Development of a Moral Judgment Measure for Veterinary Education

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ABSTRACT

Veterinarians increasingly face animal ethics issues, conflicts, and dilemmas, both in practice and in policy, such as the tension between clients' and animals' interests. Little has been done to measure the capacity of veterinarians to make ethical judgments to prevent and address these issues or to identify the effectiveness of strategies to build this capacity. The objectives of this study were, first, to develop a test to identify the capacity of veterinarians to make ethical decisions in relation to animal ethics issues and, second, to assess students' perceptions of the usefulness of three methods for the development of ethical decision making. The Veterinary Defining Issues Test (VetDIT) was piloted with 88 first-year veterinary students at an Australian university. The veterinary students were at a variety of reasoning stages in their use of the Personal Interest (PI), Maintaining Norms (MN), and Universal Principles (UP) reasoning methods in relation to both human ethics and animal ethics issues and operated at a higher level of reasoning for animal than human ethics. Thirty-eight students assessed three methods for developing ethical decision-making skills and identified these as being helpful in clarifying their positions, clarifying others' positions, increasing awareness of the complexity of making ethical decisions, using ethical frameworks and principles, and improving moral reasoning skills, with two methods identified as most helpful. These methods and the VetDIT have the potential to be used as tools for development and assessment of moral judgment in veterinary education to address animal ethics issues.

Key words: moral judgment, veterinary ethics, animal ethics, Defining Issues Test, veterinary education

INTRODUCTION

Animal ethics education refers to the scientific study and development of morality regarding humans' treatment of animals. Just as students can be taught scientific principles and methods of inquiry, universal moral principles and methods or frameworks can be taught to develop moral judgment.[1] However, little has been done to assess strategies for applying these principles and methods or to measure the basis for veterinary students' moral judgments, which would enable development to be reliably assessed, and no measurement has been made in relation to animal ethics issues.

Inconsistencies in veterinarians' moral judgment and behavior may result in animals being treated differently, according to how the veterinarians view the client or whether they take into account economic, social, and legal issues surrounding treatment.[2] Veterinarians conceptualize animal patients and human clients in different ways and often do not consult ethical theory but frame moral questions to be amenable to empirical resolution, that is, a "tractable" morality.[3] "Organizational support for moral distancing such as rationalization and redirecting blame" enables veterinarians to carry out morally con-

tentious procedures such as the declawing of cats in the US and "to define themselves as working for the best interest of feline health while paradoxically supporting a practice that they define as morally ambiguous and 'painful.'"[4(p.333)] Variation in veterinary students' attitudes toward animals, based on whether they are viewed as pets, pests, or for profit,[5] and variation of veterinary attitudes toward animals across cultures and gender[6] also suggests a need for moral judgment development and methods to determine the moral validity of such variations.

Three studies in the 1990s measured the development of moral judgment in veterinary students, only one of which showed an increase during their course.[7,8] An intervention study with a 15-hour ethics course slightly increased female scores but decreased male scores.[9] Although profession-specific adaptations of moral judgment tests have been developed for other professions (e.g., journalism,[10] teaching,[11] and dentistry[12]), there has been no quantification of moral judgment in relation to animal ethics issues faced by veterinarians. This study, therefore, first pilots a new veterinary-specific measure of moral judgment (Veterinary Defining Issues Test [VetDIT]) in relation to animal ethics issues and second uses the Ethical

Decision-Making Survey (EDMS) to identify students' perceptions of the effectiveness of three methods to enhance moral judgment.

MATERIALS AND METHODS

Participants

A total of 98 first-year veterinary students at the University of Queensland, Australia, (80% of the cohort) completed the VetDIT in 2012, with 88 students (72% of the cohort) retained after standardized reliability checks (based on inconsistencies between items rated and ranked, missing data, selection of meaningless items, and indiscriminate answers).[13] Of these students, 38 (31% of the cohort) completed the EDMS, with three incomplete returns discarded.

