

The benefits of companion animals for human mental and physical health

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Abstract

Fossil evidence indicates an association between humans and animals dating back to at least half a million years ago. Today, this relationship remains strong, as evidenced by millions of visits to the zoo annually, high rates of pet ownership, and the economic prosperity of the pet industry. A review of the literature indicates that human-animal interactions can remarkably enhance human physical health and psychological wellbeing. Yet despite reported benefits and public enthusiasm for animal-related activities, human affiliation with animals and nature is rapidly on the decline largely due to a shift towards industrialized city living. Future research should not only continue to examine the mental and physical health implications of companion animal ownership, but also the ways to most successfully incorporate them into modern lifestyles and communities.

Introduction

Human relationships with companion animals are not new. Fossil evidence from half a million years ago indicates an association between *Homo erectus* and a canine-like species (Messent and Serpell, 1981). Even before humans settled down into agricultural communities, they kept wild and tamed animals as companions (Savishinsky, 1983). Recently, scientists discovered a 12,000-year-old tomb in modern Israel, in which a person was buried with one arm around a puppy. The scientists who discovered the fossil claim that the arrangement of the burial offers proof that an affectionate rather than gastronomic relationship existed between the person and animal (Davis and Valla, 1978).

Today, this relationship remains strong. Millions of people each year travel and pay money to spend the day viewing animals at the zoo. In the US and Canada, more children and adults visit zoos than all major professional sporting events combined (Wilson, 1993). In Australia and the US, approximately 63% of households own domesticated pets (Australian Bureau of Statistics, 1995; American Pet Products Manufacturers Association, 2008). The pet care industry alone contributes an annual average of \$4.62 billion AUD to the Australian economy and \$43.4 billion USD to the US economy (Australian Companion Animal Council Inc., 2006; American Pet Products Manufacturers Association, 2008).

Pet owners spend enormous amounts of money, time and energy on creatures that seem to give nothing of utilitarian value in return. They allow companion animals to live in their homes for free, pay for their food and medical bills, and often purchase many toys and accessories for them. At first glance, the return for humans seems non-existent. A review of the literature, however, reveals that companion animals actually do give a great deal in return, in that they can remarkably enhance human health and wellbeing.

Influential research

In 1980, a group of medical researchers conducted a longitudinal study of patients with coronary heart disease (Friedmann *et al.*, 1980). Their data indicated that one year after being discharged from a coronary care unit, pet owners were more likely to be alive than non-owners. In other words, people who owned a pet had one-third the mortality rate of those who did not own a pet. Because coronary heart disease is a stress-related disease, researchers have suggested that the protective effect of pet ownership is due to its impact on psychological risk factors (Patronek and Glickman, 1993). Thus by reducing stress and improving mental health, companion animals may make their owners more likely to survive (Friedmann, 1995). The study by Friedman *et al.* (1980) was one of the first to impress upon the general public that companion animals can and do have a great impact on our health, even on something as serious as heart disease (Beck and Katcher, 1996). Over seven million people around the world die from coronary heart disease each year

(Mackay and Menash, 2004). Evidence of the power of pets to influence this deadly disease through improved mental health jumpstarted a surge of research dedicated to studying the benefits of companion animals for human health.

Almost a decade later, in response to growing data indicating the positive effects of companion animals on human health, the US National Institute of Health held a technology workshop on the health benefits of pets (National Institute of Health, 1988). The final presentation of the workshop concluded with a declaration that no future study of human health should be considered comprehensive if the animals with whom people share their lives are not included (Beck and Glickman, 1987).

In 1994, Australian researchers conducted the National People and Pets Survey, which was the first national study to investigate the relationship between pet ownership and human health (Headey, 1999). The results indicated that dog and cat owners had better mental and physical health than non-owners. They made fewer annual doctor visits and were less likely to be on medication for heart problems or sleeping difficulties. Headey (1999) thus deduced that pet ownership probably reduces national health expenditure. By linking the national sample survey results with Australian health expenditure data, he estimated that during the fiscal year of 1994-1995, \$988 million AUD were saved due to pet ownership (Headey, 1999). A subsequent longitudinal study based on the fiscal year of 1999-2000 estimated that \$3.86 billion was saved due to pet ownership (Headey *et al.*, 2002). The researchers concluded that small differences in health system use between pet owners and non-owners may equal huge savings in public expenditure (Headey, 1999).

