Attitudes to Animals: Demographics within a community sample

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Abstract

The results of various studies have suggested a range of demographic and personality variables that may impact upon attitudes towards the treatment of non-human species however little consensus has been reached within the literature. The Attitude to Animals Scale (AAS), developed by Herzog and associates, has been used within various limited populations as a quantitative measure of attitudes towards the treatment of non-human species. In the current study the AAS was administered to a large community sample within Australia resulting in approximately 600 respondents. Demographic variables such as age, educational level, presence of children in the current dwelling, current and past companion animal ownership were found to have no statistically significant effect on AAS scores. Both occupation and income were found to have an effect on AAS scores. All of these variables are examined and their effects (or lack thereof) are discussed.

An acceptance of the idea that attitudes towards non-human animals may affect attitudes towards humans opens the door to many possibilities. As awareness increases concerning the links between attitudes to humans and non-human animals there is a need to determine which variables influence attitudes towards the treatment of animals and the nature of the relation. To date the majority of research investigating this has been conducted within specific populations (e.g., students) and/or with relatively small samples (e.g., Matthews & Herzog, 1997; Taylor & Signal, 2005). Within this literature, variables suggested to affect attitudes towards the treatment of non-human animals include; gender (e.g., Herzog, Betchart & Pittman, 1991), experience of companion animals (both as a child and an adult, e.g., Paul & Serpell, 1993; Taylor & Signal, 2005); age, income and educational level (e.g. Kellert, 1980); marital status (e.g. Kafer, Lago, Wamboldt & Harrington, 1992); ethical ideology (e.g. Galvin & Herzog, 1992); religious persuasion (e.g. Bowd & Bowd, 1989; Kellert, 1980); race, and whether the respondent resides in a rural or urban environment (e.g. Kellert, 1980).

Overall however, there is a lack of agreement within the literature as to the effect on attitudes towards the treatment of animals of these various demographic and personality-related variables. One of the more consistent findings is that females tend to score higher than males on measures of attitudes towards the treatment of animals, that is, they tend to have a more pro-animal attitude (e.g., Herzog et al., 1991; Matthews & Herzog, 1997). Given the lack of agreement regarding the effect of variables, other than gender, and the fact that many studies have been conducted with limited samples, there remains a need to investigate these issues further. Moreover there is a need to establish the effect of such variables within a more 'normative' population (i.e., larger samples and general community members) to provide a benchmark against which research with narrower populations can be gauged (e.g., violent offenders).

Current study

As part of a larger study which aimed to assess links between empathy, aggression and attitudes to animals within a large community sample, questionnaires were administered by telephone to a random sample of approximately 600 adults throughout Australia. This resulted in a total of 598 responses from 205 males and 393 females. Due to missing data the number of actual participants within each variable is outlined throughout the results. The questionnaire included the following demographic questions; gender, age, education level, income, current occupation, presence of a companion animal in the home (now and as a child) and presence of children within current dwelling. Additionally, respondents were also asked to complete a range

of psychometric scales including the AAS. Data were analysed using *SPSS v.12.0* both within each variable and then with gender as a concomitant factor.

The AAS assesses individual differences in attitudes towards the treatment of animals (Herzog et al., 1991). It is composed of 20 items and has high internal consistency (Cronbach's Alpha = 0.91). Scores on this scale can range from 20 to 100, with higher scores indicating a more pro-animal attitude.

Examples of these items include:

"It is morally wrong to hunt wild animals just for sport"

"The use of animals in rodeos and circuses is cruel."

(This scale is available from <http://wcuvax1.wcu.edu/%7Eherzog/research.html>)

Results

Age

Data from 581 valid responses was analysed, with ages ranging from 18 to 88 ($M=48.4$, $SD=15.8$). A minimal, non-significant, negative correlation between Age and AAS scores was found ($r=-0.069$, $p=0.109$).

Gender and Age

No significant relationship emerged between AAS, gender and age (ANOVA, $F(1,534)=1.051$, $p=0.382$) beyond the expected gender bias (i.e., female participants across age groups scored significantly higher on the AAS ($M=69.5$, $SD=9.1$) than males ($M=63.8$, $SD=8.7$) ($t[548]=-7.166$, $p=0.000$).

Education Level

Data from 550 valid responses was analysed with Highest Level of Education Completed, Percentage of Cases and related average AAS score presented in Table 1.

Insert Table 1 here

As can be seen in Table 1, those who had attended University had the highest average AAS score. However, following further analyses (ANOVA) no significant difference was found in AAS scores across educational levels ($F(1,542)=1.024$; $p=0.394$).

Gender and Education Level

Graphical analyses of AAS scores within each education level, further separated by gender, supported the expected gender bias with the exception of those who indicated that Primary School

was the highest level of education attained. For these participants there was no apparent gender difference in AAS scores.

