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## Evolution of research on human–animal interaction: A review

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### Abstract

Human-animal interaction (HAI) is a growing area of research that examines the ways in which humans and animals interact and the benefits that result from these interactions. This paper reviews the evolution of research into the mutual benefits of HAI over the past several decades. Early research in this area focused primarily on the therapeutic benefits of HAI for humans, particularly in the context of animal-assisted therapy. However, more recent research has broadened the scope of HAI research to include a wider range of human-animal interactions, such as pet ownership and animal-assisted activities. One important finding from this research is that HAI can have a range of positive effects on human health and well-being, including reductions in stress, anxiety, and depression, as well as improvements in physical health outcomes such as blood pressure and heart rate. Additionally, HAI has been found to have positive effects on social outcomes, such as increased social support and socialization.

Importantly, this research has also demonstrated that HAI is a mutually beneficial interaction, with animals themselves experiencing positive outcomes from interactions with humans. For example, animals involved in animal-assisted activities have been found to have lower stress levels and improved well-being. The purpose of this review is to examine the evolution of research on HAI, starting from its early beginnings to the present day.

**Keywords:** Anthrozoology, Animal behaviour, Animal-assisted interventions, Animal-assisted therapy, Human-animal bond

### Introduction

Human-animal interaction refers to the relationship between humans and animals, whether it is for work, companionship, sport, or any other purpose. Humans have interacted with animals for thousands of years and have formed strong bonds with them. This interaction can have positive effects on both humans and animals, such as improving mental health, reducing stress and anxiety, providing companionship, and enhancing physical health through activities like walking a dog or horseback riding. Human-animal interaction can take many forms, from domesticated pets like dogs and cats to working animals like horses and farm animals. It can also involve wildlife, either through observation or through efforts to conserve and protect endangered species. As our understanding of animal behaviour and welfare has grown, so too has our appreciation of the value of human-animal interaction. Animal-assisted therapy, for example, is a growing field in which animals are used to help people with physical, emotional, and mental health issues. Overall, human-animal interaction is a complex and multifaceted area that has the potential to benefit both humans and animals alike.

Human-animal interaction (HAI) has been a topic of interest for researchers from various disciplines for centuries. However, it was not until the 1960s that HAI research emerged as a distinct field of study (Serpell, 2019). Since then, HAI research has grown exponentially, with researchers from various disciplines, including psychology, sociology, anthropology, and veterinary medicine, investigating the nature of the relationship between humans and animals.

### Theoretical Frameworks

The earliest theoretical frameworks used to study HAI were based on the idea that animals served as surrogates for human relationships (Levinson, 1962). This framework assumed that the interactions between humans and animals were similar to the interactions between humans and other humans.

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However, this framework was later challenged, with researchers arguing that the relationship between humans and animals was unique and could not be reduced to a simple surrogate relationship (Serpell, 2019).

Another theoretical framework that emerged in HAI research was the biophilia hypothesis, which proposed that humans have an innate tendency to seek connections with nature and other living beings (Kellert & Wilson, 1993). This hypothesis argued that the relationship between humans and animals was rooted in our evolutionary history and that it had adaptive value. The biophilia hypothesis has been widely studied in HAI research, and there is evidence to suggest that exposure to animals can have positive effects on human health and well-being (Serpell, 2019).

#### Recent works-

on human-animal interaction (HAI) has focused on a variety of topics, including the health benefits of animal-assisted interventions, the role of animals in human society, and the ethical considerations surrounding the use of animals in HAI research. The following sections provide an overview of some of the key findings from recent HAI research.

### 1. Animal-Assisted Interventions

Animal-assisted interventions (AAIs) are a form of HAI that involve the use of animals to improve human health and well-being. Recent research has shown that AAIs can have positive effects on a variety of outcomes, including mental health, physical health, and social functioning.

For example, a recent meta-analysis of 17 randomized controlled trials found that AAIs were effective in reducing symptoms of depression and anxiety (Souter & Miller, 2015). Another study found that therapy dogs were effective in reducing anxiety and improving social interaction among children with autism spectrum disorder (O'Haire *et al.*, 2013) [25].

The benefits of AAIs are thought to be due to a combination of factors, including the social support provided by the animal, the distraction from stressful situations, and the release of endorphins and other hormones associated with positive emotions (Serpell, 2019).

### 2. Animal Welfare and Ethics

Recent HAI research has also focused on the ethical considerations surrounding the use of animals in HAI research and practice. There is growing concern about the potential for animals to experience stress and discomfort in HAI settings, particularly in the context of animal-assisted therapy.

To address these concerns, researchers have developed guidelines for the ethical use of animals in HAI research and practice. These guidelines emphasize the importance of ensuring that animals are treated with respect and dignity, that their welfare needs are met, and that they are not subjected to unnecessary harm or stress (McConnell *et al.*, 2011).

