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# Influence of pet ownership on opinions towards the use of animals in biomedical research

Joakim Hagelin\*, Bo Johansson†, Jann Hau\* and Hans-Erik Carlsson\*

\* Department of Physiology, Uppsala University, Sweden.

† Department of Teacher Training, Uppsala University, Sweden.

## Abstract

*The present study investigated the relationship between pet ownership and opinions on the use of animals in medical research. A questionnaire was answered by 484 schoolteacher students and 156 pre-school teacher students from Uppsala University, Sweden. Animal use was found to be of significant importance for developing treatments for human disease by 59 percent of respondents, but 15 percent did not agree. Forty-four percent thought that it was morally acceptable to use animals in biomedical research, while 25 percent did not. A significantly higher proportion of those who reported experience in the use of animals in research from university teaching morally accepted and understood the importance of using animals in biomedical research, compared with students without this background. Fifty-eight percent of the students were pet owners and the most common species owned were the cat and the dog. A lower proportion of pet owners (39%) found it acceptable to use pet species in biomedical research than did non-pet owners (52%). © 2002 International Society for Anthrozoology*

**Keywords:** *animal research, attitudes, pet ownership, students*

The use of animals in biomedical research is a much-debated ethical issue. Most people have an opinion on whether it is morally acceptable to use animals in research and if animal-based research is necessary for advances in medical science. Many factors, e.g. age, gender, education and religion, have been demonstrated to contribute to the moral views of people on this controversial issue (Hagelin, Carlsson and Hau, unpublished data). Past surveys, linking attitudes towards the use of animals in research and certain pet-related factors, suggest that companion

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**Address for correspondence and requests for reprints:** Dr Joakim Hagelin, Department of Physiology, Division of Comparative Medicine, Uppsala University, Box 572, SE-751 23 Uppsala, Sweden. Ph: +46 18 471 46 23; fax: +46 18 50 17 40; e-mail: jh14@hotmail.com

animals and larger mammals perceived as attractive are less acceptable for use in biomedical research than rodents or non-mammalian species (Richards and Krannich 1990; Driscoll 1992; Blackshaw and Blackshaw 1993; Furnham and Heyes 1993; Wells and Hepper 1997). However, these studies either did not define the pet species, did not analyze the ownership of different species (other than cats or dogs) or merely considered ownership of cats and dogs. The aims of the present study were: 1) to analyze whether pet ownership is associated with acceptance and recognition of the need for using animals in biomedical research, and 2) to elucidate if ownership of a particular pet species affects the opinion of these owners on the use of that species in research.

## Methods

### Participants

The participants were teacher students registered at the Department of Teacher Education of Uppsala University, Sweden. They attended one of three programs: compulsory schoolteacher, covering school years 1–7 (duration 3.5 years), compulsory schoolteacher, covering school years 4–9 (duration 4.5 years) or pre-school teacher (duration 3 years). In total, 640 students voluntarily responded; 484 were compulsory schoolteacher students and 156 were pre-school teacher students. Fifty-six percent were at the beginning of their studies. All students within each of the three programs could choose from a variety of subject areas and combinations. None of the pre-school teacher students, but about a third of the more senior (from year two of the programs and onwards) compulsory school teacher students ( $n=75$ ) had attended natural science courses at the time of questioning. Some students (6.4%) stated that they had experience of animal research through education at university level.

The mean age of the students was 26.3 years ( $SD=7.4$ ) (three groupings: <21 years, 22–26 years and >26 years were used in the analyses); 85.8 percent were female, 31.0 percent had been brought up in the countryside, 28.3 percent had taken care of farm animals for a significant period of time, 25.5 percent considered religion very or fairly important, and 13.9 percent followed some kind of vegetarian diet. The majority of students had pets (58.3%) and some had more than one species (32.3%). The cat ( $n=191$ ) and the dog ( $n=150$ ) were the most common pet species among the students and the most common combination owned was cat and dog ( $n=59$ ).

## Instrument and procedure

The questionnaire used (21 questions) contained almost exclusively close-ended questions, and responses were recorded using 5-point response scales. The questions on animal research have been used in previous surveys (Cronholm 1992, Compton et al. 1995, Hagelin, Carlsson and Hau 1997) and included one on “moral acceptance” and one on “understanding.” These were phrased as: 1. Do you consider the use of animals in biomedical research morally acceptable?, and 2. Do you consider the use of animals in biomedical research important in the development of treatments for human disease?

The question on pet ownership was open-ended, with ownership defined as the presence of an animal in the household. The laboratory animal question regarding the acceptability of using different species in biomedical research was close-ended, with Yes/No/Don't know as response options; 13 of the most commonly used species in research were listed, based on phylogenetic rank.

Questionnaires were distributed, filled in voluntarily and anonymously by all students present, and collected during the first lecture of term. It is assumed almost all of the enrolled students were present, as it was obligatory for them to attend the lecture.

The likelihood-ratio chi-square test was used to measure differences between groups. P values less than 0.05 were considered statistically significant.

## Results

Animal research was considered important for developing treatments for human diseases by 58.9 percent of students, whereas 15.2 percent did not think it important. A lower proportion of female students (58.6%) than male students (62.9%) ( $p < 0.0001$ ) agreed with this. More students with experience of animal research from university education considered animal research important for developing treatments for human disease (75.6% vs. 58.2%,  $p < 0.005$ ) compared with those who did not have this experience. Age, vegetarian eating habits, pet ownership and religious beliefs did not significantly affect the responses to these questions.

