

ARTICLE

Attitudes Toward Animal Research: Revisiting Gallup and Beckstead (1988)

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Gallup and Beckstead's (1988) commentary in the *American Psychologist* reported an assessment of college student's attitudes toward animal research. Among many findings, one main conclusion reached by the authors was that the participants in their study were generally concerned about the welfare of animals used in research, but that they also appreciated and valued the need for animal experimentation. Given the declining support for animal research from the general population over the past few decades, the present study administered the same questionnaire to a contemporary sample of university students to determine whether any patterns would emerge in a current sample's responses to these items. While the

results suggest that respondents still demonstrate significant concern for animal welfare, importantly, the present sample of participants showed significantly less agreement with items that stressed the importance and value of conducting animal research. Educating college students about the importance of animal research and its valuable contributions to science as an enduring component of instructional practice in neuroscience and other courses may be an important step toward reversing these trends.

Key words: animal research; attitudes; Gallup and Beckstead

There is little doubt that some individuals hold strong attitudes toward the ethics, value, and appropriateness of using animals in biomedical and behavioral research. Whether someone is in favor of the use of animals in research or against their use in this capacity, intense and emotional debate often centers on this issue. Herzog (1988) posited that applying moral judgments to such situations does not necessarily produce logical arguments, as he pointed out in a commentary on "good mice" and "bad mice." Regardless of whether moral judgments are logical or not, however, a voluminous number of studies have examined the underpinnings of individuals' beliefs toward the use of animals in a variety of contexts.

One might suspect that individuals engaged in animal research (i.e., scientists) would hold different views on the value of these activities compared to non-scientists. Knight, Vrij, Bard, and Brandon (2009) measured the attitudes of scientists, animal welfare activists, and laypersons on a variety of measures. As expected, data indicated that animal rights activists were opposed to the use of animals across all contexts measured: medical research, dissection, personal decoration, and entertainment. While the scientists were significantly more supportive than animal rights activists on the use of animals in these activities, their support was not generalized. That is, further analyses indicated that the scientists supported the use of animals for medical research, whereas they were neutral toward the use of animals for dissection, personal decoration, and entertainment.

Data from other studies suggest that favoring or opposing animal research may be mediated by a variety of situational and dispositional variables, and that, for some individuals, attitudes toward animal research are, in part, related to these factors. Henry and Pulcino (2009) reported that participants' attitudes toward animal research

were, in part, determined by the type of animal used as well as the 'seriousness' of the disease studied. Similarly, Hagelin, Johansson, Hau, and Carlsson (2002) found that participants with animal research experience (they had learned about animal research in their university classes) found laboratory animal use to be more acceptable as compared to students who did not have this knowledge, and that participants who owned pets were more opposed to animal research than those who did not. Knight and Barnett (2008) conducted qualitative interviews and reported that three key themes emerged from their analysis, including 'type of animal used,' 'purpose of animal use,' and 'knowledge of animal use.' Similarly, Gallup and Beckstead (1988) reported that animal research attitudes were, in part, associated with gender and area of study in their sample of college students. Overall, they reported that the participants in their sample were concerned about the welfare of animals, but at the same time, were generally supportive of the use of animals in research. Collectively, these results indicate that an individual's attitudes toward the use of animals in research are complex, and are unlikely to be explained by a single factor. Regardless of the reasons why an individual holds particular attitudes toward animal research, it is clear that many individuals hold strong beliefs toward these practices.

A concerning trend for those who engage in animal research is the declining public support for such activities. A number of polls have indicated that, over time, the general public has shown less support for conducting animal research. Wilke and Saad (2013) recently presented data from Gallup's *Values and Beliefs poll*, which is conducted annually each May. These data indicate that the attitudes of older Americans (older than 35) regarding the moral acceptability of medical testing on animals has remained stable since 2001. However,

younger Americans (aged 18-34) have shown a significant decrease in their approval of animal research over that same time period. While the *Values and Beliefs poll* data demonstrate a sharp decline in support among younger Americans, this poll, and others like it, do not typically delve into reasons why these attitudes are changing, and a number of factors could be contributing to this result. For example, younger Americans may be showing less support for medical testing on animals because of a greater concern for the welfare of animals, because they see less value in the scientific knowledge gained from animal research, or because of some other reason(s). If animal researchers are to slow (or reverse) the trend of declining support for animal research, it is important to determine the underpinnings of these changing attitudes among younger individuals.

