

## Undergraduates Attitudes Toward Use of Animals in Research and Other Purposes are Influenced by Their Field of Study

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**Abstract:** One's opinion on a bioethical issue is unique to that individual and is influenced by a range of factors. In this study, undergraduate students (n = 238) from faculty of Medicine (M), Agriculture (A), Veterinary (V), Management (MG), Engineering (E) and Art (AR) were selected to measure their attitude on ethical issues regarding use of animals for research as well as other purposes using a structured type questionnaire. A significantly higher percentage of V (100%), A (86%), M (95%) and AR (74%) respondents held a utilitarian view on the use of animals for human activities. Only a minority (10%) of undergraduates following A, E, AR courses opposed the use of animals by humans. The most accepted use of animals by M, MG, A, AR and E was as pets while most preferred uses were as zoo animals and for research by V undergraduates. But nobody believed humans have full liberty to use animals for research. MG (83%) significantly opposed dissecting animals for academic purposes. A, V supposed use of rats while M and E supposed cockroaches in experimentation were superior to other animals. The views on use of animals in teaching purposes were also affected by the discipline. This proved that undergraduates who followed science-based curricula held more rational attitudes toward animal use in research.

**Key words:** Animal research, attitude, undergraduates, disciplines, experimentation, curricula

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### INTRODUCTION

Animals are kept in human custody for a wide range of purposes ranging from researching to as pet animals. Apart from those kept under farming conditions, around 50 million animals are used in various experiments (Saas, 2008). Ethical issues related to the use of animals for human purposes are widely debated all over the world. In the 1970s, discussions about animal rights were quite hot and severe.

Particularly after the book *Animal Liberation* by Singer (1977), discussions on the moral status of the animal in general and on the use of animals for research in particular began to spread all around.

As a result of intense public concerns about the ethics and welfare of animals in human custody, many countries have developed legal and regulatory frameworks related to the animals in human custody, including research and farming.

Zutphen *et al.* (1993) mentioned the principal objective of these legal regulations is the reliability of the research and to standardize the animal use for research purposes. These legal and regulatory frameworks reflect

the societal attitude towards the animal in general. On the other hand, societal attitudes are influenced by the individual's attitude. Attitude of an individual on a particular ethical issue is influenced by a range of personal, religious, cultural and educational factors.

Attitude of Sri Lankan undergraduates towards ethical issues related to animals is poorly studied. On one hand, it can be assumed that undergraduates are better aware of the debate about animal ethics compared to the general public and thus may be in a better position to take informed decisions.

On the other hand, some courses such as medicine, veterinary and agriculture directly deal with animals to varying extent. Also, undergraduates following agriculture and veterinary are supposed to engage in professions which are directly related to animals. Therefore, an understanding of how ethical stands of an individual is influenced by the type of undergraduate course he or she follows is of importance. Objective of this study was to understand how attitude of undergraduates toward the use of animals for research and other purposes is affected by the field of undergraduate studies.

**MATERIALS AND METHODS**

The study was carried out among the 238 final year undergraduate students following medicine, agriculture, veterinary, management, engineering and art. The sample comprised of 50 agricultural, 39 medical, 41 management, 39 veterinary, 31 engineering and 38 art students. The data were collected by a structured type questionnaire and analyzed using statistical software SPSS 10.0 and Excel. A mean rating calculated for attitudes toward use animal for different purposes, preference order of animal rearing for meat, experimentation and ability to dissect and analyzed using Kruskal-Wallis test and means were separated by using DMRT procedure. Chi-squared test was used to determine differences between the students in different faculties. The spearman correlation coefficient used to ascertain the relationship between the variables.

