

Perception of sheep welfare and sentience by citizens of Curitiba, Parana, Brazil and Clermont-Ferrand, Theix, France

Priscilla Regina Tamioso¹, Daniel Santiago Rucinque², Mara Miele³, Carla Forte Maiolino Molento⁴

¹Doutoranda do Programa de Pós-graduação em Ciências Veterinárias - PPGCV, Universidade Federal do Paraná - UFPR, Laboratório de Bem-estar Animal - LABEA/UFPR, Campus Agrárias, Curitiba, Paraná. Bolsista da Capes. e-mail: priscillatamioso@gmail.com

²Doutorando do Programa de Pós-graduação em Zootecnia, Faculdade de Zootecnia e Engenharia de Alimentos, Universidade de São Paulo FZEA-USP. e-mail: dsrucinqueg@usp.br

³Professora da Universidade de Cardiff, Cardiff, Reino Unido. e-mail: mielem@cardiff.ac.uk

⁴Professora associada da Universidade Federal do Paraná - UFPR e coordenadora do Laboratório de Bem-estar Animal - LABEA/UFPR, Campus Agrárias, Curitiba, Paraná. e-mail: carlamolento@ufpr.br

Abstract: We compared the perception of citizens from Curitiba, Parana, Brazil (B) and Clermont-Ferrand, Theix, France (F), concerning sheep welfare and sentience. Animal welfare was defined mainly using terms associated with Freedom from fear and distress, Freedom from hunger, thirst and malnutrition, and Freedom from discomfort. A total of 46.9% B believed that welfare is not taken into consideration for farm animals, in contrast with 3.7% F ($P<0.01$). The consumption of sheep products did not differ between respondents, except for dairy, which was more frequently consumed by F ($P<0.01$). Many F associated animal welfare with physical conditions and showed less perception of sheep sentience than B ($P<0.05$). No significant differences were found for the perception of sheep suffering caused by management practices ($P>0.05$). Mammals were given the highest scores of sentience, and significant differences between B and F were found for pigeon, butterfly, dog, chicken, fish, sheep, cattle and cockroach ($P<0.01$). B and C showed similar definitions of animal welfare, attitudes on the consumption of sheep products and perception of suffering caused by management practices. However, participants differed on their perception of emotions in some species, animal welfare and productivity and sheep emotions; B showed higher perception of animal welfare issues.

Keywords: animal welfare, emotions, opinion, survey

Os autores deste trabalho são os únicos responsáveis por seu conteúdo e são os detentores dos direitos autorais e de reprodução. Este trabalho não reflete necessariamente o posicionamento oficial da Sociedade Brasileira de Biometeorologia (SBBiomet).

The authors of this paper are solely responsible for its content and are the owners of its copyright. This paper does not necessarily reflect the official position of the Brazilian Society of Biometeorology (SBBiomet).

Introduction

There have been few studies about the society perception in relation to sheep welfare and sentience. In an interview with consumers from European Union countries, the absolute majority of respondents agreed that animals used for food production, including sheep, are able to suffer; additionally, the participants stated that they are not sufficiently informed about the welfare of the animals (Mayfield et al., 2007). It is important to understand citizens' perception of animal welfare and sentience, as citizens participate in political processes. Therefore, our study aimed to compare the perception of citizens in Curitiba, Parana, Brazil and Clermont-Ferrand, Theix, France, concerning sheep welfare and sentience.

