

# Perception of Canine Welfare Concerns among Veterinary Students, Practitioners, and Behavior Specialists in Spain

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## ABSTRACT

Veterinarians are well placed to supervise and ensure canine welfare. However, the perception of animal welfare among veterinarians may vary depending on the level of training and professional practice, including the specialization in animal behavior and welfare. The aim of this study was to survey the perception of canine welfare among veterinarians, including students, practitioners, and behavior specialists. A scale-based questionnaire including 12 issues affecting canine welfare was adapted from Yeates and Main and distributed to first-year ( $n = 50$ ) and fifth-year veterinary students ( $n = 50$ ), as well as veterinary practitioners ( $n = 260$ ) and specialists in behavioral medicine ( $n = 50$ ). For each issue, respondents were asked to rate how much they perceived each issue to affect canine welfare (on a scale of 0 to 4). A General Linear Model test was used to assess the effect of the studied group on scores. “Physical abuse or cruelty” was the highest-scoring problem in all groups and “breed-related conditions” was the lowest. In general, specialists in behavioral medicine assigned significantly higher scores to most items, particularly “behavioral problems” and “lack of sufficient company.” In contrast, fifth-year students assigned significantly lower scores to most items. This study shows that situations clearly affecting canine welfare represent an important concern for veterinarians, both undergraduates and professionals. However, the level of professional experience and specialization might influence the perception of more subtle examples of poor welfare. Raising awareness regarding canine welfare, including concern for breed- or behavior-related problems, should be emphasized within university programs.

**Key words:** animal behavior, animal welfare, continuing education, curriculum, veterinary teaching hospital

## INTRODUCTION

During the last decades, animal welfare has become increasingly important from a social, ethical, and scientific viewpoint. Welfare of an individual animal has been defined as the animal’s state as it attempts to cope with its environment.<sup>1</sup> The promotion of animal welfare means meeting a series of needs that include (1) a suitable place to live; (2) suitable food and water; (3) housing with, or separate from, other animals as needed; (4) the ability to express normal behavior; and (5) protection from pain, suffering, injury, and disease.<sup>2</sup> These needs are based on the so-called Five Freedoms, originally designed to promote welfare among farm animals,<sup>3</sup> and more recently extrapolated to other species, including zoo and companion animals. The assumption that people live with companion animals out of choice, and not with an utilitarian objective, has meant that welfare is taken for granted.<sup>4</sup> However, lack of knowledge, inexperience, incompetence, and indolence can lead owners and caregivers to neglect animal welfare.<sup>5</sup> These four issues could be solved through education and training,<sup>6</sup> and veterinarians can play an important role in this task.

An important part of a veterinarian’s role will always be to protect animal welfare. Veterinarians come into contact with a large proportion of the dog population, and they are therefore well placed to contribute to the assessment and improvement of canine welfare through owners and the general population, focusing on both medical and non-medical issues.<sup>7–9</sup> In a previous study conducted with a group of UK veterinary practitioners ( $n = 59$ ), respondents perceived that abuse or active cruelty, lack of treatment of suffering, and malnutrition were the most important issues affecting canine welfare. Obesity, chronic pain/poor mobility, breed-related conditions, and behavioral problems were recognized as the most frequent concerns, about which more should be done. The study concluded by highlighting the necessity for further work on the relationship between canine welfare and the veterinary profession.<sup>10</sup> These results are similar to those found in a preliminary survey conducted by the authors, in which veterinarians taking a behavioral medicine post-graduate course were asked to list which canine welfare issues were most important in their view. In this case, malnutrition or inadequate feeding, (non-

treated) illnesses, and physical abuse or active cruelty were the most frequently cited issues.<sup>11</sup>

The veterinary medical profession has an opportunity—and a duty—to provide leadership and expertise in animal welfare; however, this involves increasing instruction and educational resources on the topic during veterinary students' training.<sup>12–15</sup> Animal welfare is a multidisciplinary subject and an evolving component of the veterinary curriculum.<sup>16</sup> It is important to note, however, that a study by Paul and Podberscek<sup>17</sup> found that British students in the latter years of study attributed lower levels of sentience to animals (dogs, cats, and cows) than did students in the preceding years. Along the same lines, a recent study of veterinary schools in Australia and New Zealand found that students assigned decreasing importance to animal welfare as they progressed through their studies.<sup>14</sup> Since these students in latter years are the future professionals, it is important to explore their opinions and concerns for animal welfare issues.