Procedures

Approval was obtained from the University of Queensland Ethical Review Committee. Students completed the VetDIT in one 50-minute session midway through their second semester and before their first lecture on ethics, ethical frameworks, and their application to animal use. Most students (84) accessed the test online using the university's Blackboard software on their laptop computers; some (14) used paper copies. Students unable to attend the lecture and two students requesting more time were encouraged to complete the survey later online. In a two-hour session one week later, three methods to enhance students' ethical decision-making processes were used in the following order: Human Continuum,[14] Mepham's Ethical Matrix,[15] and Preston's Ethic of Response Decision-Making Model.[16] The Human Continuum required students to physically position themselves on a line based on their level of agreement with an issue statement, listen to alternative positions, and reconsider their position. Mepham's Ethical Matrix involved ethical analysis of a particular action based on the ethical principles of well-being, autonomy, and fairness. Preston's Ethic of Response involved group activities synthesizing the main ethical frameworks (utilitarian, deontological, and virtue ethics) to find the most fitting response to an ethical issue. A survey gathered feedback on the usefulness of these techniques. For confidentiality and to enable correlations between questionnaires, students had a unique ID.

Materials

Veterinary Moral Judgment Test

James Rest's Defining Issues Test (DIT) has been used extensively to assess moral judgment in a range of educational and professional contexts.[17] Based on Kohlberg's six hierarchical stages of moral reasoning, it uses three schemas as strategies for moral judgment:

- Schema 1: Personal Interest (PI)—recognizing authority and reciprocal relationships that result in reward or punishment
- Schema 2: Maintaining Norms (MN)—abiding by existing expectations of rules and regulations set by

governments or professional groups with uniform categorical application society-wide, even though the laws may not benefit all participants in an equitable way

- Schema 3: Postconventional (here defined as Universal Principles [UP])—emphasizing the primacy of all moral ideals that are constructive, sharable, and not self-serving at the expense of others (i.e., must be fully reciprocal by benefiting all participants in an equitable way)—a broader, less partisan approach than Kohlberg's justice orientation[18]

Development occurs through adoption of higher-level schemas.[18]

We adapted the DIT to include six moral dilemma scenarios—three of the five human scenarios from the latest version of the test, DIT-2,[19] and three animal scenarios developed by the research team (see Appendix 1). This method of organization enabled comparisons between the moral judgments on human ethics issues and veterinary ethics issues and between first-year veterinary students and first-year university students in other fields who had taken DIT tests. The human ethics scenarios involved stealing during a famine, reporting previous criminal history of a government candidate, and cancelling a school meeting due to violence in previous meetings. The animal scenarios were based on moral dilemma cases commonly experienced by veterinarians[20]: a request to euthanize a healthy dog, the reporting of substandard pig husbandry, and the breeding of physiologically defective animals for intensive agriculture.

For each scenario, students were asked to rate, on a scale of 1 (*great importance*) to 5 (*no importance*), 12 questions that might be considered in making a decision about what to do. Standard DIT-2 questions were used for the human scenarios, and new questions were created for the animal scenarios. Each question reflected one of the moral judgment schemas, that is, PI, MN, or UP. For example, for the "request to euthanize" scenario, three of the questions were

1. Should the vet risk losing a client by refusing to euthanize the dog? (PI)
2. Since it is the owner's legal right to euthanize the dog, should the veterinarian do what the owner wants? (MN)
3. Does the dog have a right to life even though his owner legally has the right to euthanize? (UP)

Students rated the importance of each question and then ranked the four most important. Using these four, the ranking scores for each schema were totaled for each animal and human scenario and converted to percentages to account for any differences in numbers of items for the three levels.[19]

For validity testing, the responses to the human scenarios were processed by the Center for the Study of Ethical Development (CSED), University of Alabama, which has computerized formulae and a large bank of responses for assessing international comparability.[13,18,21,22] The three animal-scenario scores were processed by one of

Table 1: Comparison of 77 UQ veterinary students' mean moral reasoning scores for PI, MN, and UP reasoning methods in animal and human ethics scenarios with the scores of 2,096 US freshmen for human scenarios *,[23](p.35)

| | UQ veterinary students | | | | US freshmen | |
| | Animal ethics | | Human ethics | | Human ethics | |
	Mean	SD	Mean	SD	Mean	SD
PI	9.3	8.46	30.6	15.88	28.5	12.32
MN	28.6	13.34	31.3	14.37	33.6	12.96
UP	63.4	15.04	33.3	14.50	32.3	13.92