Material and Methods

Citizens from Curitiba, Parana, Brazil (B) and Clermont-Ferrand, Theix, France (F) were invited to participate in an online survey on Survio[®] platform from November 2014 to May 2016, in the language spoken in each country. A total of 388 B and 350 F participated in the survey. The questionnaire contained 19 open-end, multiple choices and 5-point Likert-type scale questions, divided into five sections. Demographic questions, as gender, age and education belonged to the first section. The second section comprised questions about animal welfare in general. The next section was composed of questions about consumption of sheep products, contact with sheep, sheep welfare and sentience. The fourth section introduced questions about sheep suffering, through different management practices that are commonly performed in the sheep industry. Such questions were presented twice, so that the answers were evaluated according to the respondents' perception when the management practices were presented without descriptions (identification1, castration1, tail docking1, shearing1, reproductive techniques1 and weaning1) and with descriptions of how they are commonly performed (identification2, castration2, tail docking2, shearing2, reproductive techniques2 and weaning2). The last section contained a question about sentience in different species of animals.

In addition to descriptive statistics, we used the non-parametric Mann-Whitney, Kruskal-Wallis and Wilcoxon tests with Minitab software, version 17, at $P < 0.05$. Data were analyzed by comparing responses of B and F, considering gender, age and education. The survey comprised a sample with a margin of error equal to 5% and confidence level of 95% for each respondent group. The study was previously approved by the Human Research Ethics Committee of the Federal University of Paraná (Comética - SCS/UFPR) under protocol number 814 835/2014.

Results and Discussion

Most B defined animal welfare in terms of Freedom from fear and distress (27.0%), Freedom from hunger, thirst and malnutrition (20.5%) and Freedom from discomfort (17.8%). In France, F defined animal welfare comprising Freedom from fear and distress (33.4%), Freedom from discomfort (19.6%) and Freedom from hunger, thirst and malnutrition (19.1%). Similar results were found by Te Velde et al. (2002), who reported that consumers defined animal welfare mostly in terms of physical and mental well-being. Significant differences were found for the consideration of animal welfare, as 3.7% F believe that welfare is not taken into consideration for farm animals, in contrast with 46.9% B ($P < 0.01$). Such difference may be due to different animal welfare scenarios in both countries. European countries dispose of a greater availability of labeled welfare-friendly products, consequently, the French consumer may have the idea that farm animals experience good levels of welfare, in addition to the fact that the consumers have more options and more information on the products they buy.

The participants differed on the consumption of dairy, i.e. milk and cheese, as in France, the majority of respondents consumed dairy, at least, a few times a year (36.6%) ($P < 0.05$). Significant differences between male and female F were found for the consumption of sheep meat; 22.0% females do not consume sheep meat when compared with 11.0% males ($P < 0.05$), in accordance with María et al. (2006). Concerning the consumption of wool, age differences were found for B; lower consumption was observed among respondents aged 50 years-old or more (69.2%) ($P < 0.01$). Age differences were also found among B for tallow, as all participants aged at 40-49 years-old have never consumed such product ($P < 0.05$). The results show that older citizens from Curitiba tend to consume wool and tallow less frequently. María (2006) also reported significant effect of age on the consumption of animal products among Spanish respondents; however, the author observed that younger people tended to not consume animal products. In addition, significant education differences were found for F. Respondents having secondary or less educational level answered that they have never consumed wool (61.8%), differing from other groups ($P < 0.01$). The findings show that wool is not consumed by citizens from Clermont-Ferrand that have lower educational levels. Results regarding age and educational level are intriguing and require further research.

A total of 21.6% B agreed that sheep that are healthy and grow well have their welfare guaranteed, when compared to 32.9% F ($P < 0.01$) (Fig.1). The result points to higher perception of association between animal welfare and physical conditions by French respondents, which is not in accordance with findings by Phillips & McCulloch (2005). The authors found that Europeans from different nationalities and to some extent students from the USA were more likely to disagree with “the fact that intensively farmed pigs grow well and produce large litters of piglets shows that they are clearly not suffering”; specifically the studied French respondents tended to disagree with the statement (Phillips & McCulloch, 2005). Significant age differences were also found between B and F for such statement; the majority of B aged at 40-49 years-old (34.0%) agreed that sheep that are healthy and grow well have their welfare guaranteed, in comparison with other age classes ($P < 0.01$). A similar result was found for F; most respondents aged at 40-49 (20.6%) and 50 years-old or more (19.05%) strongly agreed with such statement ($P < 0.01$). The results suggest that older citizens tend to view animal welfare mainly in terms of physical health. Respondents from F also differed on their perception according to educational level. Most F with secondary or less educational level (45.6%) agreed with the statement, differing from other categories ($P < 0.01$), indicating that participants with lower educational levels might associate quality of life mainly to physical conditions.