The present study aimed to survey the perception of 12 issues affecting canine welfare both among veterinary students and veterinary professionals in Spain. In particular, we compared four groups differing in the level of training and professional experience: first- and fifth-year students, practitioners, and specialists in behavior medicine.

## MATERIALS AND METHODS

A scale-based questionnaire including 12 issues affecting canine welfare was adapted from Yeates and Main.<sup>10</sup> For each issue, respondents were asked to rate how much, on average, they thought the particular problem affected canine welfare. Importance was rated from 0 to 4, with 0 representing a completely unimportant issue and 4 an extremely important issue.

A total of 410 anonymous and voluntary questionnaires were filled out. Questionnaires to first- and fifth-year veterinary students ( $n = 50$  each) were completed via face-to-face interviews, which took place on the campus of the Veterinary Faculty of Zaragoza (Spain). During the breaks between lectures, a researcher not known to the students approached potential participants randomly as they were leaving their classrooms. The numbers of students enrolled in the first and fifth academic years was 188 (75% females) and 119 (79% females), respectively. At the time of the survey, animal welfare was a compulsory 4-month subject for first-year students. First-year students were taking classes on this subject when they were interviewed, but they had not already been examined. The interviewer was an associate professor who did not teach in the first or fifth year. Students were randomly selected and they were not obliged to take the interview or penalized academically in case of refusal, but neither were they rewarded with academic credits or other bonuses.

The recruitment of respondents for the sample of veterinary practitioners ( $n = 260$ ) and the sample of specialists in behavioral medicine ( $n = 50$ ) took place via two Spanish private groups on an online social network. Respondents filled in an online version of the questionnaire. Members of the targeted social media groups are required to be certified veterinary practitioners, with behavior specialists requiring a master's degree in behavioral medicine and practitioners requiring accredited experience in the field.

The total number of members in each social network at the moment of the recruitment was 1,649 practitioners and 114 behavior specialists, and they all worked in the field of small animals. To participate in the survey, they were not required to provide information regarding their academic education in animal welfare or their years in practice. Respondents were based evenly across the Spanish territory and their academic training could have taken place at any of the 11 veterinary faculties that exist in Spain.

The regional Ethical Committee of Clinical Research of Aragón (CEICA) approved the study. This committee did not require that a statement of informed consent be included in the survey, as no personal data were collected.

The 12 issues affecting canine welfare were defined as dependent variables. We used a General Linear Model (GLM) test to assess the effect of the "group" factor on the average importance scores for each issue. Where a significant effect of the "group" factor was detected, Bonferroni post hoc analysis was used for multiple comparisons. In addition, we analyzed descriptive statistics within each group of study. Calculations were carried out using the statistical program SPSS 17.0. for Windows, and  $p < .05$  was considered significant.

## RESULTS

Mean ( $\pm SD$ ) importance score (from 0 to 4) for the 12 issues affecting canine welfare, in general and according to the different groups of study, is summarized in Table 1. The GLM analysis showed a significant effect of the "group" variable for all the issues except for "abuse or active cruelty," "lack of treatment, including euthanasia, for suffering," "lack of sufficient exercise or space," and "obesity." Mode results (and percentage of responses) for each group of study are shown in Table 2.

Considering the mean scores, "abuse or active cruelty" was the highest-scoring issue across groups ( $3.84 \pm 0.43$ ). On the other hand, "breed-related conditions" was the lowest-scoring issue in all groups ( $2.37 \pm 1.03$ ), followed by "lack of preventive veterinary care" ( $2.99 \pm 0.95$ ). However, the ranking of importance for the remaining issues varied across groups. "Chronic pain or poor mobility" was ranked second highest among veterinary professionals (i.e., practitioners and behavior specialists) but not among students, and this difference was statistically significant (Table 1).

Mode values show that first-year students responded more frequently with the maximum score (11 out of the 12 issues), followed by the group of professionals (9 issues) and the fifth-year students (4 issues) (Table 2). In fact, according to the GLM analysis, fifth-year students showed significant differences in all those issues where the group had a significant effect, especially when compared with the behavior specialists group. In particular, fifth-year students assigned significantly lower scores than the other groups to "lack of shelter" and "lack of routine preventive veterinary care." Behavior specialists, on the other hand, assigned significantly higher scores to "behavior problems" and "lack of sufficient company" compared to fifth-year students and practitioners. For the remaining issues, they assigned significantly higher scores than the fifth-year students (Table 1).

