Survey report on public awareness concerning the use of animals in scientific research in Japan

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Abstract: We conducted a survey on 3,096 members of the public in order to find out about public awareness concerning the use of animals in scientific research in Japan and statistically analyzed the results. Regarding the necessity of experiments, research, and educational activities using animals, 55–62% respondents answered that “development of medicine and medical technology for human beings”, “development of medicine and medical technology for animals”, “practical training at medical schools”, and “practical training at schools of veterinary medicine” were necessary, while 9–12% respondents answered that they were not necessary. These results showed that the Japanese public can dispassionately accept that animal experiments are necessary. Regarding the image of animal experiments, 50–70% respondents also supported animal experiments aimed at “advances in science and medicine”, “securing of human health and safety”, and “pursuit of economic interest”. On the other hand, when faced with questions that featured emotional language, a majority (51–57% of people) felt that “animal experiments are painful and cruel acts” and that “experimental animals are to be pitied”. This survey showed that the majority of the Japanese public can accept the necessity of animal experiments, but experts and researchers involved in animal experiments should consider seriously the large number of respondents that agreed with emotive descriptions of animal research.

Key words: animal experiments, experimental animals, public awareness, scientific research, survey

Introduction

Japan has one of the highest uses of experimental animals for medical and life science research in the world. When conducting animal experiments, scientists are required not only to have scientific rigor and reproducibility in their experimental results but also to take appropriate attitudes towards animal welfare and bioethics.

A major amendment of the Japanese Animal Welfare Management Law was made in 2005. This led to the rapid introduction of mechanisms relating to the optimization of animal experiments and improvement of animal welfare at research institutions such as universities and pharmaceutical companies. Researchers using animals and experts engaged in animal experiments, including managers, animal technicians, named veterinarians, and animal caretakers, have also been making efforts to contribute to the advancement of science and technology, to carry out appropriate animal experiments, and to improve the welfare of experimental animals.

However, there is currently not a great deal of dissemination of information on the use and care of animals used in medical and scientific research from researchers.
and experts to the general public. Public concern about animal experiments is not high, but the lack of available information probably means that the public does not correctly understand animal experiments. For this reason, it is important to understand public awareness of animal experiments in considering future science and technology policies and animal welfare policies.

In Japan, no survey of public awareness on animal experiments has ever been undertaken. This is because opposition to animal experiments in Japan is not so common compared with in the West and because the ethical or religious background on the handling of animals is quite different. These facts may have influenced the relatively low interest in public awareness about animal experiments. So, with the support of scientific research funds, we conducted a survey on the awareness of the general public about the use of animals in medical and scientific research in Japan.

**Materials and Methods**

In order to design the questions, we collected opinions from people in diverse positions, such as researchers who perform scientific research using animals, experts who are responsible for management of animal facilities or maintenance of experimental animals, such as managers, named veterinarians, animal technologists, and animal caretakers; and animal protection groups critical of animal experiments. Then we considered and discussed these opinions among our research group and created originally 10 questions with 108 items. We used 8 questions with 80 items and their answers as Questions 1 to 8 in this paper to simplify explanation of the results. The first two questions examined respondents’ attributes to clarify the bias in the answer results. Firstly, in Question 1, sex, age, annual income, and educational background were examined. In Question 2, we asked about the respondent’s personal experience of being involved with animals and animal experiments. In other words, we investigated whether or not they had experience with pet breeding, animal protection activities, donating to animal protection organizations, or performing animal experiments. In addition, we also asked respondents about their experiences with serious illnesses, drug side effects, and allergies. Then we used the responses to these questions to attempt to clarify the conscious awareness and the underlying values that define responses on animal experiments by statistical analyses, due to the differences in attributes and experiences of respondents.

For questions concerning animal experiments, we prepared six questions, Questions 3 to 8. The contents of the questions and the results are shown by simple tabulation and bar charts in Figs. 1 to 6. Then we analyzed these data to see the influence of the respondents’ attributes and various experiences obtained from Questions 1 and 2 on the answers using a cross totalization analysis and factor analysis as statistical analyses. Although the detailed data are not shown in this paper, some characteristic results from the cross analysis are shown in the results as necessary.

