

Attitudes of Turkish veterinary students towards farm animal welfare

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Abstract

People's awareness of livestock welfare has increased in recent years and veterinarians have a critical role to play in maintaining and improving these standards. The aim of this study was to explore the attitude of veterinary students to livestock welfare and an online questionnaire was utilised to gauge the opinions of students from the Bursa Uludag University Faculty of Veterinary Medicine in Turkey. A five-point Likert scale covered judgments ranging from 'Strongly disagree' to 'Strongly agree.' Female students were found to have a higher score for questions related to the welfare of livestock than males. It was also found that students yet to undertake courses in clinical science and animal welfare, ie first and second years, gave higher scores than third, fourth and fifth years who had completed both of these. Moreover, students having owned or dealt previously with livestock provided lower animal welfare scores than their counterparts who had done neither. Seemingly, the sensitivity of veterinary students decreases during the latter stages of their education. To conclude, we suggest further investigation into the extent to which veterinary medicine education influences students' attitudes to animal welfare as they progress through the course.

Keywords: animal welfare, attitudes, broiler, dairy cattle, laying hen, veterinary education

Introduction

Animal welfare refers to how animals cope with the conditions they live in (Broom 1991) with more modern welfare definitions tending to focus more on positive emotions and 'a life worth living', not merely an absence of welfare problems (Mellor 2016). An animal may be said to have a good level of well-being if it is healthy and comfortable, fed well, free from pain, and able to display its natural behaviour. After the Second World War, livestock production in Europe and North America underwent industrialisation. The intensity of animal production may have increased however this has not been matched by improvements in animals' welfare conditions. Awareness of this issue was raised by author, Ruth Harrison, whose book, *Animal Machines* (Harrison 1964), addressing livestock production conditions in the UK, received a lot of attention. A commission was subsequently established in the UK by Professor Brambell with publication of the Brambell Report (Brambell 1965). This report into the welfare level of farm animals was presented to the UK Government and helped form the basis of the Five Freedoms (Mellor 2016) which are still of relevance today. Later, in 1975, *Animal Liberation* (Singer 1975) was published and this book laid the groundwork for the establishment of a number of organisations and associations concerned with animal welfare. Currently, in Western countries such as the UK, the USA and

Canada, there are a plethora of animal welfare certificates and courses available, including Bachelor of Science and Masters degrees. However, as yet, there are no degrees in animal welfare available in Turkey and the topic is only formally taught for 1–2 h during one half-term at veterinary schools or similar Bachelor of Science or Masters/PhD programmes.

Awareness of animal welfare both in Turkey and various countries throughout the world has been increasing in recent years. However, sensitivity to animal welfare focuses predominantly on companion animals which may be due, in part, to individuals being more attuned to the welfare of animals with which they have formed an emotional bond. In present-day Turkey most of the population is centred around big cities as opposed to small towns, severely limiting their exposure to the conditions of production animals reared for food.

The first animal production law in the Republic of Turkey was passed in 2004 (Animal Protection Law in Turkey 2004). Organic production certification in Turkey additionally includes a number of standards related to animal welfare (Organic Farming Law in Turkey 2010) and a law related to farm animal welfare was passed in Turkey in 2011 (Farm Animal Welfare Standards in Turkey 2011). Recently, the only label about farm animal welfare in Turkey is organic production certification.

Table 1 Participants' level of agreement/disagreement in animal welfare judgments (n [%]).

