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Animal Protection Measures in Taiwan: Taiwanese Attitudes Toward the Animal Protection Law and Animal Shelters

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This study used a questionnaire, self-administered by 387 Taiwanese citizens, to assess Taiwanese perception and knowledge of the Animal Protection Law and perception and use of animal shelters. Most respondents (87%) knew that Taiwan has legal protection for animals. A –5 to 5 summary score measured knowledge of companion animal dog-related legal requirements. The median score was 3, indicating that almost all respondents had inadequate knowledge about these requirements. Although more dog caregivers had adequate knowledge of the law than did nondog caregivers (prevalence ratio = 1.9, 95% confidence interval: 1.1, 3.2), only 19% had adequate knowledge. Although most respondents (81%) knew Taiwan has animal shelters, only 19 (5%) reported visiting or participating in shelter activities. Only 6 (32%) of shelter visitors or users had a “good or better” impression of services received. Despite low usage of animal shelters, most respondents thought shelters should accept (87%) and relocate (90%) unwanted animals, capture strays (64%), assist in finding lost pets (79%), and educate the public about responsible ownership (85%). More than half (52%) thought shelters should perform euthanasia.

Taiwan passed its first Animal Protection Law in 1998, marking the official start of the country’s efforts toward animal protection, management of companion animal dogs, and control of stray dogs. The law provides a legal basis (Republic
of China, 1998) for the responsibilities of pet ownership (pet dog licensing, rabies vaccination, and relinquishment of unwanted animals to animal shelters), standards for the pet industry (licensing of animal breeders), and stray dog controls (animal shelter management).

In evaluations by the Taiwanese government, the measures showed several promising results. According to a government report (Council of Agriculture, 2002), 530,000 dogs were licensed between 1999 and 2002 (a national average licensing proportion of 30% and an average of 50% in urban cities). A recent survey documented 46 public animal control facilities in Taiwan in 2003 (Fei, 2003). The animal shelter statistics showed that the annual adoption and reunited (lost pets returned to the owners) rates were 0.16 and 0.04 in 2003, respectively. The statistics, however, also estimated that the annual rate for euthanasia of unwanted animals was 0.60 (Fei, 2003). In 2004, 1,534 Taiwanese citizens reported losing pets, and 880 (57.4%) of them were found (Council of Agriculture, 2001). Most of the found pets had been microchipped.

Despite these positive results reported by the government, several observations from nongovernmental animal protection groups in Taiwan (Amendment for Animal Shelter, 2002) and other countries (Humane Society of the United States/Humane Society International, 2003) indicated that inhumane treatment of impounded strays still existed in some animal shelters in Taiwan. Forty-five animal protection organizations in Taiwan, after revealing an incident of inhumane treatments of impounded strays in a public animal shelter, filed a petition (Amendment for Animal Shelter, 2002) requesting that the Taiwanese government investigate and improve the poor condition of animal shelters. Furthermore, the staff at the Humane Society of the United States/Humane Society International conducted unannounced visits to 27 animal shelters in Taiwan in 2003 and documented severe problems at some shelters that unequivocally violated the Animal Protection Law (1998). Because implementation of the law was mainly in response to international pressure, concerns about the ongoing lack of awareness of the public and enforcement of the law were raised. The differences between these observations and the government reports suggest an urgent need for scientifically based investigations on this topic.

Although animal shelters have an essential role to play in controlling dog overpopulation problems in Taiwan, a significant number of dog owners in Taiwan abandon their unwanted dogs onto the street rather than relinquish them to animal shelters. More than 50% of the respondents in Lin’s (2004) study reported that they would release unwanted dogs onto the street, whereas 35% reported that they would relinquish dogs to animal shelters; only 5% said they would have them euthanized. In another study, Hsu, Liu-Severinghaus, and Serpell (2003) showed that only 0.7% of people in Taiwan acquired their dogs from animal shelters. These findings indicate that the animal shelters were
underutilized by the public for their basic functions, such as accepting and relo-
cating unwanted nonhuman animals.

