Advancing Research on Human–Animal Interaction in Human Aging

Executive Summary

of a workshop convened by The Gerontological Society of America

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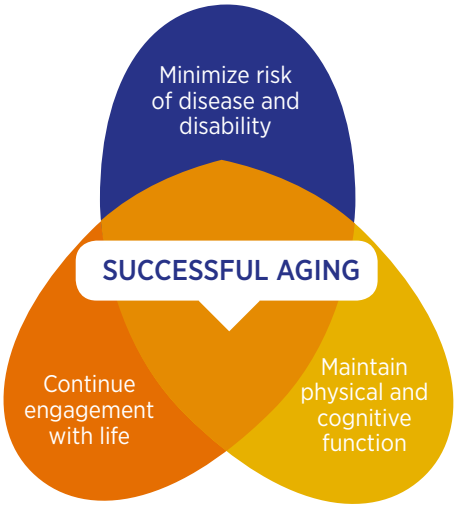
Workshop objective:
To develop a roadmap for future human–animal interaction research in an aging population.

Although interactions between people and companion animals have existed for thousands of years, the study of the impact of these relationships on physical, social, and psychological health is just beginning. Most available research looks at the potential therapeutic effect of human–animal interactions (HAI) on childhood conditions such as autism and attention-deficit/hyperactivity disorder or in the development of empathy, social skills, and other human characteristics.

With the goal of developing a roadmap for HAI research in older people residing in both the community and institutions, The Gerontological Society of America convened a workshop of experts and policymakers in the field of HAI. This executive summary of that meeting highlights the key points of speakers and recommendations made by attendees.

FIGURE 1. Elements of Successful Aging



Source: Rowe JW, Kahn RL. Successful aging. *The Gerontologist*. 1997;37(4):433–40. Reprinted with permission.

Prerequisites of HAI Research

Before any research can be conducted, conceptual models or theoretical frameworks must be established that can guide hypotheses and provide a framework for findings. For HAI research, theoretical frameworks provide a basis for identifying modifiable factors that affect health and functional outcomes in the context of unmodifiable factors that contribute to poor outcomes. For HAI research in aging populations, theoretical frameworks include attachment theory, biophilia hypothesis, social support theories, and physiological approaches concerning the role of hormones such as oxytocin and cortisol, exercise through dog walking, and cardiovascular function.

Successful aging (Figure 1) is recognized as involving minimal disease and disability, continued physical and cognitive functioning, along with life satisfaction and social engagement. Overall, successful aging is poorly defined in conceptual models or theoretical frameworks; this weakness should be addressed by researchers. With a sound conceptual framework for successful aging, scientific research can provide an objective blueprint for understanding the relationship among the factors associated with older adults' health, well-being, and social engagement. Practitioners and policymakers can then selectively deploy those findings in life and care situations to enhance successful aging.

Ethical obligations to both human and animal participants must be considered in HAI research; these considerations vary markedly depending on whether research will involve pet ownership or interactions with trained or untrained animals in controlled environments. With pet ownership in a study of aging, the possibility of the human participant losing the ability to care for the animal must be considered, as does bereavement of the participant or the pet. In controlled environmental research, which often involves pet visitation programs, treatment fidelity must be carefully controlled through precise interventions. Is the pet trained to interact in a certain way (with or without contact; sitting or lying), or are interactions spontaneous, as with a guinea pig or rabbit?

Challenges of HAI Research

Despite the ubiquity of animals in the lives of people around the world, HAI research is difficult to conduct in ways that provide high-quality evidence. Blinded randomized controlled trials—the gold standard of clinical research—are difficult to conduct; participants and researchers cannot be effectively blinded from interactions with animals and it is difficult to create effective sham interactions (stuffed or robotic animals have been used as comparators in some research). Even when effective comparator interventions are created, assigning study participants to activities, such as owning pets or interacting with certain types of animals, is problematic. Some people simply do not want to have a pet, and that fact can be a confounder in a comparative trial, introducing bias into the selection of participants. Other people may prefer a dog, others a cat or fish, and some an exotic animal such as a snake or iguana. The influence of such preferences on the internal and external validity of research methods requires investigation.

Because of the difficulty of conducting randomized controlled trials, HAI researchers often rely on various types of observational research methods, including cross-sectional studies such as population or convenience surveys or longitudinal analyses of HAI factors and health outcomes over time. In survey research, operational definitions are key, because questions can be misinterpreted. "Do you have a pet?" might mean do you own a pet, is there a pet in your household, do you take care of a pet on a daily basis, or do you have only one pet? Most people think of dogs and cats when asked about pets, but some respondents may be referring to nondomesticated animals (e.g., reptiles) or pets such as fish that do not have measurable reciprocal bonds with the human. Thus, accurately measuring the quality of a relationship and the nature of attachments with a pet can be challenging.

Notation of pet ownership in electronic health records is a good idea for many reasons, including HAI research. Companion pets are an important part of many people's lives, and clinicians, social workers, and others can use this information to develop therapeutic plans for those with some chronic diseases. For HAI researchers, conduct of case-control and cohort studies would be facilitated if pet ownership were an element in digital records that also include diseases, interventions, and outcomes.

