HEALTH ENHANCEMENT AND COMPANION ANIMAL OWNERSHIP

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ABSTRACT

The relationship between people and companion animals, on the one hand, explains the bites and zoonotic diseases that occur among those with companion animals and, on the other hand, appears to enhance the psychological and physiological well-being of many people. Presently, no less than 56% of households in the United States have animals, typical of developed countries around the world. It is well documented that people denied human contact do not thrive well. All indications are that companion animals play the role of a family member, often a member with the most desired attributes. Animals play special roles for children, aiding the teaching of nurturing behavior and appreciation of nonverbal communication. Ordinary interactions with animals can reduce blood pressure and alter survival after a heart attack. For some, pets increase the opportunities to meet people, while for others pets permit them to be alone without being lonely.

Introduction

In 1994, no less that 56% of U.S. households (53 million) have companion animals and more than half of these owners have more than one animal (1). In addition to animals that live in the home, 2% of the households own an average of 2.54 horses for a horse population of 4.9 million, down, in 1991, from 6.6 million horses four years earlier (2).

In Australia, approximately 60% of the 6.2 million households have one or more pets; 53% of the households have either a dog or a cat (44). Examples of dog, cat, and/or bird ownership in European households include Belgium (71%), France (63%), Netherlands (60%), Britain (55%), Italy (61%), Germany (West) (37%), Ireland (70%), and for all 17 European countries surveyed (52%)

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Table 1  U.S. Animal ownership and population estimates, 1991

<table>
<thead>
<tr>
<th>Species</th>
<th>Households with at least one animal (percent)</th>
<th>Estimated population of species (millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dogs</td>
<td>38.2</td>
<td>55.0</td>
</tr>
<tr>
<td>Cats</td>
<td>32.3</td>
<td>63.8</td>
</tr>
<tr>
<td>Caged birds</td>
<td>7.7</td>
<td>31.0</td>
</tr>
<tr>
<td>Small animals</td>
<td>5.0</td>
<td>12.2*</td>
</tr>
<tr>
<td>Reptiles</td>
<td>3.0</td>
<td>7.3*</td>
</tr>
<tr>
<td>Freshwater fish</td>
<td>10.0</td>
<td>82.7*</td>
</tr>
<tr>
<td>Marine fish</td>
<td>0.6</td>
<td>4.6*</td>
</tr>
<tr>
<td>Total</td>
<td>56.0</td>
<td>256.6*</td>
</tr>
</tbody>
</table>

*Unpublished industry data and U.S. Fish and Wildlife Service import data indicate substantially greater populations. For example, current L. iguana imports approximate 800,000 animals annually; domestic ferret population estimated at 5 million animals; reptiles are the fastest growing area with more than 4 million reptiles imported annually. Source: References 2, 36, 50.

(52). All existing cultures keep pets, although the favorite species vary. The sheer numbers of pet animals is only one facet of the "pet phenomenon"; one also has to appreciate who are the benefactors of the "pet experience" (11). As clearly demonstrated by the data, companion pet ownership is neither rare nor random; it is an integral part of society (see Table 1).

Changing social attitudes toward companion pets, along with changing lifestyles, influence decisions regarding ownership. Major demographic trends, notably smaller households, aging populations, coupled with increasingly hectic lifestyles and reduced leisure time, are altering pet population demographics. While more U.S. households own dogs than any other pet, the number of households with a dog or cat is declining (50). Conversely, ownership of birds, small animals, reptiles, and freshwater fish is increasing (1).

In the United States, the people who associate with pets tend to be younger than the general population; dogs, cats, and small mammals are far more common in families that have children. For instance, while young and middle-aged people without children compose 5.2% and 10.9%, respectively, of all U.S. households, only 4.3% and 8.1% of these households, respectively, have any pet, which is less than expected. However, young and middle-aged parents with children at home compose 12.6% and 12.9% of all households, and of these 14.6% and 17.5%, respectively, have a pet—more than expected (2). It is believed the same general pattern exists among European countries (44).