An online survey was created by Macromill Co., Ltd., a research company. Survey subjects were recruited from the two million people registered with the company, and males and females aged 15 years and over were divided into 10-year age bands. They ultimately classified respondents into 12 cells according to age and gender, as shown in Table 1, and collected answers from 258 people in each cell. The total number of responses was 3096. The survey was conducted on May 26 and 27, 2017.

We did not collect personal information, such as name, address, telephone number, or e-mail address, from the respondents. In addition, we did not use any animals in this research. Therefore, it was not necessary for this work to be reviewed by an institutional ethical committee.

**Results**

*Educational background and experience of respondents with respect to animals (Questions 1 and 2)*

As the survey was conducted on a first-come-first-served basis and not on a random sampling basis, we confirmed whether or not the answers were extremely biased by examining the attributes of the respondents.
The educational backgrounds of the respondents are shown in Table 2, and it was found that more than two-fifths (44.6%) of the respondents had an advanced academic background at universities and graduate schools. This is twice as high as the figure of 19.9% according to the national census of 2010 [2]. It seems that registered monitors at the Internet survey company have rather advanced academic backgrounds due to use of computers.

Two-thirds of respondents had experience with pet breeding (Table 3). This may also be rather high and may be because of the particular life experiences of the respondents. In addition, more than half of the respondents had experience with a serious illness. This involved not only experience of the respondents themselves but also experience of their families and close friends. Only 1.5% of the respondents had engaged in animal experiments. We used these data for attribute analyses with the answers in Questions 3 to 8.

Respondents’ knowledge and level of information about animal experiments (Question 3)

Animal experiments are conducted for diverse purposes, and the general public’s approval or disapproval of animal experiments depends on their knowledge and the amount of information they have about the purpose. For this reason, we surveyed the knowledge and level of information respondents had about animal experiments.

In most results, excluding items 10 and 13, about 10% of the respondents answered that they had a concrete image about animal experiments, about 40 to 50 percent had heard something, and 40 to 50 percent had never thought about it before (Fig. 1). Many people answered “heard of it for the first time”, although many of the animal experiments listed here serve as the foundation for things that actually support human life. This shows how little information researchers have disseminated about animal experiments. Unless appropriate information is disseminated, the general public will be affected by the assertions of organizations against animal experiments that focus on cases of cruelty and failure.

In addition, concerning item “10. animal experiments to confirm the dangers of adverse activities in the case of litigation”, the results overwhelmingly showed that many of the general public, 70%, are not aware of this use of animals, indicating that litigation is somewhat removed from people’s everyday lives, and it may suggest that this field of animal research is the least open in terms of information disclosure.

Results concerning item “13. anatomy of animals in science and biological classes at middle school and high school” showed that more than 30% of respondents have concrete images about this item, and about 45% of respondents answered “heard of it”. Understanding and tolerance of animal experiments are influenced by the images that people have, so it seems that we should consider again how to position the study of anatomy at this junior high school or high school age, what kind of mechanism should be implemented, and what teachers and students should recognize about anatomy classes.

Differences in knowledge and level of information concerning various animal experiments were observed in several questions depending on the attributes of the respondents and their personal positions (data are not shown). Firstly, with regard to academic background, respondents with science degrees and postgraduate science degrees had greater knowledge and a higher level of information concerning each question compared with other respondents. However, there was not much difference in item “10. animal experiments to confirm the dangers of adverse activities in the case of litigation” due to differences in academic background. Also, differences were greater depending on whether the respondents had experience with animal protection activities and major diseases. In other words, respondents with relevant experiences had greater knowledge and more information that were relevant to each question.
Necessity of animal experiments for different purposes (Question 4)

Classifying the experiments in the same manner as in the preceding paragraph, we asked whether animal experimentation is necessary for each purpose. The respondents had high recognition of the necessity of animal research for the following four purposes: namely, “2. animal experiments for the development of new medicines and medical technologies for human beings”, “3. animal experiments for the development of new medicines and medical technologies for animals”, “4. animal experiments to scientifically examine the fundamental functions of living organisms”, “5. animal experiments continually rearing animals to examine behavior and psychology”. In these items, the total for the responses of “agree” and “tend to agree” was the highest among the survey items. Meanwhile, the total for the responses of “disagree” and “tend to disagree” was the lowest among the survey items. The results indicated that for animal experiments to cure injuries and illnesses, whether the purpose of the experiment is to save the lives of human beings or animals, over half of the respondents accept their necessity, and it showed that opposition was extremely small. These items were considered to best reflect the general public’s way of thinking about animal experiments.