**Table 1:** Mean ( $\pm$ SD) importance score for the 12 issues affecting canine welfare according to the group of study

Welfare issue	Global mean score $\pm$ SD	Mean $\pm$ SD			
		S1 (n = 50)	S5 (n = 50)	V (n = 260)	B (n = 50)
Abuse or active cruelty	3.84 $\pm$ 0.43	3.90 $\pm$ 0.31	3.86 $\pm$ 0.35	3.80 $\pm$ 0.49	3.96 $\pm$ 0.20
Chronic pain or poor mobility	3.70 $\pm$ 0.56	3.48 $\pm$ 0.71 <sup>v,b</sup>	3.50 $\pm$ 0.58 <sup>v,b</sup>	3.75 $\pm$ 0.53 <sup>s1,s5</sup>	3.84 $\pm$ 0.37 <sup>s1,s5</sup>
Malnutrition	3.65 $\pm$ 0.62	3.74 $\pm$ 0.44	3.48 $\pm$ 0.71 <sup>b</sup>	3.64 $\pm$ 0.63	3.82 $\pm$ 0.56 <sup>s5</sup>
Lack of treatment, including euthanasia, for suffering	3.64 $\pm$ 0.63	3.50 $\pm$ 0.68	3.70 $\pm$ 0.54	3.64 $\pm$ 0.65	3.74 $\pm$ 0.57
Lack of sufficient exercise or space	3.36 $\pm$ 0.75	3.54 $\pm$ 0.65	3.24 $\pm$ 0.72	3.33 $\pm$ 0.79	3.48 $\pm$ 0.68
Lack of shelter	3.31 $\pm$ 0.85	3.60 $\pm$ 0.78 <sup>s5</sup>	2.88 $\pm$ 0.87 <sup>s1,v,b</sup>	3.28 $\pm$ 0.84 <sup>s5</sup>	3.56 $\pm$ 0.73 <sup>s5</sup>
Lack of sufficient company	3.25 $\pm$ 0.79	3.38 $\pm$ 0.64	3.02 $\pm$ 0.77 <sup>B</sup>	3.19 $\pm$ 0.82 <sup>B</sup>	3.68 $\pm$ 0.62 <sup>s5,v</sup>
Behavioral problems	3.24 $\pm$ 0.82	3.32 $\pm$ 0.74 <sup>s5,b</sup>	2.82 $\pm$ 0.83 <sup>s1,v,b</sup>	3.20 $\pm$ 0.83 <sup>s5,B</sup>	3.76 $\pm$ 0.52 <sup>s1,s5,v</sup>
Obesity	3.20 $\pm$ 0.79	3.36 $\pm$ 0.75	3.00 $\pm$ 0.78	3.23 $\pm$ 0.807	3.10 $\pm$ 0.74
Lack of sufficient mental stimulation	3.13 $\pm$ 0.84	3.28 $\pm$ 0.83	2.92 $\pm$ 0.85 <sup>b</sup>	3.07 $\pm$ 0.85	3.46 $\pm$ 0.61 <sup>s5</sup>
Lack of routine preventive veterinary care	2.99 $\pm$ 0.95	3.20 $\pm$ 0.81 <sup>s5</sup>	2.44 $\pm$ 0.99 <sup>s1,v,b</sup>	3.03 $\pm$ 0.96 <sup>s5</sup>	3.10 $\pm$ 0.81 <sup>s5</sup>
Breed-related conditions	2.37 $\pm$ 1.03	2.46 $\pm$ 1.70	1.98 $\pm$ 1.02 <sup>v,b</sup>	2.40 $\pm$ 1.00 <sup>s5</sup>	2.52 $\pm$ 1.11 <sup>s5</sup>

S1 = first-year students; S5 = fifth-year students; V = veterinary surgeons; B = behavior specialists

Different letters (superscripts) in each line indicate significant differences for that issue between that group and the rest of groups (capital letters:  $p \leq .001$ ; lower case letters:  $p \leq .05$ ).

**Table 2:** Mode (and percentage) of the importance score for the 12 issues affecting canine welfare according to the group of study