Social relationships are important in many HAI models and concepts. Pets can provide social interactions for owners, both directly and by serving as social lubricants when other people are more willing to interact when the pet is present. These aspects of pet ownership present additional complexities to the researcher seeking to separate human and animal effects on interaction. Additionally, how the pet fits into the overall support system for an older adult requires study and quantification. For someone who already has strong support, the effect of the animal may be lessened. Self-esteem and self-worth of an older adult who might otherwise "feel useless" should be studied within the context of pet ownership. Cultural and societal factors come into play, as do past positive and/or negative experiences with companion animals, types and specific breeds of pets, and costs or risks associated with pet ownership and visitation programs.

Taking a look at HAI beyond companion pets and into the realm of animal-assisted interventions (AAIs) and animal-assisted therapy (AAT), little research has been conducted in older adults. Investigators are considering the effect of AAT in older people needing rehabilitation because of stroke, Parkinson disease, or other debilitating diseases, and in veterans with posttraumatic stress disorder.

Recommendations for Future HAI Research

Workshop participants generated many ideas for improving and expanding HAI research.

Investigators should use validated survey instruments and maintain consistency between studies whenever possible. This increases the comparability of survey results across time and geographically dispersed and culturally diverse populations. When new survey items must be generated, they should be validated to minimize the potential for misinterpretation. Potentially confounding variables must be identified and measured, and factors that affect selection of the sample must be considered; such threats to internal validity must be minimized. Specific and detailed histories are needed about participants' prior and current pet ownership and other routine interactions with animals.

For AAI/AAT studies, the nature, duration, and specifics of the interactions between people and animals must be provided in detail. Information about exposure situations should include the relative artificiality of the situation (animal visitation programs are very different from "real life"), the duration and frequency of animal contact, the type of sensory stimulation involved (tactile, visual, auditory), the type of task and involvement with the animal, whether multiple exposures are provided, and if so, the timing of those exposures.

Quality improvement is critical for future interventional studies of HAI and AAT. Among the factors researchers must address are the following:

- Better use of advisory boards
- Inclusion of multiple sites and multiple cultures when possible
- Determining where and how participants are recruited
- Using models and theories in developing research questions
- Clearly delineated inclusion and exclusion criteria
- Informed consent and the role of caregivers/proxies in granting consent
- Ensuring ethical treatment of animals involved in research—report work schedule, breaks, experience in setting, housing, exercise time, and situation
- Use of random assignment of individuals or clusters whenever possible
- Use of blinding techniques when possible and blinding of statistical analysts in all cases
- Consideration of language and cultural barriers relevant to research
- Comparison of treatments with sham interventions whenever possible
- Use of longitudinal study designs when feasible
- Use of validated measures and instruments, including motion detectors and digital technology for assessing human and animal movements and physiological responses
- Specificity regarding the types of animals involved, including training, certification/registration for therapy work, breeds of dogs and cats, age, spay/neuter status, record of interactions (objective and participant self-report perception of interaction)
- Follow-up and endpoint measurements, including long-term outcomes
- Working with institutions to create maximum potential for benefits with the least amount of burden
- Use of naturally occurring retirement communities as research venues
- Assessment of dropout and truncation by death rates
- Inclusion of cost/benefit analyses when relevant

HAI Research in Older People: An Aspect of Anthrozoology Whose Time Has Come

The special bond between people and their companion animals deserves exploration as a means of improving human health in a rapidly aging world. The field of HAI research is a ripe one—ready for development and expansion—for gerontologists and other researchers interested in older populations. Interventions based on HAI, AAI, and AAT should be studied in a scientifically valid, controlled manner whenever possible. When ethics and practicalities preclude this level of evidence, observational research techniques applied with quality and integrity of data in mind should be used to demonstrate the effect of pet ownership and animal interactions on disease processes and aging determinants.

Workshop Topics and Speakers

Aging Research and Human–Animal Interaction Research: An Emerging Relationship

The State of Research on the Human–Animal Relationship

James Serpell, PhD
Marie A. Moore Professor of Ethics and Animal Welfare
University of Pennsylvania
School of Veterinary Medicine

Aging: State of the Science

Laura P. Sands, PhD
Professor
Center for Gerontology
Virginia Tech University

Research and Clinical Findings on the Impact of Companion Animals

Human–Animal Interaction in an Aging Population

Marie-José Enders-Slegers, PhD, MSc
Professor in Anthrozoology
Faculty of Psychology and Educational Sciences
Open University, The Netherlands

Findings from NICHD-Supported Research on Human–Animal Interaction

Layla Esposito, PhD, MA
Program Officer
Eunice Kennedy Shriver National Institute of Child Health and Human Development
National Institutes of Health

Special Methodological Issues in Human–Animal Interaction Research in Older Adults

Epidemiologic Research in Older Adults: Barriers, Challenges, and Recommendations

Michelle D. Shardell, PhD
Staff Scientist Statistician
National Institute on Aging
National Institutes of Health

Methodological Components of Human–Animal Research

Erika Friedmann, PhD
Professor
Associate Dean of Research
University of Maryland School of Nursing

Developing a Set of Priority Topic Areas for Human–Animal Interaction in an Aging Population

Creating a Prioritized List of the Most Promising Opportunities

Peggy McCardle, PhD, MPH

Bringing the Research to the Human–Animal Interaction and Aging Communities

Peggy McCardle, PhD, MPH

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