Children with pets in their homes enjoy more leisure activities and work not related with school than their counterparts. Pets are a common and relatively
important feature of children's social network (41). Children also learn important values and attitudes from animals. By preschool, children can appreciate the differences between dogs, cats, puppies, and kittens. They begin to understand the role of the adult animals as caregivers for baby animals. Boys as they mature usually increase their knowledge of and caring for animals, while there is typically a decline in their interest and care for human infants (42). Boys, in particular, may be helped to understand the importance of nurturing by watching pet behaviors and by interacting with their pets. Pets are nonjudgmental in their love and facilitate a child's learning about responsibility. There is even evidence that the mere presence of animals positively alters children's attitudes about themselves and increases their ability to relate to others (39, 45). Animals as varied as dogs, birds, and spiders facilitate social interaction and are catalysts for social and verbal interaction. Live animals are focal points of interest; toy animals do not hold a child's interest in the same degree (47).

Animals are perceived to be especially valued as companions for older adults (15, 24, 48, 53, 58, 59). Animals may replace children who have grown and moved away or perhaps those who were never born. They may afford opportunities for an increase of human-to-human social interaction and, finally, they may permit older adults to live alone without being lonely.

Various studies have found that the household pet is perceived to be a member of the family, sharing many of the attributes of a favored family member. It is typical to talk to the animal as if it were a person. Carrying its photograph and sharing a bedroom are also within the norm (8). While nearly half of adults confide in their pet, more than 70% of adolescents do so (10, 30, 31).

At the very least, interaction with animals positively influences transient physiological states, resulting in improved morale. The impact may be mediated directly, involving physiological functions like blood pressure, or by influencing the person's psychological well-being (e.g. improving morale and lessening risky behaviors) or psychosocial interactions with others. Besides immediate changes in blood pressure and feelings of well-being, there appear to be long-term effects of animal interaction, most notably influencing the attitudes and behaviors of young children. "The basis for the positive effect of health and well-being resulting from the interactions with a pet has come to be known as the companion-animal bond or the human-companion animal bond" (51). Preserving the bond between people and their animals, like encouraging good nutrition and exercise, appears to be in the best interests of those concerned with public health.

**Epidemiological Findings**

There is a long history of using animals as sentinels for humans at risk. "Birds and mice may be used to detect carbon monoxide, because they are much more sensitive to the poisonous action of the gas than are men" (14).
Epidemiological studies of pet animals with spontaneously occurring disease could serve as sentinels and supplement human epidemiological research (6). Compared with humans, animal diseases have a shorter latency after exposure and occur with less confounding factors, such as occupational or self-selected exposures like workplace pollutants or smoking tobacco. In contrast to laboratory experiments, spontaneous tumors in pets reflect natural exposures to a wide variety of environmental carcinogens; pets could therefore be sentinels for the humans that share the home (25, 46).

Companion animals may receive detailed physical evaluations comparable to those of their owners. The veterinary community stands ready to be part of the human health research team, but for the most part is rarely asked to participate. Companion animals are an unrecognized alternative to study many of the health problems facing people today (6).

While there is no clearly identified single explanation for the positive effect pets have on their owners, there is growing epidemiologic evidence that people who feel an attachment for nature (57) or for companion animals have lessened risks of disease and disease processes compared with people without such experiences (8). It is well documented that people denied good human contact and interaction do not thrive well (40). One way people can be protected from the ravages of loneliness is through animal companionship.

A 1980 report first documented the value of pet ownership. A study of people hospitalized after a heart attack found that ownership of any animal correlated with improved survival: 94% of those who owned pets were alive after the first year compared with 72% of those who did not own any animal. A discriminate analysis demonstrated that pet ownership accounted for 2–3% of the variance (22). Although 2–3% may seem small, the impact is significant and cost effective considering the frequency of heart disease.

A more recent study of the benefits of interactions with animals found that pet owners had reductions in some common risk factors for cardiovascular disease, lower systolic blood pressures, plasma cholesterol, and triglyceride values (3). Socioeconomic profiles of the two groups were very similar and although pet owners engaged in more exercise, they also ate more meat and “take-out” foods.