Thus, the purpose of the present study was to re-administer the Gallup and Beckstead (1988) survey to a sample of undergraduate students to determine how attitudes toward animal research have changed over the past quarter of a century. This instrument not only assesses respondent's attitudes toward their concern for the welfare of animals used in research, but also measures their attitudes toward the value of information gained through animal research procedures. If data are consistent with other indicators, the current sample should demonstrate less support for animal research. However, an assessment of individual items on the questionnaire should allow one to determine if their declining support is due to a greater concern for animals and/or less perceived value from the use of animals in research.

MATERIALS AND METHODS

Questionnaire items were taken from Gallup and Beckstead (1988), which measured participant attitudes toward animal research. The questionnaire (see Table 1 for the 14 item survey) asked participants to respond to the items on a 5-point scale with 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. Questions measured participant attitudes toward the value of animal research, their attitudes toward the availability of alternatives to animal research, and their own personal choices (e.g., becoming vegetarian) as they related to animal welfare.

All participants were enrolled in General Psychology courses and completed the online questionnaire outside of class time via the web browser of their choice. Prior to beginning the survey, each participant was provided with an informed consent document, and they were required to click on the "I agree" button in order to proceed to the questionnaire. Participants first answered demographic questions, which were then followed by the 14 items from the Gallup and Beckstead (1988) questionnaire. These materials and procedures were approved by the institutional Human Subject Review Board prior to the beginning of data collection, and this study was conducted in compliance with the American Psychological Association's standards for ethics in research.

The sample completing the survey consisted of 262 undergraduate students enrolled at Ashland University who

participated in exchange for course credit in their General Psychology class. One hundred eighty three of the participants were female, 79 were male, and the mean age of participants in this sample was 18.92 ± 2.49 years.

RESULTS AND DISCUSSION

Analysis of the demographic questions revealed that the vast majority of respondents were underclassmen (75% freshmen, 15% sophomores, 7% juniors, and 3% seniors). Participants in the sample came from a wide variety of academic areas of study, with 17% identifying themselves as business majors, 10% as social science majors, 9% as natural science majors, 5% as humanities majors, and 4% as education majors. Additionally, 8% identified themselves as undecided in their major, while 47% of the sample identified 'other' as their college major. When asked if they owned a pet, 85% of the participants responded 'yes,' while 8% identified themselves as a member of an animal welfare organization (e.g., People for the Ethical Treatment of Animals [PETA], the Animal Liberation Front [ALF], or a local campus animal welfare group, Peers for Animal Welfare [PAWS]). When asked about dietary preferences, 3% of the participants identified themselves as vegetarian, a level consistent with that found in other samples of college students (Kim et al., 1997).

Data from the Gallup and Beckstead (1988) sample were originally published as frequency of responses, which were converted to a mean score for each of the 14 items for subsequent analyses. Analyses between the samples were calculated by comparing mean scores from the current sample to these converted means with one-sample t-tests, with the Gallup and Beckstead means serving as the test values for each comparison. As 14 t-tests were computed (one for each questionnaire item), a Bonferroni correction was implemented to control for family-wise error rate, thus resulting in $\alpha = .0035$ that was used for each comparison. The mean scores for the current sample and the Gallup and Beckstead sample are presented in Table 1.