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Welfare of farm animals in Turkey is sufficient (J1)	81 (18.0)	200 (44.4)	131 (29.1)	36 (8.0)	2 (0.4)
Slaughtering the animals in the slaughterhouse without stunning is suitable for the welfare of the animals (J2)	186 (41.3)	77 (17.1)	105 (23.3)	46 (10.2)	36 (8.0)
When purchasing animal-originated food, I pay attention to whether the animals' raising/production conditions are suitable for animal welfare (J3)	44 (9.8)	80 (17.8)	129 (28.7)	120 (26.7)	77 (17.1)
In dairy cattle production, the dehorning procedure without anaesthesia in calves is suitable for animal welfare (J4)	245 (54.4)	96 (21.3)	72 (16.0)	27 (6.0)	10 (2.2)
In terms of animal welfare, it is suitable for new-born calves to be taken away from their mothers immediately after receiving colostrum in dairy cattle production (J5)	196 (43.6)	117 (26.0)	61 (13.6)	50 (11.1)	26 (5.8)
In dairy cattle production, a cow's average daily milk yield of 40 litres or more is appropriate for animal welfare (J6)	109 (24.2)	91 (20.2)	155 (34.4)	76 (16.9)	19 (4.2)
In laying hen production, the killing of male (0) day-old chicks as rendering is suitable for animal welfare (J7)	282 (62.7)	72 (16.0)	67 (14.9)	15 (3.3)	14 (3.1)
Beak-trimming application in laying hens is suitable for animal welfare (J8)	149 (33.1)	89 (19.8)	108 (14.0)	70 (15.6)	34 (7.6)
Light stimulation to increase egg production in laying hens is suitable for animal welfare (J9)	123 (27.3)	122 (27.1)	109 (24.2)	68 (15.1)	28 (6.2)
In terms of animal welfare, it is correct to put the laying hens into a 'forced moulting' programme in order to extend the productive life of the chicken (J10)	244 (54.2)	138 (30.7)	47 (10.4)	14 (3.1)	7 (1.6)
The conventional cage (battery type) housing system in laying hens is a suitable housing type in terms of animal welfare (J11)	221 (49.1)	85 (18.9)	112 (24.9)	24 (5.3)	8 (1.8)
It is appropriate for broilers to reach slaughter weight (2/2.5 kg) from 43-45 g of weight in 42 days (J12)	133 (29.6)	93 (20.7)	117 (26.0)	80 (17.8)	27 (6.0)
Artificial light stimulation applied to increase feed consumption in broiler chickens is suitable for animal welfare (J13)	128 (28.4)	117 (26.0)	124 (27.6)	65 (14.4)	16 (3.6)

Veterinarians, as well as farmers, play an essential role in improving the welfare of farm animals and therefore it is crucial to improve their awareness of animal welfare. To this end, veterinary faculties implementing sufficient levels of animal welfare education in their curriculae will be a move in the right direction.

There have been studies in Turkey about veterinary practitioners' attitudes to animal rights (Özen *et al* 2004; Sabuncuoğlu & Çoban 2008). Furthermore, İzmirli and Philips (2012) have carried out a study into veterinary academics' attitudes towards animal welfare and a similar study was undertaken on veterinary students in Zagreb, Croatia (Ostovic *et al* 2016). However, there is generally a scarcity of scientific studies into the attitudes of veterinary medicine students towards the welfare of livestock in Turkey.

This study aimed to explore the attitudes of Bursa Uludağ University Faculty of Veterinary Medicine students towards the welfare of farm animals and estimate how veterinary medicine education affects/changes the attitudes of the students regarding livestock welfare. Moreover, it aimed to make recommendations on the curriculae of veterinary faculties to increase awareness regarding livestock welfare.

Materials and methods

Ethical approval

This study was conducted with the permission of Bursa Uludağ University Research and Publication Ethics Committee (Health Sciences Research and Publication Ethics Committee) (Board decision no 5: 30.09.2020).

Study protocol

A questionnaire was created to determine the attitudes of veterinary faculty students towards the welfare of farm animals and administered to students via email. The questionnaire was split into two parts with the first consisting of eight closed-ended questions that sought to establish participants' demographic characteristics (age, gender, place where they grew up etc) and the second, an attitude scale, including 13 judgments scored on a five-point Likert scale (Table 1) designed to determine participants' attitudes to farm animal welfare. At the beginning of the study, participants' consent was obtained as they were provided with information on the basis of the research and assured of confidentiality and, at the end, an open-ended question allowing students to express their opinion on the overall welfare of farm animals.

Table 2 Demographic characteristics of the participants.

Characteristics		n	%
Age	18–21	241	53.6
	22+	209	46.4
Gender	Female	252	56.0
	Male	198	44.0
Class at the faculty [†]	1	89	19.8
	2	113	25.1
	3	108	24.0
	4	69	15.3
	5	71	15.8
Place of living (background) [‡]	Rural (village/town)	93	20.7
	City (population < 1 million)	139	30.9
	City (population > 1 million)	218	48.4
Consumption preference [§]	I consumer animal products	431	95.8
	Vegetarian	13	2.9
	Vegan	6	1.3
Owning/dealing with farm animals [#]	Yes	216	48.0
	No	234	52.0
Owning/dealing with pet animals [¶]	Yes	398	88.4
	No	52	11.6
Membership in an association [*]	Yes	36	8.0
	No	414	92.0

[†] Which class of veterinary medicine education are you in?

[‡] Where did you grow up?

[§] What is your preference for animal product consumption?