Welfare issue	Mode (%)			
	S1 (n = 50)	S5 (n = 50)	V (n = 260)	B (n = 50)
Abuse or active cruelty	4 (90)	4 (86)	4 (84.2)	4 (96)
Chronic pain or poor mobility	4 (56)	4 (54)	4 (79.6)	4 (84)
Malnutrition	4 (74)	4 (58)	4 (71.5)	4 (88)
Lack of treatment, including euthanasia, for suffering	4 (60)	4 (74)	4 (72.3)	4 (80)
Lack of sufficient exercise or space	4 (62)	3 (50)	4 (50.0)	4 (58)
Lack of shelter	4 (74)	3 (42)	4 (49.6)	4 (68)
Lack of sufficient company	3–4 (46)*	3 (54)	4 (41.2)	4 (74)
Behavior problems	4 (46)	3 (42)	4 (42.7)	4 (80)
Obesity	4 (50)	3 (52)	3 (44.2)	3 (32)
Lack of sufficient mental stimulation	4 (52)	3 (46)	3 (42.3)	4 (52)
Lack of routine preventive veterinary care	4 (42)	2 (38)	4 (38.8)	3 (46)
Breed-related conditions	3 (38)	2–3 (34)*	3 (36.5)	2–3 (30)*

S1 = first-year students; S5 = fifth-year students; V = veterinary surgeons; B = behavior specialists

\* There are two mode values (same percentage).

## DISCUSSION

The present study aimed to survey the perceptions of veterinary students and professionals in Spain regarding canine welfare issues. It did this through a scale-based questionnaire adapted from a previous study of veterinary practitioners in the UK.<sup>10</sup> In the present study, respondents were asked to rate (on a scale of 0 to 4) how strongly they thought several issues affect welfare in dogs. The

results show that, in general, canine welfare is an important concern for veterinary profession. On average, most issues were scored above 3 points. However, there were significant differences in scoring depending on the level of training and professional experience and specialization.

Results show that the issues "abuse or active cruelty," "lack of treatment for suffering (including euthanasia)," "malnutrition," and "chronic pain or poor mobility" were placed in the first positions in terms of importance. This is

in line with results from the study by Yeates and Main.<sup>10</sup> In particular, “abuse or active cruelty” was identified as the most important canine welfare issue by all the surveyed groups.

On the other hand, “breed-related conditions” was the lowest scoring issue, although greater within-group variability in scoring was observed for this issue in comparison to others. This might be partly explained by some respondents’ lack of awareness regarding welfare issues associated with breed. This seemed particularly true for fifth-year students, with 30% of them assigning scores of 0 or 1 to this issue (data not shown). Although UK veterinary practitioners assigned similar importance ratings to this issue, respondents reported that breed-related conditions were one of the most frequently seen issues. They also strongly agreed that the veterinary profession should do more about this issue.<sup>10</sup> Breed-related problems may include two distinct but interrelated welfare issues: morphological extremes (anatomic abnormalities that result in a reduced quality of life) and increased prevalence of particular inherited disorders.<sup>18</sup> Fortunately, it is increasingly recognized that certain aspects of dog conformations can have a detrimental impact on a dog’s health and welfare,<sup>19</sup> and some authors have stated the need for greater involvement of veterinary practitioners, breeders, and all members of society in the prevention of breed-related diseases.<sup>20,21</sup>

Differences in level of professional experience may account for differences in the perceived importance of the surveyed welfare issues. For instance, professionals (practitioners and behavior specialists) assigned significantly higher scores to “chronic pain or poor mobility” than did undergraduates. This is consistent with the results of Yeates and Main.<sup>10</sup> Their study showed that chronic pain/poor mobility was one of the issues most frequently observed by the surveyed veterinary doctors. Students, on the other hand, may be less aware of the importance of chronic pain due to their general lack of experience, even if previous studies have shown that veterinary students are more likely to attribute cognitive abilities to dogs and cats than to farm animals, and more likely to believe that certain painful procedures (e.g., castration without anesthetic) are less humane for the former than for the latter.<sup>22</sup>

Other differences in the perception of welfare issues could not be clearly explained by the degree of professional experience (i.e., professionals vs. students). Instead, differences were observed between fifth-year students and the rest of the groups, especially when compared with the behavior specialists group. For instance, fifth-year students assigned significantly lower scores to “lack of shelter” and “lack of routine preventive veterinary care.” Nevertheless, the latter issue scored lower than others across groups, and even lower in the study conducted in the UK.<sup>10</sup> This may be explained by the respondents’ desire to rank importance relative to other more flagrant welfare issues (e.g., abuse or active cruelty, malnutrition). Moreover, it appears that most owners are willing to administer routine preventive health care to their pets,<sup>23</sup> which may effectively reduce the importance of this issue in the eyes of veterinary students and professionals.