UQ = University of Queensland; PI = Personal Interest; MN = Maintaining Norms; UP = Universal Principles; CSED = Center for the Study of Ethical Development
* To match CSED criteria, students who reported that English was not their primary language were excluded.

the authors (JMV) and compared with the students' human scores and norms from a large sample of combined studies.[23]

Ethical Decision-Making Survey

Thirty-eight students evaluated (using a scale from 1 to 5, where 1 = *strongly agree* and 5 = *strongly disagree*) whether three techniques for ethical decision making (Human Continuum, Mepham's Ethical Matrix, and Preston's Ethic of Response Decision-Making Model) helped them to clarify and modify their own and other's positions, increase awareness of the complexity of making ethical decisions, use ethical frameworks and principles, and improve their moral reasoning skills. They also ranked the techniques on their usefulness, explained their rankings, and indicated their level of agreement on statements relating to course timing and group size.

Demographics

Basic demographic information was gathered for the students, including gender, age, previous university degrees and which specific degrees were completed, and whether English was their primary language. Experience (from 1 to 5, where 1 = *very great extent* and 5 = *never*) with companion animals, farm animals, and horses was determined to identify its possible impact on moral judgment in relation to animal ethics issues.

Statistical Analysis

Variables were tested for normal distribution using the Anderson-Darling test.[24] Pearson's correlations and regression equations were determined between the different stages of reasoning (PI, MN, and UP) using both the six individual scenarios and the separate combined scores for the three animal ethics scenarios and three human ethics scenarios. In relation to the latter test, for PI the residuals were not normally distributed and a Spearman rank correlation was used instead. The effect of demographic variables on moral judgment was tested by ordinal logistic regression with the logit function because most residuals were not normally distributed and ANOVA was therefore inappropriate. Effectiveness of the ethical decision-making techniques was tested by constructing a cumulative link mixed-effects model, with the logit link

function and with the student as a random effect. Two models were fitted, one which did allow for differences among tests and one which did not. These were compared using a likelihood ratio Chi-square test (using the ANOVA function), thus giving the significance of the test effect. The models were fitted using the "clmm" function in the ordinal package[a] for the statistical program R.[25]

RESULTS

Demographics

Students' age range was 17 to 46 years old, with most (61%) being between 17 and 20, 26% between 21 and 25, and 12% over 25. Most ($n = 59$, 67%) were females; 19 (22%) had a previous degree; and 11 (13%) indicated that English was not their primary language. The majority had more experience with companion than farm animals, with experience with horses in the middle: 57%, 2%, and 17% indicated a *very great extent* of experience; 18%, 11%, and 9% indicated a *great extent* of experience; 17%, 30%, and 17% indicated *some extent* of experience; and 8%, 55%, and 57% indicated *minimal* or *no* experience with companion animals, farm animals, and horses, respectively.

Veterinary Defining Issues Test

The mean moral reasoning scores for human scenarios were similar for veterinary students and US freshmen across a range of disciplines[23] (Table 1). The proportion of veterinary students answering in the three schemas for the human ethics scenarios was classified by the CSED as follows: PI consolidated ($n = 2$, 2%); PI transitional to MN ($n = 24$, 27%); MN transitional from PI ($n = 9$, 10%); MN consolidated ($n = 10$, 11%); MN transitional to UP ($n = 7$, 8%); UP transitional from MN ($n = 24$, 27%); and UP consolidated ($n = 12$, 14%). For the animal ethics scenarios, the veterinary students showed greatest UP reasoning, then MN, and finally PI (Table 1).