Theory

Following these and other instrumental publications on the health and financial benefits of pet ownership, researchers began to look at the underlying mechanisms of human-animal interactions. Many theories have been proposed, yet there is currently no unified, empirically supported theoretical framework to describe how companion animals benefit human mental and physical health (Kruger and Serpell, 2006). Two of the most commonly cited theories include the biophilia hypothesis and social support theory.

Biophilia hypothesis

The biophilia hypothesis proposes that humans have an innate propensity to attend to, and be attracted by other animals and living things (Wilson, 1984). Evolutionarily, attention to animals would enhance an individual's chances of survival because animal behavior acts as an environmental sentinel indicating safety or danger (Wilson, 1984, 1993). Today living creatures continue to provide a pleasant external focus for attention, which has a calming and relaxing effect on viewers (Gullone, 2000). Unfortunately, with the increasingly urban lifestyles of modern industrialized societies, many people find fewer and fewer opportunities to interact with animals and nature (Maller *et al.*, 2005). Having a companion animal in the home may provide a link to human evolutionary history that enhances psychological wellbeing (Gunter, 1999).

For example, looking at animals can reduce anxiety in times of stress (Friedmann, 1995). When in the presence of a pet dog, people show reductions in cardiovascular, behavioral, and psychological indicators of anxiety (Friedmann *et al.*, 1983; Wilson, 1991). The act of watching a fish tank can also reduce anxiety, while inducing feelings of calm and relaxation (Katcher *et al.*, 1983). Many doctors' office waiting rooms house aquariums because of their effectiveness in lowering heart rate and blood pressure during stressful situations, such as waiting to undergo surgery (Katcher *et al.*, 1984; Beck and Katcher, 1996).

Even unconsciously, the presence of an animal can change a person's perception of a scene. Researchers have tested this phenomenon by using a modification of the Thematic Apperception Test (TAT). The original TAT provides pictures of people in provocative, yet ambiguous scenes and asks participants to describe the scenes (Murray, 1943). The Animal Thematic Apperception Test (ATAT) expands upon this framework by having two sets of pictures, identical except for the presence or absence of an animal (Lockwood, 1983). When participants are asked to describe the people in the scenes, they consistently describe those in scenes with animals as friendlier, happier, and less threatening than those in scenes without animals (Lockwood, 1983; Friedmann and

Lockwood, 1991). A person's perception of a situation influences his or her stress response. The ATAT reveals that when an animal is present, people perceive situations as less stressful and are able to react more calmly, which may enhance their psychological wellbeing (Friedmann, 1995).

Social support theory

Another commonly cited theory regarding the benefits of the human-animal interactions is social support theory. Lack of social support is a huge risk factor for subsequent physical and psychological problems (Uchino *et al.*, 1996). Social support theory proposes that companion animals are able to provide social support in themselves, and also to act as facilitators of social interactions between other humans (Beck and Katcher, 2003; Kruger and Serpell, 2006; McNicholas and Collis, 2006).

As social supports in themselves, companion animals reduce loneliness and contribute to a general sense of well being in their owners (Sable, 1995). Reasons cited for their success as social supports include their constant availability, non-judgmental support and unconditional love (Friedmann *et al.*, 1980; Kruger *et al.*, 2004). As such, people form strong attachments to their pets. Many people consider their pet to be a member of the family and say that the loss of a pet would mean as much to them as the loss of a family member or friend (Cain, 1983; Beck and Katcher, 1996).

Examples of the benefits of companion animals as social support include statements by cancer patients, who say that the presence of a companion animal lessens their fears, despair, loneliness and isolation, and enables them to adapt to their extremely difficult situations (Muschel, 1984). Social support from companion animals can also be crucial for the elderly, who often lose human social support due to friends and family moving away or passing away (Bustad and Hines, 1983; Beck and Katcher, 2003). Elderly pet owners report less psychological distress, greater life satisfaction and fewer visits to physicians (Siegel, 1990; Norris *et al.*, 1999).

As facilitators of social support between other humans, companion animals act as "social lubricants" (Gunter, 1999). They are able to facilitate social interactions for their owners because they encourage approaches by others and often stimulate conversation (McNicholas and Collis, 2006). For example, one study indicated that wheelchair users experience more positive social interactions with strangers when they are with a dog than when they are not (Eddy *et al.*, 2001).

