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Psychological and Socio-Demographic Predictors of Attitudes toward Animals

Livia Apostol^{a,*}, Oana Luiza Rebega^a, Mircea Miclea^a^a*Department of Psychology at Babeş-Bolyai University, Cluj-Napoca 400015, Romania*

Abstract

The study investigates the individual differences in attitudes to animals, in the attempt at finding a wider predictive model that includes both sociodemographic and psychological variables. The adapted Romanian versions of the Attitudes to Animals Scale (AAS), Empathy to Animals Scale (ETA) and Belief in Animal Mind Questionnaire (BAM) were administered to 2683 participants in an online survey. Significant correlations between anthropomorphic beliefs, animal directed empathy and attitudes to animals were observed. Gender, owning a companion animal, anthropomorphic beliefs, cognitive and affective dimensions of empathy to animals were significant predictors of attitudes to animals. These findings are discussed.

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1. Introduction

Attitudes to animals (AA) and various uses of non-human species are becoming increasingly relevant in areas such as human-animal interaction, animal welfare or wildlife conservation. Whatever their interest in non-human animals, researchers generally recognize the importance of AA, since attitudes are relatively stable psychological tendencies [1] and they vastly contribute to the prediction of behavior [2]. An important number of studies has been concerned with analyzing AA and researchers have been able to answer questions about their structure [e.g. 3; 4], or establish various human or animal factors influencing the way people relate to other species [e.g. 5; 6]. While some of the previous studies showed that AA are associated with social and demographical variables such as gender, age and pet ownership [3; 7; 8; 9] and also with psychological factors like personality traits [10; 11], human directed empathy [9; 11; 12; 13] and anthropomorphic beliefs [14; 15], little agreement has been so far achieved within the literature. For instance, gender differences have been observed in AA and are now a

* Corresponding author. Tel.: +40-740-228342; fax: +40-264-590064.

E-mail address: liviaapostol@psychology.ro

commonly accepted fact: women tend to have more positive AA than men and they generally are more concerned and actively involved in animal welfare issues [7]. Still, no attempt has yet been made to find out an underlying explanation for this tendency. Even though this doesn't constitute the focus of this study, we are hoping to shed some light in to the matter by including gender as one of the variables and controlling for its predictive weight. Other socio-demographical factors have emerged as important correlates of AA. Well educated young adults who live in urban settings seem to be keener to animals and their humane treatment [3; 6]. Having experiences with companion animals and forming attachment relationships with them also appear to contribute to developing a set of favorable AA [5; 6; 9]. Previous studies have also found positive correlations between the propensity to anthropomorphize animals and expressing positive attitudes to them [14]. In fact, Hills [15] suggested that humans are more likely to empathize with animals by conferring them human-like mental states. Anthropomorphism is considered a type of cognitive bias [16] and when it refers to animals, it means holding "beliefs about the extent to which animals are similar to humans in having awareness, thoughts and feelings" [15, p. 134]. Although previous investigations have found a link between anthropomorphism and AA on one hand and between anthropomorphism and empathy on the other, the three variables have never been explored at the same time. There is an important amount of evidence on the role that human-directed empathy seems to play in AA. Researchers have almost constantly found positive correlations between favorable attitudes to animal welfare and the capacity to empathize with other people [11; 12; 13]. Empathy is mostly defined as the ability to understand and share in another's emotional state [17]. The distinction between the cognitive (the ability to understand another's point of view) and affective (the ability to feel similar emotions) components is especially important when it comes to measuring empathy: most of the studies involving AA and empathy used the Davis Interpersonal Reactivity Index (IRI), or shorter versions [19]. This is a vastly utilized self-report measure of empathy that assesses the multidimensional structure of empathy. Even though researchers found out there is a link between human-directed empathy and AA, it seems that more specific measures are needed: Paul [20] investigated the association between human and animal-directed empathy and found only a small correlation, concluding that it is unlikely the two measures cover the same construct. We also consider that using a specific evaluation tool for the animal-directed empathy construct would facilitate conveying more power to the prediction model. Recently, Powell [21] has used a modified two sub-scales version of IRI to measure empathy to animals and established that scores at both sub-scales represent good predictors for students' intention to carry out different types of altruistic behaviors in favor of sheltered animals. As Taylor and Signal [13] stress, even with the growing interest and promising results on this topic, there is still a lack of agreement on both the direction and strength of these relationships. Given the important role that empathy is thought to play, not only in influencing AA, but also in determining prosocial and altruistic behavior [18], we consider further investigations necessary. With this investigation we seek to respond to some of the shortcomings of previous studies in the field of AA by bringing together in the same survey measures of attitudes to animal welfare, anthropomorphic beliefs and the cognitive and affective dimensions of animal-directed empathy. Previously observed socio-demographic variables such as gender, pet ownership, age, education and place of residence are also considered and controlled for. We expect to find similar associations between the mentioned variables and assume that the included demographical and psychological factors will additionally contribute to the prediction of different AA. Since this is, as far as we know, the first exploration of AA and their treatment on the Romanian population, we also plan to look for possible differences that might occur in AA due to cultural factors. In addition this would make for the possibility of validating the Romanian adapted versions of the assessment tools and confirm their psychometric qualities, which would further allow us to continue our inquiries in the field.