There were correlations within and between the animal- and human-scenario scores. The moral reasoning scores for the chicken breeding scenario correlated with those for the animal euthanasia and school meeting

Table 2: Number and percentage of students in agreement with (strongly agreed or agreed), unsure of, or in disagreement with (disagreed or strongly disagreed) the effects of ethical decision-making strategies and models

Objectives	Human Continuum			Mepham's Ethical Matrix			Preston's Ethic of Response model			
	Agree n(%)	Unsure n(%)	Disagree n(%)	Agree n(%)	Unsure n(%)	Disagree n(%)	Agree n(%)	Unsure n(%)	Disagree n(%)	p value*
Clarify my position	30(86)	4(11)	1(3)	21(60)	8(23)	6(17)	25(71)	8(23)	2(6)	.010
Modify my position	18(53)	5(15)	11(32)	12(35)	11(32)	11(32)	15(44)	12(35)	7(21)	.300
Clarify others' positions and ethical reasoning	32(91)	3(9)	0	21(60)	8(23)	6(17)	25(71)	7(20)	3(9)	.001
Be more aware of the complexity of making ethical decisions	31(87)	2(6)	2(6)	30(86)	4(11)	1(3)	29(83)	5(14)	1(3)	.140
Use ethical frameworks and principles	23(68)	9(26)	2(6)	26(76)	6(18)	2(6)	24(69)	8(23)	3(7)	.830
Improve my moral reasoning skills	22(63)	8(23)	5(14)	21(60)	7(20)	7(20)	22(65)	8(23)	4(12)	.730

* Difference between the three models, determined by a cumulative link mixed-effects model

scenarios for PI (correlation coefficient [CC] 0.23, $p = .032$ for both) and for UP (CC 0.40, $p < .001$ and CC 0.21, $p = .051$, respectively). The moral reasoning scores for the chicken breeding scenario also correlated with those for animal euthanasia for MN (CC 0.24, $p = .025$). The scores for the pig husbandry scenario correlated with the euthanasia scenario for MN (CC 0.23, $p = .031$) and for UP (CC 0.29, $p = .007$). In the human ethics scenarios, the scores for the famine and school meeting scenarios correlated for PI (CC 0.31, $p = .003$), MN (CC 0.21, $p = .044$), and UP (CC 0.25, $p = .019$), and the reporting scenario scores correlated with the famine scenario for PI (CC 0.21, $p = .037$).

For PI scores, the combined three animal ethics scenarios were not related to the combined three human scenarios (Spearman rank correlation, $p = .145$).

For MN scores, they were related:

$$MN_{animal} = 20.8(+3.18, p < .001)$$
$$+ 0.22(+0.09, p = .017)MN_{human}; \ r^2 = 6.8\%$$

The positive intercept demonstrates that the animal scenarios attracted a higher baseline MN score, but as veterinary students increased their MN score for human scenarios, their scores for animal ethics scenarios increased proportionately less.

A similar correlation was found for UP scores:

$$UP_{animal} = 53.4(\pm4.34, p < .001)$$
$$+ 0.27(\pm0.121, p = .029)UP_{human}; \ r^2 = 4.6\%$$

Correlations Between Demographic Characteristics and Moral Judgment Scores

For animal issues, PI scores tended to be higher for students with companion-animal experience (*OR* 0.63; $p = .057$) and those without previous degrees (*OR* 3.47; $p = .060$). Male students had higher PI scores for human scenarios than female students (*OR* 2.94; $p = .040$). There

were no relationships between demographics and MN and UP scores.

Ethical Decision-Making Survey

Most students agreed that all three methods for developing ethical decision-making skills (Human Continuum, Mepham's Ethical Matrix, and Preston's Ethic of Response Decision-Making Model) were helpful for clarifying their own or others' positions, increasing awareness of the complexity of making ethical decisions, using ethical frameworks and principles, and improving moral reasoning skills (Table 2). There was more uncertainty and disagreement regarding whether these strategies helped them modify their positions. The Human Continuum was most preferred for clarifying students' own and others' positions, Preston's Ethic of Response model was the next preferred, and Mepham's Ethical Matrix was the least preferred. For usefulness in developing knowledge and skills for ethical decision making, preferences were, firstly, Human Continuum ($n = 17$, 50%); secondly, Preston's Ethic of Response ($n = 13$, 38%); and, lastly, Mepham's Ethical Matrix ($n = 4$, 12%) (Chi-square 11.6, $p = .030$). Twenty-six students provided explanations for these rankings. The Human Continuum was valued because it provided information on other students' preferences and was simple and physical. Preston's Ethic of Response model was considered easier to understand than Mepham's Ethical Matrix and provided a more detailed ethical evaluation.