On the other hand, items for which the clear answer “agree” was less than 10% and the sum of “disagree” and “tend to disagree” exceeded 20% were “6. animal experiments to confirm the safety of cosmetics”, “10. animal experiments to confirm the dangers of adverse activities in the case of litigation”, and “13. anatomy of animals in science and biological classes in middle school and high school”. Although the objectives, implementation methods, and related organizations for each animal experiment in these items are completely different, it seems that various factors are involved in increasing disagreement and reducing agreement, that is, raising the voice of criticism.

Regarding cosmetics, it seems that the voice of criticism is influenced by campaigns against animal experiments and cosmetic manufacturers’ abolition of animal experiments, and furthermore, there may be guilty feelings for sacrificing animals so that humans can have...
luxury goods. Regarding the use of animal experiments in lawsuits, many respondents have never imagined that this happens, and they might feel like it is unnecessary to sacrifice animals to prosecute obvious cases of cruelty and malicious criminals. However, experts in these types of lawsuits would argue that, from their perspective, such verification is essential. Although studying the anatomy of animals in middle and high school is an opportunity for students to gain expertise in natural sciences in terms of learning the characteristics of living things and the structure inside the body, there might be a question about sacrificing animals given that what one learns at school does not necessarily help society. Or it may be that being involved in “cruel” activities while an impressionable adolescent is engrained in the memory, leading to revulsion about this use of animals.

Regarding the necessity of animal experiments, differences were seen based on several questions depending on the attributes of respondents and their personal positions (data are not shown). Firstly, with respect to gender-based differences, males tended to recognize the necessity of animal experiments more than females. In particular, regarding item “6. animal experiments to confirm the safety of cosmetics”, item “10. animal experiments to confirm the dangers of adverse activities in the case of litigation”, and item “13. anatomy of animals in science and biological classes at middle school and high school”, more males than females acknowledged the necessity. In addition, respondents who had experience with a serious illness tended to recognize the necessity of animal experiments with various purposes. However, there was no difference according to experience with a serious illness in response to “6. animal experiments to confirm the safety of cosmetics”, “7. animal experiments to confirm the safety of daily living goods”, “10. animal experiments to confirm the dangers of adverse activities in the case of litigation”, and “13. anatomy of animals in science and biological classes at middle school and high school”. Views on animal experiments not directly related to the treatment of diseases were unaffected by the presence or absence of disease experience. The respondents engaged in animal experiments, 1.5% of the respondents, tended to recognize the necessity of animal experiments for all of the purposes in Question 4.
A. UCHIKOSHI, ET AL.

Tolerance of different animal species as the subject of animal experiments (Question 5)

The use of insects, fish, mice and rats, amphibians, or reptiles had a high total value for “agree” and “tend to agree” (Fig. 3). On the other hand, tolerance of the use of rabbits, guinea pigs, birds, pigs, monkeys, dogs, and cats was low and decreased in this order. In mammals, mice and rats had the highest tolerance. This is probably because new medicines and medical technology development using mice and rats have been reported in daily news.

Lower tolerance of the use of dogs, cats, and monkeys was found, especially among respondents with experience with pet breeding, who showed low acceptance and a feeling of refusal for using dogs and cats for animal experiments (data not shown). However, they tended to be tolerant or indifferent to other animals, including other mammals. Furthermore, there were few respondents who completely denied the necessity of all animal experiments, and they seemed to be saying, “I want you to do experiments with other animals, not dogs and cats, which we feel attached to”. As long as this human feeling persists, experts in animal experiments may need to develop a strategy as to how to deal with this trend.