To educate the public in Taiwan about the Animal Protection Law and animal
shelters, the Taiwanese government provides several education programs—videotapes, publications, and Web sites—to the public through media, schools, and the
Internet (Council of Agriculture, 2001). Most of the government-owned animal
shelters in Taiwan are now open to the public. In addition to offering their regular
welfare programs, such as accepting unwanted animals and relocating them
through adoption, the shelters periodically sponsor special events aimed at encour-
gaging the public to use their services. However, the effectiveness of these pro-
grams has not yet been evaluated.

The objectives of this study with regard to the impacts of the Animal Protection
Law and animal shelters on dog overpopulation were the following:

1. To assess Taiwanese awareness, understanding, and compliance with the
   Animal Protection Law
2. To investigate the association between selected factors: dog ownership, de-
   mographic factors, and awareness and understanding of the law
3. To study Taiwanese perceptions and use of animal shelters and their expec-
   tations of the animal shelters’ functions.

MATERIALS AND METHOD

Study Participants

The study participants were recruited from Taiwanese citizens who accompa-
nied persons taking the 2nd Basic Competence Test for Junior High School
Students in 2004, held July 10 and July 11 in Taipei City. These included par-
ents, relatives, teachers, friends of the examination participants, and volunteers
for the examination. Twelve schools in Taipei City offered classrooms for the
examination, and 3 schools with the largest numbers of participants were cho-
sen for the study. The survey was carried out during the examination periods,
which were 90 min per section, with two and one sections for the first and sec-
ond days, respectively. Three trained interviewers approached all available
persons in the designated rest areas by their seating order (assumed to be ran-
dom) without sampling. The interviewers first identified themselves and
briefly explained the purpose of the study; a self-administered questionnaire
was distributed to each person who agreed to participate. A total of 388 people
completed the survey with an approximate participation percentage of 30%.
One individual, who was under 15 years of age, was excluded because the Ani-
mal Protection Law in Taiwan states that only persons 15 or older can have dogs without parental supervision.

Development of the Questionnaire

The self-administered questionnaire was developed to collect data. For simplicity, the questions were grouped into four categories:

1. Awareness, understanding, and compliance with the Animal Protection Law in Taiwan
2. Participation in, and perceptions and expectations of, animal shelters in Taiwan
3. History, current status, and characteristics of the ownership
4. Demographic information of the respondents.

Five multiple-choice questions on the requirements of the Animal Protection Law were asked to assess the respondents’ knowledge of the law. Because the primary goal of this study was to evaluate the impact of the Animal Protection Law on dog overpopulation, we focused on the requirements related to pet dog ownership.

The first two questions asked the respondents whether they thought pet dog licensing and rabies vaccinations are required by the law (the correct answers are yes to both questions). We also asked whether they thought that abandonment of unwanted animals is a violation of the law and whether owners are required to bring unwanted animals to animal shelters (the correct answers are yes to both questions). To distinguish respondents who answered these questions by patterns (checked all “Yes”es without knowing the answers), we included a screening question in the serial questions about the law (whether the sterilization of pet dogs is required by the law, to which the correct answer is no). A summary score (ranging from –5 to 5) was then computed from these five questions (correct answer = 1, incorrect answer = –1, and do not know = 0) to quantify the respondents’ knowledge of the law. A zero score was assigned to those who responded that they did not know the existence of the Animal Protection Law at all. The summary score was further classified into one of the two categories (adequate knowledge or inadequate knowledge) using the score ≥ 4 as having adequate knowledge about the law. Questions were also asked about the respondents’ perceptions of the effectiveness of the Animal Protection Law ranging from 1 (very bad) to 5 (very good) on pet dog management, stray dog control, and animal welfare.

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1 Both Chinese and English versions of the questionnaire are available from the Hsin-Yi Weng by request. Only the Chinese version was used in this study.
Questions regarding animal shelters concerned the respondent’s impression of the animal shelters, participation and experience with the shelters’ services received, the information sources for learning about animal shelters, and expectation of the shelters’ functions. The respondent’s impression of animal shelters was quantified on a 5-point scale ranging from 1 (very bad) to 5 (very good).