Presence of children

Analyses of 550 valid responses indicated that the majority of respondents did not currently live with children (65.6%). Although there was a trend towards higher AAS scores for those who did have children within their current dwelling this trend was not found to be significant ($t=1.681$, $p=0.093$).

Gender and children present

An ANOVA was conducted to investigate the interaction between gender and having a child within the current dwelling on AAS score. Although the interaction approached significance no differential effect on AAS was found ($F(1,546)=3.258$, $p=0.072$).

Companion animal present

Currently

Data from 552 valid responses was analysed, the majority of respondents (77%) reported that they were currently living with at least one companion animal. Participants were asked to specify the species of their current companion animal(s), with the most common companion animal identified as the dog (77.4%), followed by the cat (45.3%). Thirty-five percent of respondents reported living with two or more species, the most common combination being dog plus cat. Overall no significant differences in AAS scores were found between those currently with or without a companion animal ($t=-0.059$; $p=0.953$); by type of animal ($F(8,411)=0.712$; $p=0.681$) or between those who currently live with one or multiple companion animal species ($t=1.310$; $p=0.191$).

Gender and companion animal currently

An ANOVA was conducted to investigate the interaction between gender and the current presence of a companion animal on AAS score. No differential effect on AAS was found ($F(1,546)=0.198$, $p=0.657$).

Childhood

Data from 552 valid responses were analysed and, as for the current presence of a companion animal 93% of respondents reported that they lived with at least one companion animal during their childhood. Again, when participants were asked to specify the species of their childhood companion animal(s), the most common companion animal identified was the dog. Overall no significant differences in AAS scores were found between those who lived with or without a companion animal in childhood ($t=-0.526$; $p=0.599$) or by the type of companion animal(s) lived with (ANOVA; $F(8,411)=1.006$; $p=0.681$).

Gender and childhood companion animal

An ANOVA was conducted to investigate the interaction between gender and the presence of a childhood companion animal on AAS score. No differential effect on AAS was found ($F(1,542)=0.068, p=0.795$).

Occupation

Participants' current occupation was coded using the major job categories listed within an online job search engine (www.seek.com.au). Further re-coding resulted in eight categories (including other) as can be seen in Table 2.

Insert Table 2 here

Those currently employed within the Healthcare category had the highest average AAS scores followed by those within the Welfare category. In contrast those with the lowest average AAS scores were currently employed within the Primary Industry sector. Analyses (ANOVA) showed significant differences in AAS scores across occupation categories ($F(7,532)=9.490, p=0.000$). Post-hoc analyses (Tukey's *HSD*) showed that both Blue Collar and Primary Industry workers scored significantly lower than those in Healthcare, Education, White Collar and Welfare categories. Additionally, those within the Primary Industry sector scored significantly lower than Blue Collar workers.

Given that the Welfare category contained a number of sub-categories, was the most frequent, and, that those within this category scored second highest on the AAS further analyses were conducted. The Welfare category broke down into four discrete groups, with those currently unemployed scoring highest, and pensioners scoring lowest, on the AAS. An ANOVA showed that there was a significant difference in average AAS scores between the four Welfare sub-categories ($F(3,209)=4.123, p=0.007$). Post-hoc analyses (Tukey's *HSD*) indicated that the only significant difference was between the AAS scores of pensioners and at home parents.

Gender and Occupation

Although no significant difference on the AAS scores was found by the interaction of gender and current occupation ($F(7,356)=1.639, p=0.123$), it is of interest that no gender difference was apparent within either the Primary Industry or Education categories.

Income

Data from 454 valid responses was analysed, with the largest cohort falling in the <AUD\$15,000 bracket. A small, but significant negative correlation between Income and AAS was found ($r=-0.186$, $p=0.01$). Those in the highest income category (>AUD\$60,000) had the lowest overall AAS score whilst those in the lowest income bracket had the highest AAS scores. This difference in AAS scores was found to be significant (ANOVA, $F(4,415)=4.626$, $p=0.001$), with post-hoc analyses showing that those in the highest income category had significantly lower AAS score than those in the <AUD\$15,000 category (using Tukey's HSD). Apparent differences between the AAS scores of the other income categories were not significant.

Given the potential for a sampling bias (i.e., the majority of respondents were in the lowest income category) a Chi² Test of Independence was conducted to ascertain whether the variables of income and job category were dependent. The results indicated that these categories were not independent ($X^2=211.676$, $p=0.000$). That is, the majority of those currently earning less than AUD\$15,000 fell within the Welfare occupation category, while those earning more than AUD\$60,000 fell predominantly in the White Collar occupation category. Therefore it is not possible to differentiate the effect of income level from current occupation given the current data.

Gender and Income

An ANOVA was conducted to investigate the interaction between Gender and Income category on AAS score. This interaction was found to be significant ($F(4,356)=2.586$, $p=0.037$). As can be seen in Figure 1, females generally scored higher on the AAS than males in all income categories with the exception of those earning more than AUD\$60,000 where the gender difference effectively disappears.