[#] Have you ever owned/dealt with a farm animal?

[¶] Have you ever owned/dealt with a pet?

^{*} Are you a member of any animal welfare or animal rights association?

Data were analysed using the IBM SPSS Statistics 20 programme. The frequency (n) and percentage values (%) of the demographic questions asked to the participants, and their answers to the questions about their attitudes towards farm animal welfare were calculated. In the analysis of the attitude scales about farm animal welfare, the positive judgments presented to the participants were coded as: 5; 'strongly agree', 4; 'agree', 3; 'neither agree nor disagree', 2; 'disagree' and 1; 'strongly disagree.' For negative judgments, the opposite coding was used. Cronbach's alpha coefficient was calculated as 0.824 for the reliability of the applied scale. Each participant's attitude towards farm animal welfare was determined by calculating the average values of the scores made by the participants on the scale. The judgments used are numbered as J1 (judgment 1) to make the examinations easy to understand (Table 1). All of the questionnaire's scale questions were evaluated to

examine the general attitude towards farm animal welfare (J1 to J13). Also, the judgments regarding dairy cattle welfare (J4, J5, J6) and laying hen welfare (J7, J8, J9, J10, J11) were evaluated as a sub-scale to assess animal welfare of dairy cattle and laying hens. In the data analysis, non-parametric tests were used because the data were not normally distributed (Shapiro-Wilk test) and were score (categorical) values. When comparing the scores of attitudes towards farm animal welfare with the independent groups, the Mann-Whitney *U* test was used if there were two groups, and the Kruskal Wallis test was used if there were more than two groups. Descriptive statistics of attitude scores were presented as median (minimum–maximum). A significance level of $P < 0.05$ was used for the interpretation of the analysis results. For multiple comparisons, Bonferroni correction was used. Survey applications were carried out between 1–30 October 2020.

Table 3 Results of comparison of participants' attitudes towards animal welfare.

Characteristics		Animal welfare in general	Animal welfare in dairy cattle	Animal welfare in laying hens
Age	18–21	3.92 (1.54–5.00)	4.00 (1.00–5.00)	4.00 (1.00–5.00)
	22+	3.76 (1.77–5.00)	4.00 (1.00–5.00)	4.00 (1.00–5.00)
		<i>P</i> = 0.282	<i>P</i> = 0.835	<i>P</i> = 0.692
Gender	Female	4.00 (1.92–5.00)	4.00 (1.33–5.00)	4.20 (1.00–5.00)
	Male	3.61 (1.54–5.00)	3.66 (1.00–5.00)	3.80 (1.00–5.00)
		<i>P</i> < 0.001	<i>P</i> < 0.001	<i>P</i> < 0.001
Class	1+2	4.07 (2.38–5.00)	4.00 (1.00–5.00)	4.20 (2.00–5.00)
	3+4+5	3.61 (1.54–5.00)	3.66 (1.00–5.00)	3.80 (1.00–5.00)
		<i>P</i> < 0.001	<i>P</i> < 0.001	<i>P</i> < 0.001
Place (background)	Rural	3.69 (1.54–4.85) ^a	3.66 (1.00–5.00)	3.80 (1.00–5.00)
	City (< 1 million)	3.92 (2.46–5.00) ^b	4.00 (2.00–5.00)	4.20 (2.00–5.00)
	City (> 1 million)	3.92 (1.92–5.00) ^{ab}	4.00 (1.00–5.00)	4.10 (1.00–5.00)
		<i>P</i> = 0.038	<i>P</i> = 0.468	<i>P</i> = 0.035
Consumption preference	Consume animal products	3.84 (1.54–5.00)	4.00 (1.00–5.00)	4.00 (1.00–5.00)
	Vegetarian	4.69 (4.00–5.00)	4.66 (4.00–5.00)	4.60 (3.80–5.00)
	Vegan	4.80 (4.54–5.00)	5.00 (3.67–5.00)	5.00 (4.40–5.00)
		–	–	–
Owning a farm animal	Yes	3.73 (1.54–5.00)	3.66 (1.00–5.00)	4.00 (1.00–5.00)
	No	3.92 (1.77–5.00)	4.00 (1.00–5.00)	4.00 (1.60–5.00)
		<i>P</i> = 0.020	<i>P</i> = 0.013	<i>P</i> = 0.428
Owning a pet	Yes	3.92 (1.54–5.00)	4.00 (1.00–5.00)	4.20 (1.00–5.00)
	No	3.46 (2.00–5.00)	3.50 (1.00–5.00)	3.80 (1.60–5.00)
		–	–	–
Membership of an association	Yes	4.11 (2.38–5.00)	4.33 (2.67–5.00)	4.40 (2.00–5.00)
	No	3.84 (1.54–5.00)	4.00 (1.00–5.00)	4.00 (1.00–5.00)
		–	–	–

Descriptive statistics are expressed as median (min–max) values and uncalculated *P*-values are due to unsuitable sample sizes. Different superscripts indicate statistically significant difference among the groups.