2. Methods

2.1. Participants and procedure

Participants within our sample ($N = 2683$) voluntarily responded to an email invitation that was sent to a large community of followers of a known Romanian environmental organization. Respondents were in the organizations' data basis for having signed a petition sustaining the legal protection of the national wooded areas, or for having symbolically adopted an animal ($N = 598$, 22%). A total of 1665 women (62%) and 1018 men (38%), ages between 14 and 77 ($M = 36.54$, $SD = 12.630$), took part in our research. The vast majority lives in urban areas (90%) and most of them have higher education (73%). The unusual socio-demographic profile in our sample is also suggested by the large proportion of companion animal caregivers (53%). Even though this is a considerably large sample, we can't regard it as representative for any specific population. However, participants' personal interest in environmental issues, or their monetary investment in animal protection could permit us to consider it a convenience sample of Romanian environmental supporters. A correlational design was employed. Data were collected using online survey software. After having read an informed consent form, respondents filled in a series of scales; they were thanked and fully debriefed about the purpose of the study.

2.2. Survey instruments

Participants first had to answer a few demographic questions. All scales and questionnaires used as a part of an ampler research dealing with psychological factors involved in peoples' intention to support wildlife conservation are translated and adapted versions of previously validated instruments. The results reported here are based on the use of the Belief in Animal Mind Questionnaire (BAM), the Empathy to Animals Scale (ETA) and the Attitudes to Animals Scale (AAS). The BAM [15] evaluates with four questions the extent to which a person believes that most wild animals are capable of being aware, thinking and solving problems, and feeling different emotions. It has a very good internal consistency ($\alpha = .90$). The ETA [21] is a 12-item modified version of two of Davis' IRI [19] sub-scales: the Empathic Concern (EC) and the Perspective Taking (PT). The EC measures feelings of warmth, compassion or concern for animals using questions like: "I often have tender, concerned feelings for animals who suffer misfortune". The PT sub-scale assesses the individual's ability to adopt another's perspective, with items like: "I sometimes find it difficult to see things from an animal's point of view." Both the general scale (ETA $\alpha = .87$) and the sub-scales (EC $\alpha = .85$, PT $\alpha = .87$) have high internal consistencies. The AAS [8] is one of the most commonly used instruments that assess attitudes to wild or domestic animals and the way they are treated. It is a 20-item, 5-point Likert scale from Strongly Disagree to Strongly Agree to statements like: "Basically humans have the right to use animals as they see fit". The AAS has a high internal reliability ($\alpha = .90$) and has been used effectively in previous studies [11; 13].

3. Results

Data were analyzed using SPSSv.20.0. Descriptive statistics presented in the participants section of this article confirm a particular socio-demographic profile for the environmental supporters' sample. Considering that the survey instruments were translated, adapted and used for the first time here, reliability measures had to be run on all the utilized scales. Internal consistency varied from sufficient to moderately high (BAM $\alpha = .69$; ETA $\alpha = .85$; EC $\alpha = .78$; PT $\alpha = .83$; AAS $\alpha = .85$), indicating that, overall, the instruments used are reliable. We were also able to extract information about the validity of the AAS, by running an independent samples t-test [$t(2681) = 6.420$, $p < .001$] to see if there were any differences in AAS scores between participants who donated money for the animals and those who never did. We observed that the AAS can discriminate effectively not only between people with different types of attitudes, but also different behaviors. The mean BAM, EC, PT and AAS scores are presented in Table 1., for women and men separately. Scores for BAM potentially range from 0 to 12, those for EC go from 5 to 35, PT sub-scale ranges from 5 to 25 and the AAS scores fluctuate from 20 to 100. Higher scores indicate stronger belief in animal mind, higher levels of trait empathy to animals and more favorable attitude to animal welfare, respectively. As we expected, considering the nature of our sample, mean scores on all scales reported here are considerably high. Results are similar to other studies on occidental animal protection

communities [13]. Previously observed gender differences in AAS and EC scores were established. Smaller, but significant differences in BAM scores and PT sub-scale could also be observed. The effect sizes (see Table 1.) suggest more noticeable differences between men and women when it comes to the affective component of AA and, above all, to the emotional dimension of empathy to animals.

