins E. M. Workplace stress: Etiology and consequences. J. Workplace Behav. Health. 21: 89-97; 2006.
- Crowly-Robinson P., Blackshaw J.K. Pet ownership and health status of elderly in the community. Anthrozoos. 11: 168-171; 2008.
- Daly B., Morton L.L. An investigation of human animal interactions and empathy as related to pet preference, ownership, attachment, and attitudes in children. Anthrozoos. 19: 113-27; 2006.
- De Meer G., Toelle B., Ng K., Tovey E., Marks G. Presence and timing of cat ownership by age 18 and the effect on atrophy and asthma at age 28. J. Allergy Clin. Immun. 113: 433-438; 2004.
- DeSchriver M.M., Riddick C.C. Effects of watching aquariums on elders' stress. Anthrozoos. 4: 44-48; 1990
- Edwards N., Beck A.M. Animal-assisted therapy and nutrition in Alzheimer's disease. West. J. Nurs. Res. 24: 697-712; 2002.
- Ferrigno S. Survey on the relationship between the homeless people and the dog. Dog Behavior. 2: 18-25; 2015.

- Flynn C. Battered women and their animal companions: Symbolic interaction between human and non-human animals. Society & Animals. 8: 99-127; 2000.
- Friedmann E., Katcher A.H., Meislich D., Goodman M. Physiological response of people to petting their pet (Abstract). Am. ZooI. 19: 327; 1979.
- Fritz C.L., Farver T.B., Kass P.H., Hart L.A. Association with companion animals and the expression of noncognitive symptoms in Alzheimer's patients. J. Nerv. Ment. Disease. 183: 459-463; 1995.
- Garrity T.F., Stallones L., Marx M.B., Johnson T.P. Pet ownership and attachment as supportive factors in health of the elderly. Anthrozoos. 3: 35-44; 1989.
- Gazzano A., Zilocchi M., Massoni E., Mariti C. Dogs' features strongly affect people's feelings and behavior toward them. J.V.B. 8: 213-220; 2013. 10.1016/j.jveb.2012.10.005.
- Gern J., Reasdon C., Hoffjan S., Li Z., Rogberg K., Neaville W., Carlson-Dakes K., Alder K., Hamilton R., Anderson E., Gilbertson White S., Tisler C., Dasilva D., Anklam K., Mikus L., Rosenthal L., Ober C., Gangon R., Lemanske R. Effects of dog ownership and genotype on immunedevelopment and atopy in infancy. J. Clin. Immunol. 113: 307-314; 2004.
- Hart L. Socializing effects of service dogs for people with disabilities. Anthrozoos. 1: 41-44; 1987.
- Headey B., Grabka M., Kelley J., Reddy P., Tseng Y. Pet ownership is good for your health and saves public expenditure too: Australian and German longitudinal evidence. Australian Social Monitor. 5: 93-9; 2002.
- Herzog H. The impact of pets on human health and psychological well-being: fact, fiction, or hypothesis. Current Directions Psychol. Sci. 20: 236-239; 2011.
- Hodgson K, Darling M. Pets in the family: practical approaches. J Am Anim Hosp Assoc 47: 299-305; 2011.
- Hodgson K., Barton L., Darling M., Antao V., Kim F., Monavvari A. Pet's impact on your patients' health: leveraging benefits and mitigating risk, J. Am. Board Fam. Med. 28: 526-34; 2015.
- Kirton A., Wirrell E., Zhang J., Hamiwka L. Seizure-alerting and -response behaviors in dogs living with epileptic children. Neurology. 62: 2303-2305; 2004.
- Kushner R.F., Blatner D.J., Jewell D.E., Rudloff K. The PPET study: people and pets exercising together. Obesity 14: 1762-70; 2006.
- Irani S., Mahler C., Goetzman L., Russi E.W., Boehler A. Lung transplant recipients holding companion animals: impact on physical health and quality of life. Am. J. Transplant. 6: 404-11; 2006.
- LePine J.A., Podsakoff N.P., LePine M.A. A meta-analytic test of the challenge stressor–hindrance stressor framework: An explanation for inconsistent relationships among stressors and performance. Academy Management J. 48): 764-775; 2005.
- Levine G.N., Allen K., Braun L.T. Pet ownership and cardiovascular risk: a scientific statement from the American Heart Association. Circulation. 127: 2353-63; 2013.
- Lockwood R. The influence of animals on social perception. New Perspectives on Our lives with Companion Animals. Philadelphia: Univ Pennsylvania Press. 8: 64-71;1983.
- Mallon G.P. Utilization of animals as therapeutic adjuncts with children and youth: a review of the literature. Child Youth Care Forum. 21: 53-67; 1992.
- Mariti C., Ricci E., Carlone B., Sighieri C., Gazzano A. Dog attachment to man: a comparison between pet and working dogs. J.V. B. Clin. Appl. Res. 8: 135-145; 2013. 10.1016/j.jveb.2012.05.006.
- Mariti C., Bowen J.E., Campa S., Sighieri C., Gazzano A. Guardians' perceptions of cats' welfare and behavior regarding visiting veterinary clinics. J. Appl. Anim. Welfare Sci. 19: 375-384; 2016. 10.1080/10888705.2016.1173548.
- Mariti C., Guerrini F., Vallini V., Sighieri C., Bowen J.E., Fatjó J., Gazzano A. The perception of cat stress by Italian owners. J. V.B. Clin. Appl. Res. 20: 74-81; 2017a. 10.1016/j.jveb.2017.04.002.
- Mariti C., Falaschi C., Zilocchi M., Fatjó J., Sighieri C., Ogi A., Gazzano A. Analysis of the intraspecific visual communication in the domestic dog (Canis familiaris): A pilot study on the case of calming signals. J.V. B. 18: 49-55; 2017b. 10.1016/j.jveb.2016.12.009.
- Mariti C., Pierantoni L., Sighieri C., Gazzano A. Guardians' perceptions of dogs' welfare and behaviors related to visiting the veterinary clinic. J. Appl. Anim. Welfare Sci. 20: 24-33; 2017c. 10.1080/10888705. 2016 1216432
- Mariti C., Carlone B., Sighieri C., Campera M., Gazzano A. Dog behavior in the Ainsworth Strange Situ-