Results

Four hundred and fifty veterinary faculty students, 198 (44.0%) male and 252 (56.0%) female, participated in this study. The response rate was 40% (450/1122). Data showing participants' demographic characteristics are presented in Table 2. The proportion of the participants aged 22 and above was lower than the other half of the participants (46.4%), and the proportion of female students was higher than males. When evaluating according to participants' year of education, it was found that second and third years participated more (25.1 and 24%, respectively) than students from other years. Approximately half (48.0%) of participants reported that they grew up in big cities (population more than 1 million). In terms of consumer preferences, the

proportion of vegan and vegetarian students was very low (1.3 and 2.9%, respectively). Most of the participants (88.4%) currently owned a pet or had owned one previously. Most of the students participating in the study (92.0%) stated that they were not members of a society or an organisation dealing with animal welfare or animal rights.

The responses (*n*) and rates (%) of the participants to the scale of attitude towards farm animal welfare are included in Table 1. According to the attitude scale, the average score values and comparison results are given in Table 3. When examined in terms of age groups, it was found that participants were sensitive about animal welfare in both general and sub-scale evaluations, and there was no significant difference between age groups. When examined in terms of gender, it was deter-

mined that both the general evaluation ($P < 0.001$) and the attitude scores of dairy cattle welfare ($P < 0.001$) and laying hen welfare ($P < 0.001$) differed statistically between genders with female participants more sensitive than males. In the assessment in terms of class, scores were evaluated according to the status of participating in the 'animal welfare' course during their education in veterinary medicine. For this reason, classes were grouped as 1+2 (those who had yet not taken the 'animal welfare' course) and 3+4+5 (those who had taken the 'animal welfare' course). A statistically significant difference was found between the attitude scores of the students who took the animal welfare course and those who did not. Those who had taken the 'animal welfare' course showed lower scores.

When the participants were examined in terms of where they grew up, it was determined that their general scores in terms of farm animal welfare ($P = 0.038$) differed significantly depending on background. The general attitude scores of those who grew up in small cities (population < 1 million) was significantly higher than those who grew up in the countryside ($P = 0.012$).

Due to the very different sample sizes of the groups, no evaluation could be made regarding consumer preference, pet ownership and being a member of an animal welfare association. It was determined that the general attitude score ($P = 0.020$) and the attitude scores towards dairy cattle welfare ($P = 0.013$) showed a statistically significant difference between those who owned/dealt with farm animals and those who did not.

Discussion

This study aimed to reveal the attitudes of veterinary students towards farm animal welfare and how demographic differences affected these attitudes. Most of the students who participated in the survey were aged between 18 and 21 years. Only 20% of participants were raised in small towns or villages. Over 50 years ago, most of Turkey's population was rural-based. However, the more the country has become industrialised, the more the populations of big cities have increased. Therefore, most veterinary students are raised in big cities where they rarely come into contact with the husbandry conditions of farm animals.

Consumption of animal products was very high amongst our participants with only 4.2% either vegetarian or vegan. One study found there to be only 9% vegetarians among organic food buyers in Istanbul (Cene & Karaman 2015). Since this study did not only target organic food consumers, the percentage of vegans and/or vegetarians in this study (4.8%) might be similar to that seen in Turkish society overall, for the same age group.

Almost half of the participants owned or dealt with farm animals. The reason for such a high proportion of exposure to farm animals might be because students encountered farm animals during clinical practice, either in their university's experimental farm or during extramural studies or internships on private farms. Moreover, more than 88% of participants either owned or dealt with pet animals. Since most of the student participants came from cities (79.3%) rather than rural areas, the percentage of pet ownership is similar to those who lived in cities. This result shows pet ownership to be more common in city compared to rural living.

Participants' age as a factor did not significantly affect scores according to our grouping. Female students scored higher in all three question sections (animal welfare in general, dairy cattle welfare, laying hen welfare) which would lead us to conclude they are more sensitive to the welfare of farm animals than their male counterparts. This is in accordance with previous findings. Paul and Podberscek (2000) reported that female students had a higher level of empathy towards animals while other studies also found women to be more sensitive to animal welfare than men (Serpell 2005; İzmirlı *et al* 2014).