Animal-assisted interventions

Due to the benefits reaped by companion animal ownership, many practitioners began to incorporate animals into their therapeutic work. The practice of utilizing animals as a part of therapy dates back to the late 18th century, when animals were introduced into mental institutions to help socialize patients with mental disorders (Serpell, 2006). Only recently, however, have scientists and practitioners begun to create standardized terms for these endeavors (Kruger and Serpell, 2006). The umbrella term "animal-assisted intervention" is generally used to denote any therapeutic intervention that intentionally incorporates animals as a part of the process (Kruger and Serpell, 2006). The two most commonly cited subcategories include animal-assisted therapy and animal-assisted activities. The main difference between them is that animal-assisted therapy revolves around specific, individualized goals, while animal-assisted activities have no specified treatment goals and can be used identically with many people (Gammonley *et al.*, 1997; Delta Society, n.d.).

Numerous benefits have been reported from animal-assisted interventions. Examples include reduced anxiety during and after therapeutic sessions, improved rapport and communication between patients and therapists, enhanced attendance at, compliance with, and retention in therapy, and improved behavior outside the context of therapy (Barker and Dawson, 1998; Katcher and Wilkins, 1998; Kruger *et al.*, 2004; Fine, 2006). The research on animal-assisted interventions for targeted populations is still in its infancy, but the studies conducted to date have yielded encouraging results (Wilson and Barker, 2003; Kruger and Serpell, 2006).

For example, a handful of studies have examined the impact of animal-assisted therapy for people with Alzheimer's disease, which is a neurological disorder that significantly impairs a person's general health and wellbeing (American Psychiatric Association, 2000). It affects 1 in 10 people

over the age of 65 and nearly half of people over the age of 85 (Hingley and Ruggeri, 1998). Because there is currently no successful cure or method of prevention, the main goal of most interventions is to improve patients' quality of life (Edwards and Beck, 2002). Animal-assisted intervention research has shown that animal-assisted therapy with a dog can increase a person with Alzheimer's disease's social behaviors, such as smiling and laughing (Kongable *et al.*, 1989; Batson *et al.*, 1997). Even the simple introduction of a fish tank into an Alzheimer's Disease care unit has been shown to improve patient morale, eating habits, and overall health (Edwards and Beck, 2002).

Another target population for animal-assisted intervention research has been children with attention deficit hyperactivity disorder (ADHD) and conduct disorder. ADHD is a developmental disorder characterized by inattention, impulsiveness, and in some cases hyperactivity (American Psychiatric Association, 2000). Children and teenagers with ADHD are at a higher risk for health threatening behaviors such as smoking as well as alcohol drug abuse (Rowland *et al.*, 2002). Conduct disorder is characterized by a repetitive pattern of behavior linked to aggression, destructiveness, deceitfulness and serious violations of rules (American Psychiatric Association, 2000). Conduct disorder poses a major public health concern due to the physical harm and property damage it inflicts on the community (Burke *et al.*, 2002; Schaeffer *et al.*, 2003). One study demonstrated that children with ADHD and conduct disorder who participated in an animal-assisted education program showed increased attendance, increased knowledge and skill objectives, and decreased antisocial and violent behavior compared to those who were not in an animal-assisted program (Katcher and Wilkins, 2000).

Similar studies are also beginning to investigate the impact of animal-assisted interventions for children with autism spectrum disorder (ASD). ASD is a prevalent and debilitating disorder with no universal treatment protocol or cure (Lord *et al.*, 2005). The main feature of the disorder is impairment in social interactions (American Psychiatric Association, 2000). Children with ASD tend to be rejected and victimized by their peers, which can lead to social isolation, loneliness and in many cases depression (Bauminger and Kasari, 2001; Bauminger *et al.*, 2003). The lack of social support and friendships they experience early on can lead to impaired mental and physical health as they grow older (Hertzman and Wiens, 1996). Theorists and clinical practitioners who work with ASD have proposed that one successful means of helping children with ASD may be the use of animal-assisted interventions, and research is beginning to support this claim (Law and Scott, 1995). One study found that as a result of animal-assisted therapy, children with ASD displayed fewer autistic behaviors and more socially appropriate ones (Redefer and Goodman, 1989). Another demonstrated that during animal-assisted therapy sessions, children with ASD displayed a more playful mood, were more focused and were more aware of their social environment (Martin and Farnum, 2002). Most recently, a pilot study using occupational therapy incorporating animals found that when in the presence of animals, children with ASD engage in more social interactions and show greater use of language (Sams *et al.*, 2006).