In this study, a dog owner was defined as a person who has provided food and housing (within his or her residence) for a dog for a minimum of 3 weeks in the 5 years preceding the date of the survey. Feeding a stray dog was not considered equivalent to ownership in this study. Information was collected on the characteristics of the ownership, including duration of the ownership, means of the dog acquisition, and number of dogs in the household.

If the respondents had more than one dog who met the recruitment criteria, they answered the questions about the first dog they had owned in the past 5 years. The demographic information of the respondents—age, gender, area of residence, and education level—was also obtained.

Data Analysis

Descriptive statistics were used to summarize the distributions of the investigated variables in the study sample. The significance tests included Student’s t tests to compare means, chi-square tests to assess homogeneity, and Mann–Whitney tests to compare non-normally distributed variables. This study defined statistical significance using $p = .05$. Prevalence ratios (PRs) were used to quantify the strength of the association between selected factors and awareness and knowledge of the law. Log-binomial regression (Spiegelman & Hertzmark, 2005) was used to model the PRs. We used a forward-selection procedure with a change-in-estimate method (Mickey & Greenland, 1989), using a 10% change of crude and adjusted PRs as a cutoff value to select influential confounding variables for control.

RESULTS

Study Participants and Dog Ownerships

The majority (87%) of the respondents in our study were residents of Taipei City, the capital of Taiwan. The ages of the participants were clustered in two age groups: (a) 15 to 26 (32%) and (b) 35 to 55 (68%) years. A significantly ($p = .04$) larger proportion of the dog owners (35%) were in the younger age group as opposed to the nondog owners (24%). Almost all (89%) participants at least had completed high school, and the majority (76%) were females.
In total, 92 (24%) respondents reported owning, on average, 1.6 dogs ($SD = 1.1$) in the past 5 years. The prevalence of current dog ownership was 11%. The reported median length of ownership was 4 years. The 5-year prevalence of dog ownership was significantly less ($p = .03$) for Taipei City than for other areas (22% and 36%, respectively). The most common source of dog acquisition was the dog being received as a gift, followed by purchasing the dog (see Figure 1). The majority of the dogs (58%) were males, and 50% of the owners reported that their dogs were purebred. The proportion of the dogs sterilized was 30%: 45% for females and 18% for males.

The Animal Protection Law

Almost all (87%) of the participants in this study were aware of the existence of the Animal Protection Law in Taiwan. Awareness of animal shelters was the only factor found to be significantly associated with awareness of the law ($p < .01$; see Table 1). The respondents who knew of the existence of animal shelters were more likely (PR = 1.4, 95% confidence interval: 1.2, 1.6) to know that Taiwan has an Animal Protection Law than those who did not know of the shelters’ existence.

Overall, 73% and 75% of the respondents knew that pet dog licensing and rabies vaccination are required by the law (see Table 2). Fewer dog owners than nondog owners knew about the requirements for pet dog licensing (70%) and rabies vaccination (71%). Despite the high proportion of dog owners who knew
about the requirement for pet dog licensing, a smaller proportion of these owners complied with the law and had their dogs licensed (45%). However, 74% of the dog owners reported having had their dogs vaccinated against rabies.

Although almost all (84%) of the respondents knew that dog abandonment is a violation of the law, only 52% realized that shelter relinquishment of unwanted dogs is one of the requirements in the Animal Protection Law. Only 16% of the respondents knew that the law does not require dog sterilization. The median score on knowledge about the law was 3, which indicated an inadequate understanding of these requirements. Although more dog owners than nondog owners had adequate knowledge of the pet dog related requirements in the law (see Table 3), only 19% of the dog owners were identified as having adequate knowledge. After adjusting for education level and awareness of animal shelters, women were less likely to have adequate knowledge of the law than were men (PR = 0.5, 95% confi-
Another finding was an inverse trend in understanding of the law across the education levels: The prevalence of having adequate knowledge about the requirements decreased with an increase of the education levels ($p = .01$). This trend remained significant after adjusting for age and gender of the respondents, dog ownership, and awareness of animal shelters.