**RESULTS AND DISCUSSION**

The sample characteristics of the respondents are shown in Table 1. The sample was dominated to Buddhists (86%) and females (61%). It was found that 54% of the undergraduates following M, A and V courses had direct involvements with animals in their academic carrier. Undergraduates attitude toward the use of animal for different purposes varied from faculty to faculty (Table 2). Only a minority (10%) undergraduate following A, E, AR courses opposed the use of animals by human. No students from M, MG and V faculties opposed the use of animals by human. About 60% of respondents kept pets mainly dogs and cats. The most accepted uses of animals were as pet and for research while the least accepted purposes were for skin, fur and meat (Fig. 1). For

M, MG, A, AR and E, most preferred use of animals was as pet while for V students, it was for research. When inquired about preferred animal species reared for meat A, M, V and E undergraduates ranked fish first. Meanwhile, MG and AR undergraduates ranked chicken first. Only a 32% of Buddhists opposed the rearing. Rabbit was the least preferred species for meat production. Despite many were Buddhists and the rearing of animals for meat was considered as the least preferred uses of animals (Fig. 2). Many undergraduates except those of MG and AR accepted the killing of layers at the end of laying cycle.

Many undergraduates opposed the killing of unproductive cattle. Majority of A, AR M and MG opposed the killing weaker farm animals but V undergraduates accepted the said practice. The V (94%), AR (100%), M (96%) and A (83%) undergraduates accepted the use of animal for research but stressed the importance of providing animal welfare facilities. No one believed that human has an absolute right to doing research. A majority of MG (85%) and AR (74%) opposed the conduct of an animal experiment that disables the animal at the end of the experiment. Meanwhile V (100%), A (54%), M (58.97%) and E (45.16%) held the view that their decision depend on the type of experiment. Further if an animal becomes disables at the end of an experiment, majority of MG (80.5%) and AR (97.4%) undergraduates believed that such an animal should not be killed but be looked after until die naturally. In contrast, V (97.43%), A (60%), M (84.61%) and E (35.48%) said that such an animal should be killed at the end of the experiment. The highest ranked species for research were rat and mice. Spearman correlation coefficients between different variables are shown in Table 3. It was found that welfare knowledge had significant positive correlation with animal use for research purposes. Christians had positive

Table 1: Sample characteristics of the respondents

Variables	Range	A	M	MG	V	E	AR	Overall
Gender	Female	29 (58%)	24 (62%)	24 (58%)	20 (51%)	19 (61%)	30 (79%)	146 (61%)
	Male	21 (42%)	15 (38%)	17 (42%)	19 (49%)	12 (39%)	8 (21%)	92 (39%)
Religion	Buddhism	46 (92%)	30 (77%)	35 (85%)	26 (67%)	30 (97%)	38 (100%)	205 (86%)
	Christian	3 (6%)	4 (10%)	5 (12%)	6 (15%)	1 (3%)	0	19 (8%)
	Islam	1 (2%)	4 (10%)	1 (2%)	3 (8%)	0	0	9 (4%)
	Hindu	0	1 (3%)	0	4 (10%)	0	0	5 (2%)
Pet rearing	Yes	32 (64%)	22 (58%)	24 (58%)	18 (46%)	24 (77%)	21 (55%)	141 (59%)
	No	18 (36%)	16 (42%)	17 (42%)	21 (54%)	7 (23%)	17 (45%)	97 (41%)

Parenthesis represents percentages

Table 2: Attitudes towards the rearing of animal for different purposes and research

Faculty	Yes for any purpose	Yes for some but no for other	No for any purpose	No for any research	Decide according to research
A	3 (6.0%)	43 (86.0%)	4 (8.0%)	4 (8.00%)	46 (92.00%)
M	2 (5.1%)	37 (94.9%)	(0.0%)	2 (5.13%)	37 (94.87%)
MG	15 (36.6%)	26 (63.4%)	(0.0%)	32 (78.04%)	9 (21.96%)
V	(0.0%)	39 (100.0%)	(0.0%)	(0.00%)	39 (100.00%)
E	8 (25.8%)	13 (41.9%)	10 (32.2%)	5 (16.13%)	26 (83.87%)
AR	(0.0%)	28 (73.7%)	10 (26.3%)	9 (23.70%)	29 (76.30%)
Overall	28 (12.0%)	18 (78.0%)	24 (10.0%)	52 (22.00%)	186 (78.00%)

Table 3: Correlation matrix among the different variables related to the attitudes towards animal use