Positive results from animal-assisted intervention research are increasing in number. A few examples of other populations that have experienced positive outcomes include people suffering from affective disorders, anxiety, aphasia, dementia, depression, personality disorders, schizophrenia, and victims of abuse and neglect (Barker and Dawson, 1998; Nathans-Barel *et al.*, 2005; Filan and Llewellyn-Jones, 2006; Macauley, 2006; Souter and Miller, 2007; Berget *et al.*, 2008; Parish-Plass, 2008). The applications seem endless, and research is just beginning to uncover the many possibilities for incorporating animals into interventions to improve human mental and physical health.

Challenges

Despite the benefits reaped from interacting with animals, today companion animals and their owners face struggles. In the housing industry, there has been a shift towards renting rather than owning. The majority of rental agreements prevent the ownership of companion animals. With rentals on the rise, pet ownership has decreased by 7.3% in Australia and by 1.4% in Germany between 1996 and 2001 (Headey *et al.*, 2002). It is estimated that this decline cost about \$495 million AUD in increased Australian health expenditure and €367 million Euros in increased German health expenditure (Headey *et al.*, 2002).

Not only are companion animals being pushed out of people's homes, but they are also restricted from their community spaces. Companion animals are prohibited in many of the places where they may be needed the most, such as hospitals, nursing homes, and educational institutions. For instance, research has shown that companion animals greatly benefit the elderly, yet most elders cannot own pets due to their economic situation or housing constraints (Beck and Katcher, 2003). The elderly population subsequently finds few opportunities to interact with companion animals due to the absence of animals in public and community spaces.

A final challenge lies in the rapidly growing shift towards urban city living. Over the past few hundred years, many societies have experienced a hasty transformation from rural life and engagement with nature to complete disengagement and life in a human-manufactured world of artificial products and settings (Beck and Katcher, 1996; Gullone, 2000). For the first time in known history, humans are spending little to no time in physical contact with plants, animals, and the living environment (Katcher and Beck, 1987). The consequences of this abrupt withdrawal from a defining part of human evolutionary experience are just beginning to unfold (Wilson, 1993). Recent meta-analyses indicate that the modern industrialized lifestyle of many societies has a detrimental effect on psychological health (Gullone, 2000; Maller *et al.*, 2005).

Due largely to these factors, pet ownership and interaction with nature are rapidly on the decline. At the same time, the rates of stress-related disorders are at an all time high (Maller *et al.*, 2002). The research to date indicates that companion animals can positively influence human mental and physical health and wellbeing. In order to better understand and utilize these benefits, further research is critical.

Conclusions and future directions

Knowledge of the benefits of companion animals for human mental and physical health has increased drastically in recent years. Studies have demonstrated that companion animal owners have increased survival rates from coronary artery disease and have better general mental and physical health than non-owners (Friedmann *et al.*, 1980; Headey, 1999). Animal-assisted interventions have been successful at improving the mental health and quality of life for persons with developmental, neurological, social and psychological impairments (Hart, 2006). Yet while the field of human-animal interactions has grown exponentially in a short time, is still in its early stages. Although great strides have been made to establish the field and impressive results have come from its study, further investigation is critical.

Human-animal interaction research is in great need of carefully controlled, empirical studies that are able to demonstrate concrete, measurable results. Important topics for future research include the magnitude and type of benefits gained from human-animal interactions, the populations that benefit most from different types of interventions involving different species of animals, the public health implications across communities and cultures, the financial implications for individuals and the general public, and concrete strategies to foster and incorporate a sense of respect and appreciation for all life forms into everyday life.

In order to examine these topics, increased funding is crucial. The resources currently devoted to human-animal interaction research will not allow for the breadth and depth of study required. Further, funding for animal-assisted interventions themselves will remain scarce until research provides significant empirical data to support their efficacy. In order to break this cycle, scientists and practitioners from a variety of disciplines will need to work together. The study of human-animal interactions bridges many fields. Examples include psychology, veterinary science, biology, medicine, public policy, sociology and environmental science. Interdisciplinary collaboration among these and other fields has the potential to exponentially increase the output of human-animal interaction research, and subsequently the financial and political support of its programming on a practical level.

The literature to date has demonstrated impressive and diverse benefits associated with companion animal ownership and animal-assisted interventions. The task at present will be to work together to document these effects on a larger scale, to better understand the mechanisms and outcomes associated with them, and to raise awareness so that they can be better utilized to enhance the

psychological wellbeing of communities through interaction with and respect for the living creatures with whom we share our planet.

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