Of the dog owners, 29% allowed their dogs to roam the streets, and 15% reported previously losing a pet. Only 1 of 92 dog owners reported having relinquished a dog to an animal shelter in the past 5 years, and none of them admitted ever abandoning a dog on the streets. None of the respondents reported having been penalized because of a violation of the law.

The respondents in this study expressed a strong contrast in their perceptions of the effectiveness of the law on pet dog management versus stray dog control. About two thirds (65%) of the respondents felt that the effectiveness of the law regarding pet dog management was acceptable or better; however, only about one third (32%) felt the same for stray dog control. Of the respondents, 46% felt that the law did an acceptable or better job on promoting animal welfare in general.

### Animal Shelters

Almost all (81%) participants knew that there are animal shelters in Taiwan. Public media, television and newspapers, were the most commonly reported sources (85%) for learning about animal shelters, followed by social contacts (23%). Only 19% of the respondents had ever obtained information regarding

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>Do Not Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pet dog licensinga</td>
<td>73</td>
<td>4</td>
<td>23</td>
</tr>
<tr>
<td>Rabies vaccinationb</td>
<td>75</td>
<td>2</td>
<td>23</td>
</tr>
<tr>
<td>Pet dog abandonmentc</td>
<td>83</td>
<td>1</td>
<td>16</td>
</tr>
<tr>
<td>Shelter relinquishmentd</td>
<td>52</td>
<td>10</td>
<td>39</td>
</tr>
<tr>
<td>Pet dog sterilizatione</td>
<td>53</td>
<td>16</td>
<td>31</td>
</tr>
</tbody>
</table>


*aDo you think that pet dog licensing is required by the Animal Protection Law? Yes is the correct answer to this question. bDo you think that rabies vaccination for pet dogs is required by the Animal Protection Law? Yes is the correct answer to this question. cDo you think that dog abandonment is a violation of the Animal Protection Law? Yes is the correct answer to this question. dDo you think that the Animal Protection Law requires dog owners to bring unwanted animals to an animal shelter? Yes is the correct answer to this question. eDo you think that pet dog sterilization is required by the Animal Protection Law? No is the correct answer to this question.*
animal shelters through government-related programs. Overall, 12% of the respondents reported having a good or better impression of animal shelters in Taiwan. Although most of the respondents knew that Taiwan had animal shelters, as few as 19 (5%) of them had ever visited or used services from one. The services considered in this study are listed in Table 4. Only 6 (32%) of the 19 participants who had ever visited or used the shelters’ services reported having a good or better impression about the services received. Despite low use of the animal shelters, most respondents had high expectations of the shelters’ functions. Almost all thought that animal shelters should accept (87%) and relocate unwanted animals (90%), capture strays (64%), assist in finding lost pets (79%), and educate the public about responsible ownership (85%). More than half of the respondents expected shelters to perform euthanasia (52%).

### TABLE 3
Frequency, Percentage, PRs, and 95% CIs of Having Adequate Knowledge of the Animal Protection Law for Selected Characteristics of the Respondents