First-year students, on the other hand, tended to assign very high scores to the issues under study. In particular, they responded with the maximum score for 11 out of the 12 issues. The fact of being trained on animal welfare during the period the survey was administered may have influenced this result. This finding, together with the generally lower scores given by fifth-year students, suggests that desensitization to animal welfare occurs as veterinary students reach the end of their studies. Since this is a cross-sectional study rather than a longitudinal one, the differences observed in the responses of the students were not necessarily the result of changes in the views of respondents. Nevertheless, these results agree with a previous study by Paul and Podberscek<sup>17</sup> in which lower levels of perceived sentience toward animals were observed in British students during their latter years of study, suggesting that a degree of hardening or detachment takes place during veterinary education. Recently, Ostovic and colleagues<sup>24</sup> also reported similar results in a study conducted among Croatian veterinary students, suggesting a lower level of empathy toward farm animals in final-year students. Similarly, Cornish colleagues<sup>14</sup> observed that the importance assigned to animal welfare by veterinary students from Australia and New Zealand declined as they progressed through their studies. In this sense, it has been suggested that more advanced students may be “counter-anthropomorphizing” animals, possibly as a way of coping with the moral conflict and emotional distress they expect to encounter in veterinary work.<sup>25,26</sup> But in fact, as future veterinarians, they should be prepared for the increased focus that society puts on animal ethics, which requires a well-developed sense of compassion.<sup>27</sup> Therefore, veterinary students should receive a specific course on animal welfare, in addition to encountering the subject in other courses.<sup>15</sup> It has been shown that attitude and empathy toward animals might improve after students learn about animal welfare.<sup>28</sup>

The present study also shows that some differences in perceptions among groups were influenced by the fact of specializing in behavior medicine. Thus, 80% of behavior specialists considered “behavior problems” to be an extremely important welfare issue, rating it significantly higher than the other groups. Fear and anxiety directly affect canine welfare, and there is evidence to suggest that the stress of living with a fear or anxiety disorder can have negative effects on dogs’ health (e.g., skin disorders) and life-span.<sup>29</sup> Behavior specialists are evidently more aware of this situation than practitioners, as they deal with these problems on a daily basis. Furthermore, around two thirds of these specialists considered “lack of sufficient company” to be a very important issue, differing again with practitioners and fifth-year students in the average scoring. Dogs increasingly spend a lot of their time alone and, in fact, separation anxiety problems represent a large proportion of the diagnoses conducted at behavioral consultations.<sup>30</sup> Interestingly, UK veterinary practitioners considered behavior problems to be less important than respondents in the present study (ranking the problem even lower than did fifth-year students), although most of them strongly agreed that veterinary practitioners should do more about these problems.<sup>10</sup> It

has been recognized elsewhere that a key challenge for future research is to find ways to disseminate information to owners regarding companion-animal ethology,<sup>31</sup> including via veterinarians.

Limitations related to the design of the questionnaire used in this study have already been reported by Yeates and Main.<sup>10</sup> The present study improves in some aspects in that it used a larger sample population, different groups of study, and a random selection of participants, at least in the case of students. However, providing pre-training to respondents or the use of more objective frameworks for scoring importance should be emphasized in future studies. In addition, the study of possible influencing demographic factors such as age or gender should also be considered. Taking into account that more than three quarters of the target population were female students, it could be assumed that most interviewed students were female. Regarding gender differences, the study by Paul and Podberscek<sup>17</sup> showed that female students rated themselves as having significantly higher levels of emotional empathy with animals than did the male students, and that they tended to maintain this relatively high level of empathy throughout their careers, unlike the male students. Similarly, Cornish and colleagues<sup>14</sup> found that females ranked the importance of animal-welfare topics higher than males. Furthermore, it cannot be discarded that some of the differences observed between the groups of study may be attributable to gender differences if, for instance, there was a larger proportion of males among the practitioners than in the behavior specialist or student groups.

This is the first study that simultaneously assesses the perception of canine welfare aspects by veterinary students, practitioners, and behavior specialists in Spain. In sum, it shows that situations affecting canine welfare in a flagrant way such as abuse or lack of treatment of suffering are similarly (highly) scored by veterinary students and professionals, but that the perceived importance of more subtle welfare-related situations might be influenced by the level of professional experience and level of specialization. Thus, specialists in behavior medicine were the most concerned veterinary population for canine welfare aspects, with fifth-year veterinary undergraduates representing the opposite extreme.

If veterinarians are to disseminate knowledge to dog owners to promote responsible ownership, it is important to enhance their awareness of animal welfare issues, and this includes emphasizing sensitization toward this matter during veterinary medical education. Once students become veterinary professionals, awareness and understanding of welfare implications derived, for instance, from breed- or behavior-related problems, should also be promoted.

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## CONFLICT OF INTEREST

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