Higher values on the items are indicative of attitudes in agreement with each statement, and lower values indicate attitudes that are in disagreement with the items on the questionnaire. Overall, the current sample of participants scored significantly differently than the Gallup and Beckstead sample on twelve of the fourteen questions (all except items 2 and 13), with the majority of these differences reflecting more concern for animals and less perceived value in animal research (see Table 1). Participants in the current sample scored significantly higher (i.e., in more agreement) on items 1, 8, 11, and 14 which were items stated to minimize the value of animal research. For example, item 1 was "research on animals has little or no bearing on problems confronting people," while item 11 was "most psychological research done on animals is unnecessary and invalid." On items where the current sample demonstrated significantly more disagreement compared to the Gallup and Beckstead data, these trends also suggest less support for animal research. The current sample scored significantly lower on items 5

	G&B	2013
Q1. Research on animals has little or no bearing on problems confronting people.	2.05	2.90*
Q2. An intrinsic interest in the animal for its own sake is ample justification for doing animal research.	3.01	2.98
Q3. I am very concerned about pain and suffering in animals.	4.02	3.22*
Q4. I would rather see humans die or suffer from disease than to see animals used in research.	1.68	2.74*
Q5. Since many important questions cannot be answered by doing experiments on people, we are left with no alternative but to do animal research.	3.57	2.98*
Q6. I have seriously considered becoming a vegetarian in an effort to save animal lives.	1.99	2.79*
Q7. New surgical procedures and experimental drugs should be tested on animals before they are used on people.	3.78	2.98*
Q8. There are plenty of viable alternatives to the use of animals in biomedical and behavioral research.	2.95	3.23*
Q9. Many important biomedical breakthroughs are a consequence of animal research.	3.90	3.20*
Q10. Animals should be granted the same rights as humans.	2.63	2.93*
Q11. Most psychological research done on animals is unnecessary and invalid.	2.57	2.96*
Q12. We need more regulations governing the use of animal research.	3.70	3.20*
Q13. Most laboratory animals are better housed, fed, cared for, and protected from pain and suffering than many humans.	2.81	2.94
Q14. Animal research cannot be justified and should be stopped.	2.12	2.92*

**significant difference at $\alpha = .0035$*

Table 1. The Gallup and Beckstead (1988) data (G&B) compared to the current sample (2013). High scores indicate agreement with the statement, while low scores indicate disagreement with the statement.

and 9, which were stated to maximize the value of performing research on animals. For example, item 9 was “many important biomedical breakthroughs are a consequence of animal research.” Similar to the items where the current sample responded with significantly more agreement than the Gallup and Beckstead sample, these items in which significantly more disagreement with items on the questionnaire indicate attitudes that were less favorable toward the value obtained from performing animal research. The respondent’s scores on these items, when combined with their scores on items 1, 8, 11, and 14, clearly indicate that the current sample of college students perceives animal research as providing less scientific value than did the Gallup and Beckstead sample of twenty-five years ago. Perhaps the statement that should be most distressing to those individuals who engage in animal research was item 14, “animal research cannot be justified and should be stopped.” Participants showed significantly more agreement with that statement than did the Gallup and Beckstead sample.

Consistent with these results, participants’ scores also

indicated that they showed significantly more concern for the welfare of animals than did the Gallup and Beckstead sample. Data from the current sample indicates means that were significantly different from the Gallup and Beckstead sample on items 4, 6, 7, and 10. For example, participants showed significantly more agreement with item 6 which indicated whether they “have seriously considered becoming a vegetarian in an effort to save animal lives” and also more agreement with item 10 which stated that “animals should be granted the same rights as humans.” Contrary to what one might expect from this pattern of results, the current sample actually indicated significantly less agreement with item 3, which directly stated “I am very concerned about pain and suffering in animals.” The response on this item is somewhat surprising given the pattern of results obtained in this study. While these participants may not explicitly believe that they have attitudes which show concern about pain and suffering in animals, it is clear that their responses on the other items indicate their concern is significant.