Significant differences were found for the statement “sheep are capable of feeling emotions, such as fear and happiness, in addition to suffering”. A total of 75.0% B strongly agreed with the statement, in contrast with 66.3% F ($P < 0.05$) (Fig.1). The fact that less participants in France strongly agreed that sheep are capable of feeling emotions is an interesting result, as in Clermont-Ferrand there are important sheep producers; consequently, we would expect that people would be more familiar to sheep and would better recognize their emotional capacities. Female F also showed higher perception of sheep emotions, as 70.6% strongly agreed that sheep feel emotions, in contrast with 59.5% males ($P < 0.05$), in agreement with other findings that show that women have greater concern and empathy toward animal welfare and sentience (María et al., 2006).

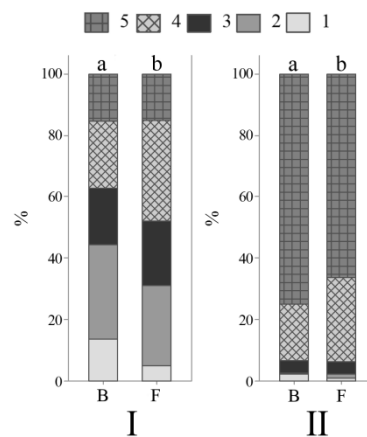


Figure 1. Levels of agreement concerning sheep welfare and sentience, by 388 citizens from Curitiba, Parana, Brazil (B) and 350 citizens from Clermont-Ferrand, Theix, France (F); November 2014 to May 2016; (I) Sheep that are healthy and grow well have their welfare guaranteed; (II) Sheep are capable of feeling emotions, such as fear and happiness, in addition to suffering; 1 = strongly disagree; 2 = disagree; 3 = neutral/unsure; 4 = agree; 5 = strongly agree; letters indicate differences between B and F ($P < 0.05$, Mann-Whitney test).

No significant differences were found between B and F regarding suffering caused by management practices ($P > 0.05$), indicating that the surveyed participants have similar perceptions of sheep suffering. However, gender had significant influence over participants' perceptions. Female B increased their perception from moments 1 and 2 of suffering during identification, castration, tail docking, reproductive techniques and weaning ($P < 0.05$) (Fig.2). Among F, increasing perception between moments 1 and 2 was found for tail docking, reproductive techniques and weaning among women and, among men, for reproductive techniques and weaning ($P < 0.05$) (Fig.2). Furthermore, in general, women showed higher perception of sheep suffering than men ($P < 0.05$) (Fig.2). These results were expected, as women tend to react more emotionally and empathetically to animal suffering.