**Physiological Effects**

Differences were observed in the way pet owners talk to their animals by species (28, 30); these are influenced by the handling needs of the animals and social stereotypes, but people find comfort in talking to their animals (32, 33). Unlike talking to other humans, people experience a decrease of blood pressure talking to pets, indicating that they are more relaxed than with people (5, 23, 33). Even in the presence of unfamiliar dogs, people experience a temporary
decrease in blood pressure (23). Blood pressure also decreases for people with normal pressures and those with hypertension when watching fish in a standard aquarium; systolic and diastolic levels for hypertensive subjects often fall within normal ranges. The decreased physiological arousal indicated by the reduction of blood pressure is associated with stereotypical changes in facial expression and vocal pattern; the face becomes more relaxed with a decrease in muscle tension, especially around the eyes (29), and subjects talking to their companion dogs, cats, and birds talk more slowly and with a more relaxed mode (30), which, in itself, tends to reduce blood pressure.

**Psychological/Social Effects**

It has been hypothesized that pet ownership improves survival because it influences psychosocial risk factors that lessen the risk of coronary heart disease (49).

The general tendency to overestimate the importance of personal factors relative to environmental considerations in making judgments about a person or situation is well recognized and has been named “the fundamental attribution error” (53a, 53b, 60). A good example is that people perceive others observed in the company of animals more positively and with more favorable attributes than observed without animals present. This “fundamental attribution error” occurs when people are observed live or in photographs (39). Our experimental observations of normal and handicapped subjects in public situations, and anecdotal accounts of the behavior of politicians, suggest that the presence of pet animals improves the social attractiveness of human subjects.

There may also be less dramatic effects from pet ownership than increasing survival rates or reducing anxiety. Serpell (54) reported that dog owners experienced fewer minor health problems and increased the number and durations of their recreational walks. The effects persisted over the ten-month study period and there was no clear explanation for the results.

Many naturally occurring events are enhanced by animal companionship. People walking with their dog experience more social contact and longer conversations than when walking alone (45). Even rabbits and turtles can encourage approaches by other people and stimulate conversations between children and unfamiliar adults in a community park setting (27). Wilson (58) reported that companion animals alleviate anxiety and relax college students of all ages and races.

Probably the most conclusive study of the stress-managing value of animal interaction used subjects who were scheduled for molar extractions at a School of Dental Medicine. People who contemplated an aquarium underwent dental surgery very much like those who were hypnotized prior to the procedure (34). Although measuring the anxiolytic effect of a pet on a human companion is not a simple task, there appears to be a real effect (12).
Companion animals could have a positive impact on societal health. Katcher & Wilkins (35) used carefully designed educational programs structured around animal contact with children who had attention-deficit hyperactive disorders (ADHD) and defiant disorders (CD). The children in the animal contact groups had better attendance and improved measurements in a variety of knowledge and skills objectives. The children whose educational experiences included animal contact exhibited significantly less antisocial and violent behavior.

Abusing animals and abusing other humans are related behaviors (4, 19). Prisoners with crimes involving aggression to others are statistically more likely to have a history of multiple acts of cruelty to animals than noncriminals or those whose crimes did not involve violence (37). Nearly a century ago, Sigmund Freud (21) suggested that clinicians attend to “children who are distinguished by evincing especial cruelty to animals and playmates,” but it was not until 1987 that cruelty to animals was added to the list of diagnostic criteria for Conduct Disorders in the Diagnostic and Statistical Manual of Mental Disorder, 3rd revised (DSM-III-R).

If being cruel to animals is associated with being cruel to people, it is reasonable to hypothesize the opposite effect, i.e. that good animal contact reduces anti-social behavior. There is a need to assess the widespread but largely untested belief that we should teach children to be kind to animals. For example, children exposed to humane education programs displayed enhanced empathy for humans compared with children who were not exposed to such programs (4).

One long-recognized but often ignored value of animal contact is that many people find joy and even humor in interacting with animals. Animals often permit people to laugh at themselves or at their surroundings; note the role animals play in cartoon humor. The writer Norman Cousins described the role of laughter in diminishing pain, even reducing the inflammatory process that afflicted him (17). McCulloch observed that animals owned by his psychiatric outpatients played a clear and identified role in their lives; the animals helped all the patients to laugh and maintain a sense of humor (43). Laughter, or at least encouragement to find humor, is a recognized medical intervention, and animals are a frequent source of that humor.