Variables	Sex	RL	RE	Use	AW	Kill	AD	LY	CT	WK
Sex	1.00									
Religion	-0.03	1.00								
RE	0.06	-0.08	1.00							
Use	0.06*	0.17**	-0.29**	1.00						
AW	0.09	-0.13*	0.16*	-0.22**	1.00					
AK	0.12**	0.11	0.07	0.41**	-0.05	1.00				
AD	-0.08	0.03	-0.09	0.19**	-0.21**	0.20**	1.00			
LY	0.17*	-0.07	-0.39**	0.37*	-0.18*	0.13	0.07	1.00		
CT	0.07	0.16*	-0.22**	0.13	-0.09	-0.12	0.03	0.42**	1.00	
WK	0.15*	0.22**	-0.24**	0.21*	-0.34**	0.06	0.24	0.45**	0.42**	1.0

\*\*Correlation is significant at the 0.01 level, \*Correlation is significant at the 0.05 level; RE = Opinion on rearing animal for different purposes, Use = Use of animals for research, AW = Knowledge about animal welfare, AK = Ability to kill disable animals, AD = Idea about dissecting animals, LY = Killing unproductive layers, CT = Killing unproductive cattle WK = killing weak animals

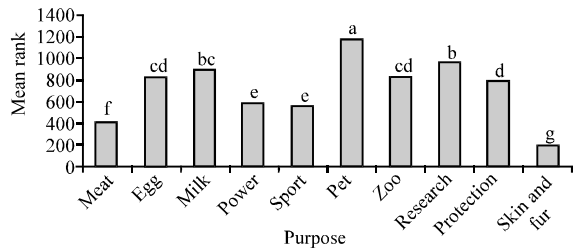


Fig. 1: Respondents preference for rearing animal for different purposes

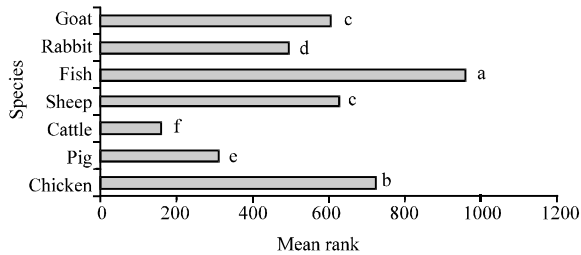


Fig. 2: Preference of animal rearing for meat

attitude with animal use for research, killing weak animals and cattle than other religiosities. More male undergraduates agreed on killing the unproductive layers and weak animals than female counterparts. Those who opposed the keeping of animal for any purpose totally rejected the use of animal for research and killing unproductive or weak animals in the farm. Respondents with higher welfare concern hold more negative attitude toward animal dissection and killing of unproductive farm animals.

Majority MG undergraduate (82.93%) opposed the dissecting for teaching purpose than other undergraduates (Table 4). The female students rated themselves as having significantly higher levels of emotional empathy toward killing disable animals than the male students ( $r = 0.12, p = 0.000$ ). Pet animals are an important component of many western developed societies. No scientific studies have been conducted to understand to what extent pet animals are important in the

Table 4: Undergraduates idea about dissecting animal for teaching purpose

Faculty	Totally dislike	It is ok if essential	Not a serious issue
A	8 (16.00%)	36 (72.00%)	6 (12.00%)
M	4 (10.26%)	28 (71.79%)	7 (17.95%)
MG	34 (82.93%)	3 (7.32%)	4 (9.75%)
V	(0.00%)	36 (92.31%)	3 (7.69%)
E	6 (19.35%)	25 (80.65%)	(0.00%)
AR	18 (47.40%)	8 (21.00%)	12 (31.60%)

cultures. Results of this study suggest that many undergraduates keep pet animals and thus companion animals are an important component of the culture. The percentages of undergraduates who accepted the use of animal for any purposes and those who opposed for any purposes were more or less similar; 28 and 24%, respectively. Majority (78%) held moderate view that yes for some purposes and no for other purposes. No extremist idea holders were reported in veterinary faculty. On the other hand, moderate idea holders were seen across all faculties. With regard to animal experiment, majority (78.2%) was in the opinion that their acceptance or rejection depend on the type of experiment. Undergraduates attitude towards dissecting animals for teaching purposes was also showed more or less similar pattern (Table 4). However, it is interesting to note that percentage students who totally opposed dissecting animals for teaching purposes were substantially higher in non science faculties (MG and AR). The view of the majority of the undergraduates across all faculties was that dissecting animals for teaching purposes is on if it is essential. In general the findings of this study indicate that mainstream idea among Sri Lankan undergraduates regarding the use of animal for different purposes was utilitarianism.