Interestingly, the current sample indicated significantly

less agreement than the Gallup and Beckstead participants on item 12, "we need more regulations governing the use of animals in research." Given the overall pattern of responding from this sample, this finding may appear contradictory with the overall attitudes of greater concern and less perceived value from animal research. One plausible reason for this attitude may be because participants were unfamiliar with the quantity and quality of governmental and institutional regulation that oversees animal research procedures. Without knowledge of the regulations currently in place, it would be difficult to know whether additional regulations are necessary. While plausible, this explanation is speculative and additional data should be collected to determine the factors involved with this attitude.

Taken as a whole, comparing the present data to that obtained from Gallup and Beckstead (1988) suggest that (1) individuals in this sample have attitudes that express more concern for animal welfare (as reflected in the majority of items of the instrument), and (2) the current sample perceives less value from information gained through animal research. These trends parallel a number of recent polls that showed a pattern of responding similar to that observed in this study. Wilke and Saad (2013) reported a significant decline in support for animal testing from younger Americans, but did not investigate reasons why their support was on the decline over the past decade. While a greater concern for animal welfare may contribute to these attitudes, it is also plausible, based on the data gathered here, that younger Americans perceive less value in the knowledge achieved through animal research. A recent report from the Pew Research Center (2009) suggests that a lack of scientific knowledge may be, in part, mediating these results. The Pew report stated that the general public holds scientists in high regard, with 84% of the population stating that science has a 'mostly positive' effect on society and 70% of the public agreed that scientists 'contribute "a lot" to society's well-being.' However, while the public may have positive views of science and scientists, it may not necessarily translate into an understanding of scientific contributions to society. When asked about U.S. scientific achievements, 95% of scientists reported that achievements were 'above average' or 'the best in the world.' Comparatively, only 64% of the general public rated U.S. scientific achievements as 'above average' or 'the best in the world.' Similarly, the Pew report stated that in 1999, 47% of Americans rated scientific advances as one of the country's most important achievements in the last fifty years. By 2009, the percentage of Americans who rated scientific advancements as one of the country's greatest achievements had dropped to 27%. Thus, there appears to be a disconnect between an appreciation of science/scientists and an understanding of the knowledge gained by the pursuit of science. Coupled with the present data indicating that college students see less value in testing animals for scientific purposes, educating the public about scientific advancements may help offset the declining attitudes younger people hold regarding animal research.

It should be noted that there were differences between the college students recruited for the current study and those participants used by Gallup and Beckstead (1988) on the area of study dimension. While the two samples were similar in terms of the percentage of business, natural science, and humanities students recruited, the Gallup and Beckstead sample (52%) was comprised of a larger percentage of social science students than was the current sample (10%). While there are differences between the two data sets in the percentage of social science students sampled, analysis from Gallup and Beckstead noted that it was the humanities students, not the social science students, who were overall more sympathetic toward animal welfare and less supportive of animal research procedures. Additionally, as the data from the current sample parallels findings from other sources that document the decline in support for animal research procedures (e.g., Wilke and Saad, 2013), it is unlikely that the differences obtained in this study are reflective of differences between the Ashland University sample and the SUNY Albany sample collected by Gallup and Beckstead.

It appears that those who support the use of animals in research, such as faculty who teach undergraduate neuroscience courses, may strive to increase the quantity of pro-animal research messages in order to enlighten college students about the benefits to society gained from animal research. Hagelin, Johansson, Hau, and Carlsson (2002) reported that university students with knowledge of animal research were generally more supportive of using animals in that capacity. This finding suggests that educating undergraduate students about the benefits of animal research may help counter the trends reported here. In their commentary, Gallup and Beckstead (1988) suggested that those who support animal research need to emphasize the benefits of animal research (disease prevention, treatment, etc.) and educate the public on the many laws and regulations that have been enacted to protect animals in the animal research context. For those individuals who work with and support the use of animals in biomedical and behavioral research, it appears that this suggestion is still relevant today. Given the evidence which has documented a steady decline in support for the use of animals in research, educating neuroscience students about the values and benefits from doing research on animals may be a method of reversing this trend.

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