ation Test during separation from the owner and from the cohabitant dog. Dog Behavior. 4: 1-8; 2018. 10.4454/db.y4i1.y3i3.76.

- Mariti C., Diverio S., Gutierrez J., Baragli P., Gazzano A. Partial analytic validation of determination of cortisol in dog hair using a commercial EIA kit. Dog Behavior. 6: 1-15; 2020a.
- Mariti C., Lenzini L., Carlone B., Zilocchi M., Ogi A., Gazzano A. Does attachment to man already exist in 2 months old normally raised dog puppies? A pilot study. Dog Behavior. 6: 1-11; 2020b. 10.4454/db.v6i1.96
- Martin F., Farnum J. Animal Assisted therapy for children with pervasive developmental disorders. West. J. Nurs. Res. 24: 657-670; 2002.
- McCabe B.W., Baun M.M., Speich D., Agrawal S. Resident dog in Alzheimer's special care unit. West. J. Nurs. Res. 24: 684-696; 2002.
- McNicholas J., Gilbey A., Rennie A., Ahmedzai S., Dono J., Ormerod E. Pet ownership and human health: a brief review of evidence and issues, B.M.J. 331: 1252-55; 2005.
- Menor-Campos D.J., Diverio S., Sánchez-Muñoz C., López-Rodríguez R., Gazzano A., Palandri L., Mariti C. Attitudes toward Animals of Students at Three European Veterinary Medicine Schools in Italy and Spain. Anthrozoos. 32: 375-385; 2019. 10.1080/08927936.2019.1598658.
- Morris C. Ten Companies That Let You Bring Your Dog to Work. Available online: http://www.cnbc.com/2014/02/11/10-companies-that-let-you-bring-your-dog-to-work.html. 2017.
- Nagengast S.L., Baun M.M., Megel M,. Leibowitz J.M. The effects of the presence of a companion animal on physiological arousal and behavioral distress in children during a physical examination. J. Pediatr. Nurs. 12: 323-30; 1997.
- National Center for Chronic Disease Prevention and Health Promotion. Smoking & tobacco use: health effects of cigarette smoking. Atlanta: Centres for Disease Control and Prevention. Available from: http://www.cdc.gov/tobacco/data_statistics/fact_sheets/health_effects/effects_cig_smoking/. Accessed November 9, 2014.
- National Institutes of Health. NIH Consensus Development Program. The health benefits of pets. Bethesda, MD: U.S. Department of Health and Human Services; 1987. Available from: http://consensus.nih.gov/1987/1987HealthBenefitsPetsta003html.htm. Accessed November 10, 2014.
- Norling A. Y. & Keeling L. Owning a dog and working: A telephone survey of dog owners and employers in Sweden. Anthrozoös. 23: 57-171; 2010.
- Odendaal J. Animal-assisted therapy magic or medicine? J. Psychosomatic Res. 49: 275-280; 2000.
- Ogi A., Mariti C., Baragli P., Sergi V., Gazzano A. Effects of stroking on salivary oxytocin and cortisol in guide dogs: Preliminary results. Animals. 10: 708; 2020. 10.3390/ani10040708.
- Ohr R. Pet Study 'Pet Ownership as Economic Factor' The economic significance of pet ownership in Germany Prof. Dr. Renate Ohr, University of Goettingen, Germany, 2014.
- Ownby D.R., Johnson C.C., Peterson E.L. Exposure to dogs and cats in the first year of life and risk of allergic sensitization at 6 to 7 years of age. J.A.M.A. 288: 963-72; 2002.
- Perrin T. The business of urban animal's survey: the facts and statistics on companion animals in Canada. Can. Vet. J. 50: 48-52; 2009.
- Pet Sitters International. Take Your Dog to Work Day. Available online: https://www.petsit.com/takey-ourdog (accessed on 24 March 2017).
- Pirrone F., Mariti C., Gazzano A., Albertini M., Sighieri C., Diverio S. Attitudes toward animals and their welfare among Italian veterinary students. Veterinary Sci. 6: 19; 2019. 10.3390/vetsci6010019.
- Qureshi A., Fareed M., Suri K., Ezzedine M.A., Divani A.A., Qureshi Z. Cats as domestic pets reduce the risk of cardiovascular diseases: results from the Second National Health and Nutrition Examination Study Mortality Follow-Up Study. Abstracts from the 2008 International Stroke Conference. Stroke 39: 642-53; 2008.
- Rew L. Friends and pets as companions: strategies for coping with loneliness among homeless youth. J. Child and Adolescent Psych. Nurs. 13: 125-130; 2000.
- Riggio G., Noom M., Gazzano A., Mariti C. Development of the dog attachment insecurity screening inventory (D-aisi): A pilot study on a sample of female owners. Animals. 11: 3381; 2021. 10.3390/ani11123381
- Sable P. Pets, attachment, and well-being across the life cycle. Soc. Work. 40: 334-41; 1995.