Hagelin *et al.* (1999, 2000) carried out few studies on the undergraduate students of medicine, veterinary and other departments, they mentioned that most of the participants stated that animal used for research was acceptable in terms of moral aspect. Also Bowd and Boylan (1986), Gallup and Beckstead (1988) reported that students given biology education or bio-medical studies showed more positive attitudes towards animal used for

research than the other students. Students following, V, M and A also showed more positive attitude towards animal experiment. In contrast, the attitude of MG, A and E students towards the animal use for experiments was not as positive as V, M and A students. This was consistent with the observations of Groller (1990) who found that 78% of respondents would support animal research if it were the only way to find a cure for AIDS. Driscoll (1992) also reported support for research on rats and mice which comprise the majority of animal research subjects is substantially higher than support for research on dogs, cats and primates. Purposes which require killing the animals seem to have been opposed by many respondents.

Wells and Hepper (1997) also stated that respondents were less supportive of uses that lead to death of animals compared to non lethal uses such as entertainment. Many of the respondents were Buddhist and their belief that killing of animals is a great sin may have a great influence on that choice. Interestingly, use of animals for research purposes has been preferred over other direct uses such as meat, skin and fur. This may be due to the fact that many of the respondents due to their academic background are aware of the benefits of animal experiments.

Preferred animal species for meat production indirectly indicate societal affection towards the different species. Less preference towards cattle and rabbit as meat producing animals indicate our cultural affinity towards those animals. Highest preference towards fish suggests the importance of paying more attention to develop the fish production in Sri Lanka. However, meat consumption data of Sri Lanka (chicken 4.98, beef 1.27, pork 0.12 and mutton 0.09 kg head<sup>-1</sup>) do not parallel to the preference order shown by the undergraduates.

## CONCLUSION

It was concluded that that mainstream idea among Sri Lankan undergraduates regarding the use of animal for different purposes was utilitarianism. It was also found that students following biological streams held more positive attitude towards using animal for human purposes than those following non biological streams.

## REFERENCES

- Bowd, A.D. and C.R. Boylan, 1986. High school biology and attitudes towards the treatment of animals. *Psychol. Rep.*, 5: 890-890.
- Driscoll, J.W., 1992. Attitudes toward animal use. *Anthrozoos*, 5: 32-39.
- Gallup, G.G. and J.W. Beckstead, 1988. Attitudes toward animal research. *Am. Psychologist*, 43: 474-476.
- Groller, I., 1990. Do animals have rights. *Parents Magaz.*, 65: 33-33.
- Hagelin, J., H.E. Carlson and J. Hau, 1999. Undergraduate university students views on the use of animals in biomedical research. *Acad. Med.*, 74: 1135-1137.
- Hagelin, J., J. Hau and H.E. Carlsson, 2000. Attitude of Swedish veterinary and medical students to animal experimentation. *Vet. Record*, 24: 757-760.
- Saas, H.M., 2008. Animal in research: 7-R principles and corporate responsibility, *Eubios. J. Asian Int. Bioethics*, 18: 74-86.
- Singer, P., 1977. *Animal Liberation*. Paladin Granada Publishing, London, pp: 286.
- Wells, D.L. and P.G. Hepper, 1997. Pet ownership and adults views on the use of animals. *Soc. Anim.*, 5: 45-63.
- Zutphen, L.F.M., V. Baumans and A.C. Beynen, 1993. *Principles of Laboratory Animal Science*. Elsevier Science Publishers, Amsterdam, London, New York, Tokyo, pp: 1-15.