Insert Figure One here

Discussion

The aim of the current study was to assess the demographic variables which may be related to attitudes towards the treatment of non-human animals. While Income and Occupation proved to have a statistical effect on AAS scores, other variables tested showed no significant effect but several trends were observed. These trends and the main findings are discussed below.

In contrast to Kellert (1980) no significant effect of age (on AAS scores) was found. Kellert reported that younger respondents were more likely to have pro-animal welfare attitudes however the assessment tool used differed to the AAS. This may account for the disparity in findings. Alternatively it may be that the current study, which took place 25 years later, reflects changes in attitudes over time.

While there appears to be a trend whereby those with higher, formal, education levels show a more pro-animal welfare attitude this trend is not significant. This suggests that university student populations, upon which many previous research findings rest, may not be significantly different to other populations in this respect. This clearly deserves further analysis; in particular it would be interesting to determine whether the type of subject studied has an effect on attitudes towards the treatment of animals.

Various authors have reported an association between childhood companion animal keeping and increased concern about non-human animal welfare in adulthood (e.g., Paul & Serpell, 1993; Paul, 2000). Miura, Bradshaw and Tanida (2002) also found a similar relation across two culturally diverse populations (British and Japanese). They predicted that the positive effect of companion animal ownership in childhood, on adult attitudes to animals, may well be a universal finding. In contrast to this Taylor and Signal (2005) failed to find an effect of childhood companion animal ownership but did find an effect of current companion animal ownership on attitudes to the treatment of non-human animals within a university student cohort. The current study with a larger, more representative sample failed to find any effect of companion animal ownership whether now, in childhood, by (human) gender or by (non-human animal) species.

The current data shows that occupation had a significant effect on attitudes to the treatment of animals, in particular those employed within the Primary Industry sector have lower AAS scores. Although there were substantially fewer females than males employed in the Primary Industry sector no effect was found due to the interaction of gender and occupation. This suggests that the over representation of males within this category is not the underlying reason for the overall lower average AAS scores.

The fact that those within the Pensioner category scored lowest on the AAS may lend some support to Kellert's (1980) finding that younger persons tend towards more pro-animal attitudes, despite the fact that this current study found no overall age effect. However, it was beyond the scope of the current questionnaire to elicit information regarding previous occupation(s) of those currently in the welfare category. Therefore it is unclear whether the lower AAS scores of Pensioners are related to their age or their previous occupation. Similarly, when considering those within the Unemployed category (who have substantially higher AAS scores), it is also unclear whether this is a function of their age, and/or their previous occupation, or other variables.

Of particular interest is the difference between male and female AAS scores in the lowest income category. It should be noted that 80% of those who earned less than AUD\$15,000 were female. Within this current data set, females have been found to score significantly higher than males on the AAS overall. It is therefore possible that the earlier identified pattern of the lowest income category relating to the highest AAS score is in fact a function of gender differences in the AAS. In

contrast, although females only made up 37.5% of those in the highest income bracket their average AAS score were not significantly different to males in the same income category.

In conclusion, while it is important to benchmark attitudes towards the treatment of animals within a normative community sample the current study has several limitations. Most notably the potential demographic bias which is inherent within telephone surveys (McBurney & White, 2004). The random sampling method used here supports the generalisability of the results. While the sample was drawn from those currently residing in Australia the potential effects of geographical location are beyond the scope of this study but may present an area for future research.

Note

1. Correspondence should be sent to Tania Signal, School of Psychology & Sociology, Central Queensland University, Rockhampton, QLD 4702, Australia. A grant awarded by the Centre for Social Science Research, Central Queensland University enabled data collection for this paper.

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Table 1 *AAS scores as a function of Education Level*

HIGHEST EDUCATION LEVEL	FREQUENCY	PERCENTAGE OF CASES	AVERAGE AAS SCORE
Primary School	31	5.6	65.1
High School	246	44.7	67.9
Tertiary - University†	106	19.3	68.4
Tertiary - Other‡	164	29.8	67.2
Other	3	0.5	64.3

† includes undergraduate and graduate level study

‡ includes TAFE and Industry Qualifications

Table 2 *Percentage of each Occupation category and occupation related AAS score.*

CURRENT OCCUPATION	FREQUENCY	PERCENTAGE OF CASES	AVERAGE AAS SCORE
Primary Industry	32	5.5	57.7
Education	53	9.1	68.8
Health	56	9.6	69.6
White Collar ¹	132	22.6	68.1
Blue Collar ²	47	8.1	62.8
Science	14	2.4	64.4
Welfare ³	230	39.5	69.2
Other ⁴	19	3.3	63.6

¹ Administration, management, customer service etc

² Construction, transport, mechanic, laborer etc

³ At home parent, pensioner, student, unemployed etc

⁴ Police, religious official, artist etc

Figure 1 Estimated marginal means for AAS scores as a function of Income Category presented by gender