Eighty-six percent of the students (30) strongly agreed/agreed that it was helpful to develop ethical decision-making skills in the first-year veterinary course, 11% (4) were unsure, and 3% (1) disagreed. Fifty-four percent of the students (19) agreed that it would be helpful to have small group sessions for practicing ethical decision-making skills, 37% (13) were unsure, and 8.5% (3) disagreed. Fifty-four percent (19) agreed that it would be helpful to have more sessions addressing animal ethics, 43% (15) were unsure, and 3% (1) disagreed.

DISCUSSION

It is important to identify veterinary students' levels of ethical reasoning to design appropriate teaching to support their moral development[26] and give students insight into how their moral judgment skills compare with those of their peers and experts.[27] For human ethics issues, students had similar levels of reasoning to other freshmen, with most at PI or MN reasoning levels on a well-established test, suggesting possible opportunities for progressing to higher stages of principled reasoning. In addition, educators need to be aware that progress may not be linear because students in transition from one stage to the next are likely to experience more confusion, resulting in less optimal moral actions, justifications, and choices.[28]

The positive correlation between both UP and MN scores for the combined human and animal scenarios suggests some validity of the new VetDIT for the assessment of moral judgment on animal ethics issues in veterinary students. Higher mean UP scores for the combined animal scenarios, compared to the combined human scenarios, suggest that veterinary freshmen had higher levels of moral judgment in animal ethics dilemmas than human ethics dilemmas. Potential reasons for this finding include the possibility that more of the animal issues presented greater potential suffering than the human scenarios or that the majority of veterinary students entered the course with a desire to help animals, regardless of the impact on their personal interests. The animal issues may also have been more obviously stated than the original human issues. Also, in the UP schema, James Rest accepted the inclusion of different ethical frameworks beyond justice orientation (which was Kohlberg's original focus)[18,29]; therefore, we chose to cover a wide range of philosophical frameworks, including deontological rights, utilitarian, communitarian, and virtue-ethic and care-ethic perspectives, which may have appealed to different students. An extra UP option in two of the veterinary animal ethics scenarios, while not influencing the ratings of each option, may have increased the chance of UP items being ranked in the top four. However, the correlation and similarity of MN scores between human and ethics scenarios suggests that the new animal scenarios and issues were comparable to those in the original DIT-2. Veterinary students who prioritized maintaining existing laws and policies did so for both human and animal issues.

Male students had significantly higher PI scores on the human ethics scenarios than female students, suggesting that males were operating at lower levels of moral reasoning in human ethics dilemmas, though not in animal ethics dilemmas. Males' higher PI scores for human dilemmas in this study were expected, as females have consistently obtained slightly higher UP scores at every educational level.[30] A trend for students with more tertiary education to have lower PI scores on animal scenarios in this study supports previous research on the positive influence of higher education on moral reasoning development.[17]

Students found ethical decision-making techniques helpful for clarification but not so much for modification of their positions, which they may have been reluctant to do, unless given more time and exposure to alternatives.

Ethics teaching interventions of 4–12 weeks have been found to be most effective for moral reasoning development,[31] with students interacting on moral problems and practicing skills as moral agents.[32] Student exposure to faculty applying these moral decision-making strategies to ethical issues throughout the veterinary course has been shown to be beneficial.[33] Students' preference for the Human Continuum strategy, which physically identifies one's position in relation to others, and for Preston's Ethic of Response, seen as providing more in-depth ethical analysis, suggests that a combination of these two techniques may provide optimal learning opportunities.

Practical Implications

Veterinary students need to develop moral reasoning skills if they are to avoid moral distress when faced with animal ethics dilemmas. The proposed tool to measure moral reasoning could be used to assess students' development over the course of a veterinary program and identify those in need of additional help. It could also be used as a teaching tool to enable students to recognize and reflect on their moral reasoning. It could provide a means of identifying the success of programs to teach ethical decision making. Identifying the effectiveness of specific teaching methods could be helpful in developing standards and consistency in veterinary ethics education.

Limitations

This study used a relatively small cohort of students and has yet to be rigorously validated with other cohorts and compared between students of different years and courses. Other validated scenario combinations would be useful for comparing students' progress following teaching programs and over time. Methods for developing ethical decision making have only been assessed through student attitudes and in a large group lecture setting, and further validation of the effectiveness of these strategies in different cohorts and settings is needed.