It takes five years to progress through to graduation in veterinary education in Turkey. To compare the effect of year of study, we categorised the students into two groups (group 1: year 1+2; group 2: year 3+4+5). The reason for this type of categorisation was that the 'animal welfare' course took place during the second semester of 'year two' at Bursa Uludag University.

In addition, clinical science courses start in the third year in this faculty. Surprisingly, individuals not having taken the 'animal welfare' course showed higher scores than those that had. Since this was a cross-sectional study rather than a longitudinal one, we cannot conclude that this difference occurs during veterinary education since it was not the same cohort of students being assessed at the beginning of their course as at the end. Nevertheless, it raises the question: 'are veterinary students becoming less sensitive to animal welfare or animal suffering in the later years of their education?' In order to test this, a longitudinal study should be performed on the same students, with a sufficient number of participants across different veterinary schools. Still, our results allow us to speculate that the frequent performance of surgical procedures may make veterinary students more insensitive to animal suffering. Another question could be asked: 'Is the animal welfare course at Bursa Uludag University adequate and taught in a good way? Should it be modified?' It would be helpful to evaluate the effect of this course. Our findings were in accordance with several earlier studies. Blackshaw and Blackshaw (1993) found that veterinary students became less sentimental towards pets and cows in the later years of their education. Similarly, Paul and Podberscek (2000) found that in the concluding part of their study veterinary students rated the sentience level of dogs, cats, and cows as lower than at the beginning of their study. O'Ferrel (1990) also found veterinary students became less sentimental towards animals during the later stages of their education. To change this, veterinary faculties may need to re-evaluate their approach to animal welfare in general and farm animal welfare in particular. In a study by Lord *et al* (2010), it was revealed that students who had taken an elective animal welfare course felt more confident in evaluating a novel animal welfare topic.

Participants who lived in the countryside had a lower score in question groups about 'animal welfare in general' than those who lived in cities. This might be because those people become less sensitive to animals we raise for economic reasons rather than for companionship. Similarly, those who owned/dealt with farm animals had lower scores

than those who had not, in both question groups about 'animal welfare in general' and 'dairy cattle welfare.' This may be another reflection of the same trait of veterinary students becoming less sensitive about animal welfare in the later years of their education. In a study applied specifically to veterinary students (first-, second-, third-, and fourth-year students) at Cornell University, it was found that they believed cats and dogs to have greater mental abilities than farm animals (Levine *et al* 2005). Furthermore, in the same study, veterinary students found some procedures cruel when applied to dogs and cats while the same actions were deemed more acceptable when applied to farm animals.

In the final section of the questionnaire, 146 participants (out of 450) answered an open-ended question regarding the level of farm animal welfare in Turkey. Most of those who responded did so to say they found it insufficient. The main explanations offered being: (i) economic competition in farm animal production pushes the farmers to focus more on production performance rather than animal welfare level; (ii) many farmers find that farm animals are not sentient animals; and (iii) there are not enough legal regulations about farm animal welfare in Turkey.

Animal welfare implications and conclusion

In conclusion, female students were found to be more sensitive about farm animal welfare than their male counterparts. Despite taking the 'animal welfare' course, students who had undertaken some of the course's clinical components were less sensitive to animal welfare. However, it is hard to ascertain whether this result is caused by undergoing clinical practice or taking the 'animal welfare' course since both factors are confounded. Similarly, those who had lived rurally in Turkey and who had owned/dealt with farm animals had lower scores. The importance of animal welfare and the effect of painful procedures on farm animals may need to be emphasised more in the curriculum of veterinary faculties. Longitudinal and larger-scale studies need to be carried out in the future, to effectively test the effect of veterinary education on the attitudes of veterinary students towards animal welfare.

Acknowledgements

The authors would like to thank Peter Singer for his valuable suggestions during the preparation of the questionnaire. Additionally, the authors thank Ashleigh F Brown for her helpful comments on the manuscript's English Language editing. Equally, the authors would like to thank all the students who participated in this study. EÇ conceived, designed the study, and performed the data collection. EU analysed and interpreted the data. EÇ and EU wrote the article. Both authors read and approved the final version of the manuscript. There was no funding received from any official or private organisation for this study. The authors declare no conflicts of interest. The data of this study are available from the corresponding author upon reasonable request.

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