- Siegel J.M., Angulo F.J., Detels R., Wesch J., Mullen A. AIDS diagnosis and depression in the Multicenter AIDS Cohort Study: The ameliorating impact of pet ownership. AIDS Care. 11: 157-169; 1999.
- Singer R.S., Hart L., Zasloff R. Dilemmas associated with rehousing homeless people who have companion animals. Psych. Reports. 77: 851-857; 1995.
- Sobo E., Eng B., Kassity-Krich, N. Canine visitation therapy pilot data on decreases in child pain perception. J. Holistic Nurs. 24: 51-57; 2006.
- Uccheddu S., Mariti C., Sannen A., Arnout H., Gutierrez Rufo J., Gazzano A., Haverbeke A. Behavioral and cortisol responses of shelter dogs to a cognitive bias test after olfactory enrichment with essential oils. Dog Behavior. 4: 1-14; 2018.
- Valentine D.P., Kiddoo M., LaFleur B. Psychosocial implications of service dog ownership for people who have mobility or hearing impairments. Soc. Work Health Care. 19: 109-25; 1993.
- Walsh F. Human-animal bonds I: the relational significance of companion animals. Fam. Process. 48: 462-80; 2009.
- Walsh F. Human-animal bonds II: the role of pets in family systems and family therapy. Fam. Process. 48: 481-99; 2009.
- Warburton D., Katzmarzyk P., Rhodes R.E., Shephard R.J. Evidence-informed physical activity guidelines for Canadian adults. Can. J. Public Health. 98: 16-68; 2007.
- Wells D.L. The effects of animals on human health and well-being. J. Soc. Issues 65: 523-43; 2009.
- Wells M. & Perrine R. Critters in the cube farm: perceived psychological and organizational effects of pets in the workplace. J. Occupational Health Psychol. 6: 81-72; 2001.
- Wilkin C.L., Fairlie P., Ezzedeen S.R. Who let the dogs in? A look at pet-friendly workplaces. Int. J. Workplace Health Manag. l: 96-109; 2016.
- Wood L., Giles-Corti B., Mulsara M. The pet connection: pets as a conduit for social capital? Soc. Sci. Med. 61: 1159-73; 2005.
- Wood L., Martin K., Christian H., Nathan A., Lauritsen C., Houghton S., Kawachi I., McCune S. The Pet Factor companion animals as a conduit forgetting to know people, friendship formation and social support. PLOS ON. 1-17; 2015.

La relazione con gli animali

Nafis I Assad*

Laboratory Officer Frozen Semen Project Ranbir Bagh Jammu and Kashmir - India

Sintesi

Le persone tengono con sé gli animali domestici per compagnia, svago e protezione piuttosto che per motivazioni sanitarie specifiche. Tuttavia, un considerevole corpus di letteratura sostiene l'idea che gli animali da compagnia possano migliorare la qualità generale della vita, compresa la salute fisica, sociale e psicologica. Questo fenomeno è stato descritto come "effetto pet". I benefici degli animali domestici per la salute umana sono stati anche descritti come Zooeyia. Zooeyia è l'inverso positivo di zoonosi. Inoltre, molti studi condotti di recente hanno rivelato l'influenza positiva degli animali domestici sulle prestazioni in ufficio dei dipendenti e anche sul loro rapporto con i datori di lavoro. Questo articolo tenta di presentare una raccolta di diversi studi, sondaggi e risultati di ricerca riguardanti la Zooeyia.