Image of animal experiments (Question 6)

1. Experiments using insects
2. Experiment using fish
3. Experiments using frogs or lizards (amphibians or reptiles)
4. Experiments using birds
5. Experiments using mice or rats
6. Experiments using rabbits or guinea pigs
7. Experiments using dogs or cats
8. Experiment using pigs
9. Experiments using monkeys

Fig. 3. Question 5: How strongly do you agree or disagree with experiments using following animals? (%)

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Image of animal experiments (Question 6)

From Question 6 to Question 8, we investigated the image and values of the general public concerning animal experiments, and these questions were the main questions of this questionnaire considering public understanding of animal experiments.

In Question 6, evaluations frequently given by both people expert in animal experimentation and organizations against animal experimentation were listed, and the respondents were asked how much these evaluations were in agreement with their own opinions (Fig. 4). Therefore, the items contain both positive and negative images for animal experiments. Firstly, items 1 to 3 asked about positive images for animal experiments. Around 70% of the respondents answered “agree” or “tend to agree” for item “1. I think that they contribute to the progress of science and medicine”. The sum of “disagree” and “tend to disagree” was only 5%, and so many people positively appreciated that animal experiments contribute to the progress of science and medicine. Approximately 58% of respondents also affirmed item “2. I think they are essential for human health and safety”, and the negative response rate was low at 8%. Furthermore, “3. I think they are essential to expanding the possibilities for economic benefits and new product development” was also accepted by half of the respondents, and negative response rate was low at 10%.

Items 4, 5, 8, and 9 were related to animal experiments, research, and expert evaluation. Regarding the
image of “4. I think that they are professional activities and that evaluation is difficult for the general public”, 66% of respondents answered “agree” or “tend to agree”. It indicates that it is difficult for respondents to form their own evaluation of animal experiments, since they recognize that they are professional activities. Certainly, the public cannot observe what researchers are actually doing at an animal experiment site, and without certain knowledge of biology and medicine, they cannot judge whether or not research purposes or methods themselves are useful. Considerable hard work will be needed to disseminate information about animal experiments and enlighten the public so that they can be evaluated by them.

Regarding item “5. I think that they are done for researchers’ self-satisfaction, curiosity, and competitiveness”, the evaluation was fairly equally divided. That is, the sum of “agree” and “tend to agree” was about 24%, and the sum of “disagree” and “tend to disagree” was nearly 32%. It is not clear whether this is due to the lack of information dissemination by researchers and the general public having insufficient knowledge and information about scientists or whether scandals in the past are strongly recalled. Various backgrounds are conceivable. Regarding item “8. I think that experiments are not necessarily required” and item “9. I do not believe that data from animal experiments also apply to humans”, the sum of “agree” and “tend to agree” exceeded 40%, indicating that the necessity of animal experiments was not necessarily understood by the general public.

Items “6. I think that they are cruel acts that cause pain in animals” and item “7. I think that the experimental animals are to be pitied” are those which confirmed the general public’s emotional view of experimental animals. More than half of the respondents were conscious of the pain and sacrifice of experimental animals. Although answers from items 1 to 3 indicated that many people understood animal experiments, the answers for items 6 and 7 showed that emotional feelings about animals could not be erased. Emotional opinion should not be disregarded in the sense of public opinion, and experts involved in animal experiments currently also have this sense inside. Therefore, people who carry out animal experiments should consider seriously how they face these emotions.

When comparing images between males and females, males had a higher ratio for the sum of “agree” and “tend to agree” regarding item “2. I think they are essential for human health and safety” and item “3. I think they are essential for expanding the possibilities for economic
benefits and new product development”. On the other hand, regarding item “4. I think that they are professional activities and that evaluation is difficult for the general public”, item “6. I think they are cruel acts that cause pain in animals”, item “7. I think the experimental animals are to be pitied”, item “8. I think that experiments are not necessarily required”, and item “9. I do not believe that data from animal experiments also apply to humans”, the proportions of females who answered with “agree” and “tend to agree” were higher than those of males. This seemed to reflect the difference in social consciousness between males and females with respect to whether to emphasize the merits of animal experiments or to emphasize animal suffering. On the other hand, comparison based on the presence or absence of pet breeding experience showed that there was a strong tendency for those who had experienced pet breeding to answer with “agree” or “tend to agree” regarding item “4. I think that they are professional activities and that evaluation is difficult for the general public”, item “5. I think that they are done for researchers’ self-satisfaction, curiosity, and competitiveness”, item “6. I think they are cruel acts that cause pain in animals”, item “7. I think the experimental animals are to be pitied”, item “8. I think that experiments are not necessarily required”, and item “9. I do not believe that data from animal experiments also apply to humans”. In other words, people who breed pets will have a skeptical impression of the whole area of animal experimentation.