### The Role of Animals in Human Society

Recent HAI research has focused on the role of animals in human society, and the ways in which humans interact with and relate to animals. One area of interest has been the role of animals in promoting pro-social behaviour among humans.

For example, research has shown that owning a pet is associated with increased levels of empathy, compassion, and prosocial behaviour among children and adults (Hoffman & Russoniello, 2018). Other research has explored the role of

animals in promoting environmental awareness and sustainability, and the ways in which humans can work with animals to promote conservation efforts (Serpell, 2019).

### 4. The positive effects of HAI on human health and well-being.

For example, a study by Gee *et al.* (2020) found that pet owners had lower levels of loneliness and higher levels of social support compared to non-pet owners. Another study by Brooks *et al.* (2018) found that animal-assisted interventions can improve psychological outcomes for people with mental health conditions.

In addition, recent research has explored the role of HAI in specific populations, such as children and older adults. For example, a study by Brelsford *et al.* (2020) found that animal-assisted therapy was effective in reducing anxiety and improving social skills in children with autism spectrum disorder. Another study by Banks *et al.* (2019) found that animal-assisted therapy improved mood and cognitive function in older adults with dementia.

### 5. Emerging Trends

One emerging trend in HAI research is the use of technology to facilitate interaction between humans and animals. For example, virtual reality and robot-assisted therapy have been used to provide HAI experiences for people who may not have access to live animals or who may be unable to physically interact with them. Another emerging trend is the use of HAI in education and training, such as using animals in medical and veterinary education to improve empathy and communication skills (Morgan *et al.*, 2018).

### Future Directions

Future research on HAI is likely to focus on several areas, including the biological and physiological mechanisms that underlie the effects of HAI on human health and well-being, the impact of different types of animals on HAI outcomes, and the role of culture and context in shaping the HAI relationship. In addition, research is needed to evaluate the long-term effects of HAI interventions and to develop standardized protocols for HAI research and practice.

### Research Methods

#### 1. Surveys and Questionnaires

These are used to collect information from people about their experiences with animals. Surveys and questionnaires can be used to gather information about a wide range of topics, such as attitudes towards animals, the benefits of owning pets, and the effects of animal-assisted interventions.

#### 2. Behavioural Observations

This involves observing the behaviour of animals and/or humans in various situations. Observations can be conducted in natural settings (e.g., homes, parks) or in controlled environments (e.g., laboratories). This method can provide insight into the interactions between humans and animals and how they affect each other.

#### 3. Physiological Measurements

These are used to measure physiological responses in both humans and animals during interactions. Examples include measuring heart rate, blood pressure, cortisol levels, and other physiological indicators of stress or relaxation.

Experimental Designs: These are used to test specific

hypotheses about the effects of HAI. Examples include randomized controlled trials of animal-assisted therapy interventions, where participants are randomly assigned to either receive the intervention or a control condition.

#### 4. Case Studies

These involve in-depth analysis of individual cases where HAI is a significant factor. Case studies can be useful for understanding the complexity of human-animal interactions and how they may vary across different contexts and for understanding the experiences of individuals who have had unique or unusual interactions with animals. Case studies may involve interviews, observations, and the collection of other types of data.

#### 5. Neuroimaging Studies

Neuroimaging studies involve using brain imaging technology to examine the neurological responses of humans and animals during HAI. This method is useful for identifying the areas of the brain that are activated during interactions with animals and for understanding the mechanisms that underlie the benefits of HAI.

#### 6. Experimental Studies

Experimental studies involve manipulating one or more variables to determine their effect on animal or human behaviour. This method is useful for establishing cause-and-effect relationships between different factors and outcomes. For example, an experimental study may investigate how the presence of an animal in a therapy session affects the mood and behaviour of human participants.

#### 7. Ethnographic studies

Ethnographic studies involve the observation of animal-related practices and beliefs in different cultures and communities. Ethnographic studies can be used to explore the cultural significance of animals and the role they play in different societies.

#### Conclusion

The evolution of research on human-animal interaction (HAI) has led to a growing understanding of the benefits of this relationship for human health and well-being. Over time, researchers have shifted their focus from simply documenting the existence of the HAI relationship to exploring its underlying mechanisms and potential applications in fields such as therapy and education.

Recent research has highlighted the positive effects of HAI on mental and physical health, as well as the nature of the relationship between humans and companion animals. Emerging trends in HAI research include the use of technology to facilitate interaction between humans and animals, as well as the integration of HAI into education and training.

However, there is still much to be learned about HAI and its potential applications. Future research is needed to deepen our understanding of the HAI relationship and to develop effective interventions that improve human health and well-being. This includes investigating the biological and physiological mechanisms that underlie the effects of HAI, the impact of different types of animals on HAI outcomes, and the role of culture and context in shaping the HAI relationship.

Overall, the evolution of HAI research has demonstrated the

importance of this relationship for human health and well-being and provided new avenues for research and application.

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