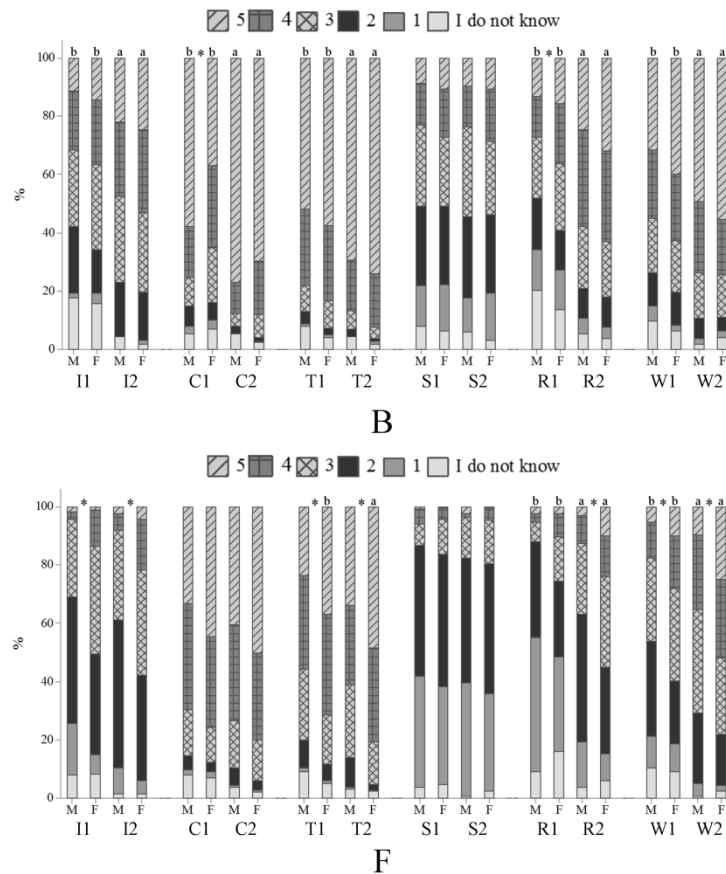


Figure 2. Levels of suffering attributed to different management practices by 388 citizens from Curitiba, Parana, Brazil (B) and 350 citizens from Clermont-Ferrand, Theix, France (F); November 2014 to May 2016; M = male; F = female; 1 = no suffering; 2 = mild suffering; 3 = moderate suffering; 4 = severe suffering; 5 = very severe suffering; I1 = identification1; I2 identification2; C1 = castration1; C2 = castration2; T1 = tail docking1; T2 = tail docking2; S1 = shearing1; S2 = shearing2; R1 = reproductive techniques1; R2 reproductive techniques2; W1 = weaning1; W2 = weaning2; letters indicate gender differences between the first and second moments of each management practice ($P < 0.05$; Wilcoxon test); asterisks indicate significant differences between male and female respondents ($P < 0.05$; Mann-Whitney test).

Fig.3 shows that mammals were given the highest scores by the participants, followed by birds, fish and invertebrates. Significant differences between B and F were found for pigeon, butterfly, dog, chicken, fish, sheep, cattle and cockroach ($P < 0.01$) (Fig.3), as B attributed higher scores of emotions to such animals. The fact that B attributed higher scores of sentience to specific animals may be associated with lower fear of such animals and more experience with them. Experience with animals seems to be positively related to positive attitudes to them (Morris et al., 2012).