In total, 44.3 percent of the students considered animal research morally acceptable, whereas 24.8 percent did not. A higher proportion of males (50.0% vs. 43.4%,  $p < 0.003$ ), non-pet owners (51.8% vs. 39.0%,  $p < 0.001$ ) and non-vegetarians (45.7% vs. 34.1%,  $p < 0.02$ ) considered animal research morally acceptable than did females, pet owners and vegetarians. More students with experience of animal research through university education found

**Table 1.** The opinions of students towards using various species in biomedical research (values given as percentages, n=640).

	Acceptable	Not acceptable	Don't know	Pet Ownership p value
Rat	48.3	19.4	32.3	0.012
Mouse	48.0	20.1	31.9	0.02
Invertebrate	41.0	22.4	36.6	NS
Fish	40.0	26.1	33.9	NS
Amphibian	38.1	28.2	33.8	0.047
Reptile	35.9	27.9	36.2	0.02
Pig	29.3	37.9	32.7	NS
Bird	28.1	37.2	34.7	0.013
Guinea-pig	28.3	39.0	32.7	0.002
Rabbit	24.3	42.3	33.4	0.014
Monkey	23.8	41.4	32.0	NS
Cat	18.1	50.2	31.7	NS
Dog	17.0	51.6	31.3	0.046

NS =non significant

**Table 2.** The percentage of owners (of a particular species of pet) and non-owners who were opposed to using that species in biomedical research (n=640).\*

	Owners	Non-owners	P value	No. of Owners
Dog	61.2	48.6	0.04	150
Cat	59.2	46.2	0.02	191
Rabbit	54.3	41.3	0.02	50
Bird	43.7	36.8	NS	35
Fish	36.1	25.4	NS	37

\* Only ownership of pet species where n>30 were included

animal research morally acceptable (61.0% vs. 43.2%,  $p<0.034$ ), compared with those who did not have this experience. The variables age and religious belief did not significantly affect the responses to these questions.

Pet-owning students were less likely to accept the use of dogs, rabbits, guinea pigs, rats, mice, birds, reptiles and amphibians in biomedical

research than non-owning students (Table 1). The majority of pet owners were female (60.3% vs. 46.2%[non owners],  $p<0.012$ ), had been brought up in a rural community (65.2% vs. 55.3%,  $p<0.031$ ), and had taken care of farm animals for some period of time (69.0% vs. 53.8%,  $p<0.0001$ ). Table 2 shows that dog, cat and/or rabbit owners were more opposed to the use of their pet species in medical research than non-owners of these three species. This was not significant for the other species investigated. Female owners of dogs (62.9% vs. 50.3%,  $p<0.017$ ) and/or cats (62.3% vs. 46.8%,  $p<0.002$ ) were more opposed to the use of their pet species in research than were female non-owners of dogs or cats. There was no difference in this respect for other species.

## Discussion

The present study focused on the relationship between pet ownership and opinions on the use of animals in research. There was a higher proportion of schoolteacher students who found animal use in research *important* for developing treatments for human disease, compared to the proportion who found it *morally acceptable*. Fewer pet owners found animal experimentation morally acceptable than did non-owners. There may be several possible explanations for this difference. It has been suggested that children who own pets may become more concerned about animal welfare issues in adulthood (Paul and Serpell 1993), and that ownership of pets is associated with empathy towards animals (and people) (Paul 2000, Vizek-Vidović et al. 2001).

Generally, using phylogenetically high-ranking animals in research was considered less acceptable than using low ranking animals, which is in agreement with previous findings (Tennov 1980, Braithwaite and Braithwaite 1982, NABR 1985, Driscoll 1992, Hagelin et al. 2000). However, somewhat unexpectedly, the present results suggested that the use of rats and mice was more acceptable than the use of birds, reptiles, amphibians and even invertebrates. This suggests that many teacher students may have little knowledge of phylogeny and the difference in sentience between animals of different classes and orders. It cannot be ruled out, however, that perhaps some students also attempted to evaluate the species' usefulness in research, when answering whether or not certain types of animal should be used. It has also been suggested that the close relationship between humans and their pets is a more important factor in opinion formation on views toward the use of animals in research than is knowledge of evolutionary resemblance between animals and humans (Tennov 1980, Braithwaite and Braithwaite 1982).

Pet ownership was not found to be associated with the students' opinions on the importance of using animals in research to find treatments for human disease. This is consistent with the finding of Takooshian (1988), that attitudes to animal research are more related to opinions towards animals than to faith in science.

The proportion of teacher students who found animals important for medical progress was lower than for students studied in six other university programs: engineering, law, medicine, nursing, psychology and veterinary medicine (Hagelin, Carlsson and Hau 1999, Hagelin, Hau and Carlsson 2000). Similarly, fewer teacher students considered the use of animals in research morally acceptable, compared with students from these six programs (Hagelin, Carlsson and Hau 1999, Hagelin, Hau and Carlsson 2000).

A higher proportion of the students who had received university education on animal research accepted and recognized the need for using animals in biomedical research, compared with those who did not have this background. This is consistent with the survey results of medical and veterinary students (Hagelin, Hau and Carlsson 2000). It was therefore not surprising that the present results also showed that a higher proportion of the students who had received this kind of education thought almost all species listed (but not monkeys and invertebrates) could be used for research purposes, compared with the students who had not received this education. Combining educational experience with pet ownership, we found that two out of three of the experienced students were pet owners. This suggests that pet ownership may not be a strong factor in opinion formation, once a certain level of knowledge of natural sciences has been achieved.

The mechanisms behind the formation of attitudes towards the use of animals for human health and prosperity need to be investigated in more detail. The present cross-sectional study demonstrates that knowledge of the sentience of different species may not be as stronger a factor in opinion formation as more subjective attitudes and empathy resulting from, or associated with, pet ownership.

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