In addition, regarding comparison based on the presence or absence of experience with a serious illness, those who had experience with a serious illness affection themselves, their families, or their close friends tended to “agree” or “tend to agree” with items indicating a positive image such as “1. I think that they contribute to the progress of science and medicine”, “2. I think they are essential for human health and safety”, and “3. I think they are essential for expanding the possibilities for economic benefits and new product development”, and had significantly lower levels of agreement with items indicating a negative image such as “6. I think they are cruel acts that cause pain in animals”, “7. I think the experimental animals are to be pitied”, and “8. I think that experiments are not necessarily required”. This is because they could assess the subject with proper knowledge and information on animal experiments based on their experience with a serious illness and treatment. Honestly exchanging opinions with patients with serious illnesses and their families about animal experiments may provide valuable information for experts in animal experiments to consider the direction of research.

**Concept of animal experiment (Question 7)**

This question asked about opinions such as interests and values concerning animal experiments with a certain condition added. For example, if the question was only “whether experiment that cause pain in animals is necessary”, there would be almost no people who would agree. However, if the condition “if it is to obtain scientifically meaningful data” is added, respondents might make an alternative decision. In this way, we wanted to emphasize the values of respondents concerning animal experiments.

The first three items are basically related to the 3Rs principles involved in animal experiments (Fig. 5). Looking at the tendency of respondents, there is strong opposition to “1. to obtain scientifically meaningful data, experiments that cause pain in animals are also necessary” rather than “2. in order to obtain scientifically meaningful data, experiments using many animals are also necessary”. That is, the sum of “disagree” and “tend to disagree” for the former item was 24.4%, and that for the latter item was 16.4%. In other words, it appears that the general public is opposed to causing pain in animals, although they accept the use of many animals. On the other hand, with regard to the alternative method in item “3. animal experiments are necessary even if alternatives without experimental animals have been developed”, the sum of “disagree” and “tend to disagree” was 33.6%, and that of “agree” and “tend to agree” was 22.9%. If alternative methods are developed for animal experiments, no animal experiments would be necessary. But there are not many fields in which reliable alternative methods are being developed. Respondents may be concerned or worried about alternative methods. It will be necessary for experts to clearly and concretely disseminate information about how “alternative methods to animal experimentation” are developed and certified and how they are used.

Item “4. if the animal feels serious pain, the experiment should be terminated, and euthanasia should be performed even during data collection” is about ensuring a humane endpoint, and item “5. even if treatment costs and prices of goods are raised, experimental animals should be kept in an environment enriched through time and labor” and “6. even if it takes time to develop new
products and treatments, it should take time and labor to keep breeding with experimental animals” are about costs and expenses. These are values that affect animal welfare itself. Due to the various costs and burdens imposed based on treatments and products, half of the respondents answered with “neither/nor”. However, 40% of the respondents who answered with “agree” and “tend to agree” thought that the pain of experimental animals should be alleviated even in the course of collecting data, even if the price of the treatment or product rises and it takes time. Conversely, only 10% of the respondents answered either “disagree” or “tend to disagree”. This indicates that the general public puts a strong emphasis on the welfare of experimental animals.

Regarding item “7. it is inevitable to use living animals for practical training such as surgery in university medical schools or veterinary departments”, half of the people answered “agree” or “tend to agree” despite this being a vivid depiction. Even if anesthesia is used, severe pain of animals is conceived as a result. However, in order to support the health and medical care of humans and animals, it is essential to nurture human resources capable of surgery, and therefore, the majority of the people seem to think that sacrificing animals is inevitable. As a matter of fact, it seems like a lack of acceptance of “speciesism” theory (that it is wrong to discriminate in favor of humans over other animal species) is a perception among the general public.