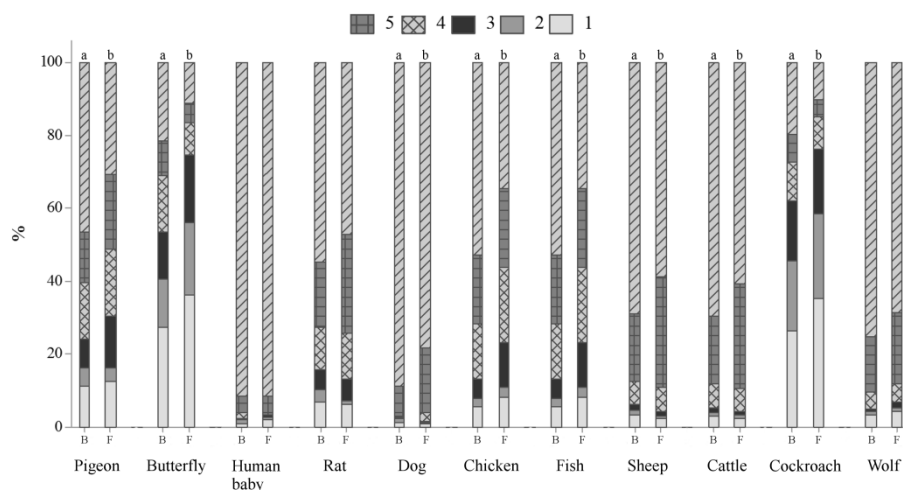


Figure 3. The ability of different animals to feel emotions, in a scale from 1 to 5, being 1 the animal does not feel emotions, 5 the animal certainly feels emotions and intermediate values are equivalent to a growing capacity to feel emotions, according to 388 citizens from Curitiba, Parana, Brazil (B) and 350 citizens from Clermont-Ferrand, Theix, France (F); November 2014 to May 2016; letters indicate differences between B and F ($P < 0.05$, Mann-Whitney test).

Significant gender differences were also noted for perception of sentience in cattle, sheep and cockroach by F, as females attributed the highest scores (65.55%; 64.1%; 42.3%, respectively) ($P < 0.05$). Again, these results were expected. The perception of sentience in some species also differed according to the age groups, only in B. A total of 40.0% B aged at 40-49 years-old attributed the highest scores of sentience to pigeons, in contrast with 53.3% participants aged at 18-29 years-old ($P < 0.05$). Additionally, 31.7% B aged 40-49 years-old scored the highest level of emotions to fish, in comparison with other age groups ($P < 0.05$). Concerning the cockroach, 42.4% B aged at 50 years-old or more attributed the highest rate of emotional states to such animal, differing statistically from the other age classes ($P < 0.05$). The results suggest a positive correlation between age and interest in animals, as older B seemed to show more interest, empathy toward specific animals. Lastly, a significant effect of education was also noted among B, for some animals. The majority of B having secondary or less educational level attributed the highest scores of emotions to pigeon (33.3%), chicken (38.2%) and sheep (51.35%), differing from other groups ($P < 0.05$). Contrary to our findings, Bjerke & Østdahl (2014) found a positive association between education and scores of preference for the majority of animals, as the preference scores increased with increasing educational levels, with exception of dogs, cats and rats, among some others. This is the first study to show the effect of demographic variables on the perceptions of Brazilian and French respondents regarding animal sentience and comparisons amongst these perceptions. The results indicate that there is higher perception of emotional capacities for specific animals; therefore, more studies are necessary to be conducted.

Conclusions

Citizens from Curitiba and Clermont-Ferrand showed similar perceptions of the definition of animal welfare. They also showed similar attitudes on the consumption of sheep products, except to dairy, and perception of suffering caused by management practices. However, participants differed on their perception of emotions in some species, animal welfare and productivity and sheep emotions; citizens from Curitiba showed higher perception of animal welfare issues. The evaluation of emotions by different sectors of the population may contribute to the recognition that sheep are sentient beings and, consequently, such recognition may lead to improvements in their quality of life.

Acknowledgements

The project was funded by a grant to the first author from the Coordination for the Improvement of Higher Education Personnel (Capes). The authors are grateful to the participants and INRA-Theix, France.

References

- Bjerke T, Østdahl T (2014) Animal-related attitudes and activities in an urban population. *Anthrozoös* 17:109-129
- María A (2006) Public perception of farm animal welfare in Spain. *Livest Sci* 103:250-256
- Mayfield LE, et al. (2007) Consumption of welfare - friendly food products in Great Britain, Italy and Sweden, and how it may be influenced by consumer attitudes to, and behaviour towards, animal welfare attributes. *IJSAF* 15:59-73
- Morris P, Knight S, Lesley S (2012) Belief in animal mind: does familiarity with animals influence beliefs about animal emotions? *Soc Anim* 20:211-224
- Phillips C, McCulloch S (2005) Student attitudes on animal sentience and use of animals in society. *J Biol Educ* 40:17-24
- Te velde H, Aarts N, Van woerkum C (2002) Dealing with ambivalence: farmers' and consumers' perceptions of animal welfare in livestock breeding. *J Agric Environ Ethics* 15:203-219