Future Research

Further research is being undertaken to validate the test to determine whether the methods used to develop ethical decision making will show a change in pre- and post-VetDIT scores and whether higher scores on the VetDIT animal ethics issues than on the DIT-2 human ethics issues are unique to veterinarians, characteristic of other professionals, or due to the test design itself. Veterinary education researchers could investigate the consistency of reasoning across different scenarios and further develop and validate the test and strategies for veterinarians in different workplace situations. Investigating whether these methods and VetDIT scores relate to the use of moral reasoning and moral behavior in actual animal ethics issues encountered in professional practice is also important.

CONCLUSION

Our trial of the VetDIT in this study identified several levels of moral reasoning in first-year veterinarians, specifically PI, MN, and UP. Although scores on human issues were similar to those of first-year students in a range

of disciplines in US universities, veterinary students demonstrated more principled reasoning on animal ethics issues than on human issues. Strong support was shown by students for learning techniques to help with ethical reasoning, particularly the Human Continuum and, to a lesser extent, Preston's Ethic of Response, for more comprehensive ethical analysis. Overall results suggest that the VetDIT provides a tool for assessment of moral reasoning ability for animal ethics issues in veterinary education and, combined with effective ethical reasoning techniques, may facilitate development of profession-specific moral reasoning capabilities in veterinarians.

ACKNOWLEDGMENTS

CONFLICT OF INTEREST

No organization played any role in the development of this study design, analysis, or interpretation of data or in the decision to submit this article for publication. None of the authors have any financial or personal relationships that could inappropriately influence the content of this paper.

NOTE

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APPENDIX I

VET SCENARIO 1: REQUEST TO EUTHANIZE A HEALTHY ANIMAL

A woman brings her lively 5-year-old kelpie/cattle cross dog in to see a veterinarian, Dr. Benjamin, for euthanasia. She says she is moving into an apartment with her boyfriend who does not like the dog, and pets are not allowed in the apartment building. Besides this, the dog is too active for her and barks all the time. The vet asks if she has tried to put the dog up for adoption, but she replies that the local pound already has too many working dogs and they would probably euthanize it anyway. She simply wants the dog humanely destroyed, and if the vet does not euthanize it, her boyfriend will shoot it. Dr. Benjamin wonders what to do.

VET SCENARIO 2: PIG HUSBANDRY

Dr. Jones, a veterinarian, examines a sick pig at a large-scale piggery that she visits once or twice per year. It is emaciated, has diarrhea, and is pregnant. There are approximately 20 other pigs the vet can see are in a state of ill-health. The owner says he is having a tough time in the current economic climate. He wants the vet to only treat the one pig. The quality of animal husbandry on the farm seems to have deteriorated over the years, despite the vet offering suggestions. Dr. Jones wonders whether she should report the owner to the RSPCA (Royal Society for the Prevention of Cruelty to Animals) Inspector.

VET SCENARIO 3: BREEDING MODIFICATION IN CONFINEMENT AGRICULTURE

Modern egg production systems have many animal-welfare problems. Often the laying hens live in cages, with limited possibility to walk. Alternatively, they are kept in large groups where there is a better opportunity for exercise, but this results in feather pecking, which in turn leads to damage to plumage and ultimately flesh wounds. These wounds encourage additional pecking from other hens, and in the worst cases there is a real risk of cannibalism.

Several attempts have been made to alter production systems to reduce these negative effects, but they have been largely unsuccessful. A common containment measure is to remove the tips of the beaks of 1-day-old chickens. Another approach involves breeding blind hens. According to a Canadian study (Ali & Cheng, 1985), congenitally blind chickens do not face the same problems of feather pecking, cannibalism, and other associated problems as do sighted ones. Purely from an animal-welfare perspective, the breeding and use of these hens appears to be quite unproblematic. Studies also show that the blind hens have no problem finding feed and water, have a lower feed intake, a body weight similar to laying hens with unimpaired vision, and produce more eggs per day. A veterinarian, Dr. Vivardi, is asked to provide professional advice regarding whether a proposed plan to breed chickens so that they are congenitally blind should proceed.