Items 8 and 9 are questions about information disclosure and information dissemination for animal experiments. Regarding the necessity of information disclosure in item “8. researchers and experts in animal experiments should proactively disclose and disseminate information about animal experiments”, half of the respondents answered that it should happen. However, 40% of respondents answered “neither/nor”. As there are aspects of animal experiments related to research strategies and corporate profits, it does not seem appropriate to disclose information about absolutely anything. Furthermore, in terms of item “9. I would like to know more about animal experiment systems and their actual state”, it may take time for an individual to acquire knowledge and information and understand it, the responses were almost completely divided between “agree” and “disagree”.

We also asked about information disclosure in item 13 of Question 8, namely “13. accountability and disclosure of information regarding experiment contents”, and 59% respondents answered that it is important, indicating that information dissemination from researchers is important (Fig. 6).

With regard to these items in Question 7, comparison between males and females showed that males emphasized data and results of animal experiments, whereas females tended to emphasize elimination of animal suffering and careful handling. Also, in comparison between people with pet breeding experience and people with experience with a serious illness, the former were more sympathetic toward the removal of an animal’s pain and careful handling. It is evident in the analysis so far that people who keep pets view animal experiments more
strictly. However, it is also evident that people who breed pets are also trying to think seriously about the relationship between people and animals. This seems to be an important value of pet breeding.

Comparison based on the presence or absence of experience with a serious illness indicated that, if people have experience with a serious illness, they understand that animal experiments are essential for the development of medical technology and medicine for treatment, that many animals are sacrificed to accumulate data, and that it is necessary to use a living body for surgical training. Moreover, they seem to realize that there should be no side effects of medicine or medical malpractice trouble, to point out the necessity of information disclosure and information dissemination, and to believe that they should have knowledge about animal experiments. On the other hand, it may be that they pay attention to the pain of the animals, because they have experience with a serious illness. People who have experience with a serious illness are sympathetic to understanding humane endpoints and considering the breeding environment for experimental animals even if they will cause research to take longer and prices to increase.

Important things necessary to conduct animal experiments properly (Question 8)

What kinds of things are necessary to properly conduct animal experiments? Various factors, such as improvement of the legal system, efforts and awareness of the parties, criticism from the outside, can be considered. Excluding item “5. social movement for abolition and reduction of animal experiments”, most of the composition ratios of responses to items relating to appropriate examination of research plans, promotion of the 3Rs principles, ethics towards animals and life, faithful attitude of the parties, support for training and education, securing labor and space, information disclosure, and legal system improvement were the same (Fig. 6). Namely, in most of items about 60% of respondents answered “agree” and “tend to agree”, about 30% of respondents chose “neither/ nor”, and only a few percent of respondents chose “disagree” and “tend to disagree”. Of course, as we have seen so far, the respondents did not have much knowledge and information on animal experiments, and
their answers were not necessarily correct, but it does not seem that the respondents felt uncomfortable about any of the items. Many relationships were also observed for each item, with the correlation coefficients ranging from 0.6 to 0.7, which showed that the answers did not change significantly depending on the item.

Regarding item “5. social movements for abolition and reduction of animal experiments”, fewer respondents answered with “agree” or “tend to agree” than for other items (about 33%), and more responses answered with “disagree” and “tend to disagree” (about 16%) than for other items, indicating that such social movements are not yet understood by the majority of the public. In the past, however, it is clear that experts and researchers have been inspired by assertions by animal protection groups and animal experiment abolition groups and have tried to overcome their criticisms. Also, experts and researchers should take seriously the fact that 30% of respondents chose “agree” and “tend to agree” and that 50% of respondents answered “neither/nor”. Researchers and experts should respect the opinions criticizing themselves sometimes, learn lessons from them, and create a forum for dialogue with animal protection groups.