**Animals As Therapy**

In the last few years, popular and scientific discussion of pet therapy or, more appropriately, Animal Facilitated Therapy (AFT) has flourished. Much of the early literature documents nothing more than fortuitous interactions with animals that happen to be present in a therapeutic setting (8). There were no scientific goals or expected effects other than what normally occurs when people and animals interact (9). The animals were to provide a diver-
sion from routines in institutional settings or companionship to those living alone.

In one study, nearly 1000 noninstitutionalized older adult Medicare patients were evaluated prospectively. Those subjects who owned pets appeared to experience less distress and to require fewer visits to their physicians than nonowners. While animal ownership generally had value, the most remarkable benefits to health were for dog owners (55). Most people noted that the pets provided them with companionship and a sense of security and the opportunity for fun/play and relaxation. Animals allowed people to experience bonding. Siegel (56) suggested that pets have a stress-reducing effect. As a result, support has grown for protecting the right of pet ownership for senior citizens living in the community and for encouraging animal contact for patients in long-term nursing home settings.

Animals can also play a role in improving the well-being of people of all ages who are stigmatized or whose special needs make them less able to function in normal settings. Kidd & Kidd (38) interviewed 105 homeless people and noted the importance of pets for companionship, friendship, and love for this population, although the provision of food and veterinary care for the animals was a problem. Wheelchair-users were more likely to experience positive social interactions when with a dog (26, 18). Psychiatric inpatients were more comfortable talking and participating in group therapy sessions in the presence of birds than in the same room with no animals present (13). Animals are becoming a frequent adjunctive in many therapeutic settings, for all ages and for a wide variety of circumstances (8).

Conclusion

Animals have been part of human households since humans started living in villages, some 12,000 years ago. Interaction with companion animals may well be one of our more successful strategies for survival. All cultures have maintained a commitment to carrying for and protecting animals kept solely for companionship. Today, animals continue to play a major role in the lives of many people. Nevertheless, the medical history of our relationship with animals documents mostly the detrimental effects of animal contact, addressing allergies, infectious diseases, zoonoses, parasitism, and traumatic injury from bites and kicks. To be sure, animal contact carries risk, but the frequency of most zoonotic diseases can be lessened, even eliminated, with animal management practices that would serve both humans and the animals themselves. Veterinary care to manage bacterial, viral, and parasitic infections, mechanical restraints like leashes and cages, selective breeding, responsible legislation, and owner education have made animal ownership a safe and rewarding experience for many.
The reports by Friedmann et al (22) and Anderson et al (3) have not promoted interest in funding studies on the links between human-animal interactions and cardiovascular health. The reports have had a limited impact on subsequent cardiovascular research since few researchers have added questions about pet ownership and attachment to animals. One independent ancillary study to the Coronary Arrhythmia Suppression Trial (CAST) (16), a National Institutes of Health (NIH) clinical trial, is finding that pet ownership, lower anxiety, and social support are all associated with an increased likelihood of one-year survival after a myocardial infarction (23a).

Research on human-animal interactions is needed for reasonably large study populations. Most grants to study human-animal interactions are for less than $10,000, whereas large epidemiological studies are much more expensive. Such an amount would be sufficient to support the addition of a few questions on human-animal interactions to larger epidemiological surveys, but only if those controlling the large study are supportive; they are usually not.

The lack of funding is not exclusive to the study of human-animal interactions. People who pray and participate more actively in their religions have better health at all ages. People associated with conservative religious affiliations have poorer health than those with more liberal affiliations (20). While society generally believes that being religious is valuable to health, there have been few studies (12). There is stronger evidence for the benefit of animal contact than there is for the benefit of being religious, yet we still have trouble accepting animals as more than the “therapeutic clown” of society (8).

At the final presentation of the 1987 NIH Technology Assessment Workshop, Health Benefits of Pets, Beck & Glickman (7) proposed that “All future studies of human health should consider the presence or absence of a pet in the home and, perhaps, the nature of this relationship with the pet, as a significant variable. No future study of human health should be considered comprehensive if the animals with which they share their lives are not included.”

In sum, there is substantial evidence to support the positive benefits of animal companionship for various segments of the population, especially children, the elderly, socially isolated, and the handicapped. Research needs to be directed to establish both the scope of these benefits and ways to channel them more effectively to improve the public health of the community.
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