Table 1. Gender differences in BAM, EC, PT and AAS scores

Scores to scale	Men <i>M</i>	<i>SD</i>	Women <i>M</i>	<i>SD</i>	<i>t</i>	Cohen <i>d</i>
Belief in Animal Mind (BAM)	11.66	2.87	11.96	2.60	2.794*	.11
Empathic Concern (ETA-EC)	29.03	4.18	31.27	3.52	14.878***	.57
Perspective Taking (ETA-PT)	16.94	4.20	17.79	4.17	5.111***	.20
Attitudes to Animals Scale (AAS)	72.84	11.75	79.06	10.89	13.904***	.54

*** $p < .001$ (2-tailed); * $p < .005$

Pearson product-moment correlations between the AAS, ETA and BAM scores were calculated in order to further investigate the links between them. As previous studies showed [11; 12; 13], there seems to be a significant positive correlation (see Table 2.) between the extent to which people believe in animal mind, their ability to empathize with animals, assume their perspective and express positive attitudes toward their welfare. The moderate correlation between the AAS and the EC scores ($r = .520$, $p < 0.001$) indicates an important link between peoples' ability to feel concern for animals and their propensity to treat them humanely.

Table 2. Pearson correlations between BAM, ETA, EC, PT and AAS scores

Scale	AAS	BAM	ETA-PT	ETA-EC
Attitudes to Animals Scale (AAS)	-			
Belief in Animal Mind (BAM)	.297**	-		
Perspective Taking (ETA-PT)	.425**	.344**	-	
Empathic Concern (ETA-EC)	.520**	.297**	.532** ^a	-
Empathy to Animals (ETA)	.538**	.367**	.884** ^a	.866** ^a

** $p < 0.001$ (2-tailed); ^a indicates correlations between general scale and sub-scales

To further assess the importance of socio-demographical variables and the anthropomorphism and empathy scales on individual differences in AA we performed a multiple hierarchical regression. AAS scores were introduced as the dependent variable, while gender, age, pet ownership, education and residence were entered as independent variables in the first step, followed by BAM, ETA, EC and PT in the second step. The analysis showed that gender, owning a companion animal, BAM, EC and PT were significant unique predictors of AAS, accounting for 33.6% of the variance in the attitude scores (adjusted $R^2 = .336$, $F_{(8, 2674)} = 170.79$, $p < 0.001$). The most powerful predictor, accounting for 27% of the variance in the AAS scores is EC ($\beta = .338$, $t = 17.291$, $p < .001$), followed by the PT sub-scale, responsible for 18% of the AAS variance ($\beta = .192$, $t = 9.708$, $p < .001$), the anthropomorphic beliefs measured with BAM and accounting for 8.8% ($\beta = -.117$, $t = 6.878$, $p < .001$) and, finally, gender ($\beta = -.131$, $t = -7.950$, $p < .001$) and having a pet ($\beta = .040$, $t = 2.368$, $p = .018$), which contribute with 6.7% and 4% to the AAS variance.

4. Discussion

The main purpose of this research was to explore the individual differences in attitudes to animal welfare, by clarifying the previously observed links between AA and socio-demographic factors, anthropomorphic thinking and empathy. As expected, we established an association between participants' anthropomorphic beliefs, their capacity to empathize with animals and their AA. We think that the considerable strength of this relationship is due to the fact that, contrasting with previous studies [11; 12; 13], we used a more specific measure of empathy. The ETA proved to be a helpful measure also because it distinguishes between the cognitive and the affective

components of empathy, allowing for a better understanding of the underlying mechanisms. Given the correlation patterns observed, it can be hypothesized that anthropomorphic interpretations could facilitate the perspective taking process, which, in turn, may lead to the affective empathic reaction. The gender differences found in EC, but also PT and BAM could help explain, at least in part, the gender differences constantly observed in AA. This could help adjust educational or persuasive interventions, which could be designed specifically for men and women. Our results also suggest that peoples' propensity to anthropomorphize certain animals and their ability to empathize with them are important factors that should decidedly be taken into account when creating humane educational programs, or awareness and fund raising campaigns for animal welfare issues.

A part from having corroborated on previous studies in the field of AA, this research was the first one to explore Romanians' attitudes to animal welfare and it did that by adapting relevant measures, which proved to be reliable, in spite of the expected cultural differences. The main limitation of this survey is the somewhat selected population in the sample; hence future analyses on community samples would be necessary. To conclude, current results indicate that gender, pet ownership, belief in animal mind and both cognitive and affective dimensions of animal-directed empathy have different weights in predicting attitudes to animal welfare. This, together with the matters previously discussed, suggest new and stimulating courses of research.

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