Regarding items considered to be important for properly conducting animal experiments, more females than males, more people with pet breeding experience than people without it, more people with experience with animal protection activities than people without it, and more people with experience with a serious illness than people without it answered “agree” and “tend to agree” to all the items. Even though their views are sometimes critical, members of the general public who are interested in animal experiments are more important to researchers and experts than members of the general public who do not care. It would appear that researchers and experts are responsible for telling members of the general public who sometimes have a negative opinion of animal experiments the reality that their healthy lives would not be possible without animal research and for building an ethically superior mechanism so that they can convince them.

**Discussion**

We conducted a survey on 3,096 members of the public to examine public awareness concerning the use of animals in scientific research in Japan. This appears to be the first time an awareness survey targeting members of the general public concerning such animal experiments has been carried out in Japan. At the design stage of the questionnaire, we listened to the opinions of researchers and experts related to animal experiments, animal protection groups, and people opposed to animal experiments and tried to maintain a neutral viewpoint that was not biased towards assertion or opposition to animal experiments.

The survey results showed that basically over half of the members of the general public supported animal experiments. On the other hand, the results also indicates that the respondents seemed to think that it is difficult to understand their contents of animal experiments, so they want the people concerned to develop laws and manage institutions properly and conduct animal experiments appropriately.

The findings of this survey will have a great impact on experts and researchers engaged in animal experiments and in legislative and administrative organizations that determine the rules of animal experiments and administer appropriate experiments. We felt that the general public’s judgments and opinions presented here are sensible and reasonable both from expectations for science and consideration to animals. However, researchers, experts, and legislative and administrative organizations face important dilemmas if they wish to make use of their opinions and values. One of them is a question which is important for animal experiment experts, members of the general public who are interested in animal experiments even if they are critical at times, and members of the general public who are tolerant but not interested in animal experiments. In the fields of medicine and biotechnology, due to the high level of expertise, we may have been able so far to only have discussions among experts when establishing the directions of institutional reform and institutional operation. In modern society, however, the amount of information in circulation and the speed with which it circulates are rising, and scenarios in which discussions can be completed within only the inner circle are decreasing. Therefore, researchers and experts in animal experiments should also devote themselves to consideration of criticisms of animal experiments.

A survey of public awareness concerning animal research has been conducted continuously in the UK since 1999 (Ipsos MORI), and the latest survey results were released in 2016 [1]. The survey indicates that two-thirds (65%) of the public accept the use of animals in research
so long as it is for medical research purposes and there is no alternative and that a slightly higher proportion (71%) can accept the use of animals in scientific research so long as there is no unnecessary suffering and there is no alternative. Similar results were obtained in our survey; that is, 60% of the respondents said that it is necessary to use animals for development of new medicine and medical technology for human beings. In addition, 69% of the respondents agreed that animal experiments contribute to the progress of science and medicine. Although simple comparisons could not be made because the survey method in the UK study was different from that in our survey, it may be said that approximately two-thirds of the general public in both countries accepted animal use for medical and scientific researches.

The Ipsos MORI 2016 survey regarding attitudes to the regulation of animal research in the UK also indicated that although half of the people (52%) agreed that the UK has strict rules on the use of animals in scientific research, only one-third of the people (34%) agreed that the rules in the UK on scientific research involving animals are well enforced, indicating quite a few respondents might be skeptical about the regulation system in the UK.

Meanwhile, in Japan, the Animal Welfare Management Law including the rules for animal experiments is reviewed every five years. In the past, legislative administrative organizations have not investigated public awareness about animal experiments, and this awareness has not been reflected in the review of policies and laws. However, in planning policies in administrative organizations as well as revising the law, a system that listens to the public’s opinions widely is indispensable. For this purpose, it is necessary to periodically conduct a survey on the general public’s opinions from a neutral standpoint and to capture not only the views and feelings on each occasion but also the changes in views and feelings over the years. We hope that this survey will serve as a reference for serious discussion by researchers, experts, animal protection groups, and groups critical of animal experiments so that appropriate animal experiments can be conducted. Furthermore, we sincerely hope that this survey will lead to the implementation of periodic surveys in the future and will help policy making and law revisions from time to time.

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