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Adequate Knowledge</th>
<th></th>
<th></th>
<th>PR</th>
<th>95% CI</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
<td>Yes</td>
<td>%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dog ownership</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Owner</td>
<td>71</td>
<td>81</td>
<td>17</td>
<td>19</td>
<td>1.9</td>
<td>1.1, 3.2</td>
</tr>
<tr>
<td>Nonowner</td>
<td>260</td>
<td>90</td>
<td>30</td>
<td>10</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Awareness of animal shelters</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>263</td>
<td>86</td>
<td>44</td>
<td>14</td>
<td>3.4</td>
<td>1.1, 10.4</td>
</tr>
<tr>
<td>No</td>
<td>65</td>
<td>96</td>
<td>3</td>
<td>4</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Gender of respondents</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>248</td>
<td>89</td>
<td>31</td>
<td>11</td>
<td>0.5</td>
<td>0.3, 0.9</td>
</tr>
<tr>
<td>Male</td>
<td>73</td>
<td>83</td>
<td>15</td>
<td>17</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Age of respondents</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 35 years old</td>
<td>79</td>
<td>80</td>
<td>20</td>
<td>20</td>
<td>1.5</td>
<td>0.8, 2.7</td>
</tr>
<tr>
<td>35+ years old</td>
<td>242</td>
<td>90</td>
<td>27</td>
<td>10</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Area of residence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taipei City</td>
<td>291</td>
<td>88</td>
<td>38</td>
<td>12</td>
<td>0.7</td>
<td>0.4, 1.4</td>
</tr>
<tr>
<td>Other areas</td>
<td>40</td>
<td>82</td>
<td>9</td>
<td>18</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Level of education&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than high school</td>
<td>26</td>
<td>70</td>
<td>11</td>
<td>30</td>
<td>3.2</td>
<td>1.5, 6.8</td>
</tr>
<tr>
<td>High school</td>
<td>112</td>
<td>88</td>
<td>16</td>
<td>13</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>College</td>
<td>154</td>
<td>90</td>
<td>18</td>
<td>11</td>
<td>0.9</td>
<td>0.5, 1.7</td>
</tr>
<tr>
<td>Graduate school</td>
<td>34</td>
<td>94</td>
<td>2</td>
<td>6</td>
<td>0.4</td>
<td>0.1, 1.7</td>
</tr>
</tbody>
</table>

*Note.* PR = prevalence ratios; 95% CI = 95% confidence intervals.

<sup>a</sup>Trend test: p = .01.

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DISCUSSION

Despite our strong a priori belief that the participants in this study were representative of certain groups of Taiwanese citizens, the events and locations where the participants were recruited might limit the generalizability of the results. The distributions of many characteristics of the dogs and the ownership—gender of dogs, number of dogs in household, and proportion of dogs being vaccinated—in this study sample were comparable to the other two studies conducted in Taiwan (Hsu et al., 2003; Weng, Kass, Hart, & Chomel, 2006). The majority of the respondents were residents of Taipei City, aged 15 to 55 years of age, predominantly had a high school education or higher, and approximately 76% were females. These characteristics may help one assess the generalizability of the findings reported in this study.

The findings from this study showed that the education programs regarding the Animal Protection Law and animal shelters developed and distributed by the government are not being effectively communicated. Although the majority of the respondents understood that Taiwan has legal protection for animals and that there are animal shelters available, this study also demonstrated the differences among the populace in understanding, obedience, and enforcement of the Animal Protection Law and use, impression, and expectations of animal shelters.

We found that the majority of Taiwanese—even dog owners—did not have adequate knowledge about the pet dog related requirements in the Animal Protection Law. The requirement for relinquishing unwanted animals to shelters was the least recognized among the requirements investigated. The percentage of dog licensing reported in this study (45%) was in reasonable agreement with 50% reported by the Taiwanese government (Council of Agriculture, 2002). Although a substantial

<table>
<thead>
<tr>
<th>Activity</th>
<th>Frequency^a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visiting facilities</td>
<td>5</td>
</tr>
<tr>
<td>Adopting animals</td>
<td>4</td>
</tr>
<tr>
<td>Relinquishing pets</td>
<td>2</td>
</tr>
<tr>
<td>Inquiring euthanasia of pets</td>
<td>0</td>
</tr>
<tr>
<td>Reporting strays</td>
<td>5</td>
</tr>
<tr>
<td>Reporting violation of animal protection law</td>
<td>3</td>
</tr>
<tr>
<td>Bringing in strays</td>
<td>4</td>
</tr>
<tr>
<td>Reporting losing pets</td>
<td>4</td>
</tr>
<tr>
<td>Veterinary services</td>
<td>2</td>
</tr>
</tbody>
</table>

Note.  
^aThe respondents might report participating in more than one activity.
proportion of the study’s owners reportedly did not comply with all the law’s requirements, none of them admitted being penalized. This study identified significant associations among dog ownership, gender, education level, and knowledge about the Animal Protection Law. We found a surprising inverse trend in understanding the law across education levels, showing that the more years of education a respondent had, the less likely he or she was to have an adequate understanding of the law. This study also showed that the female respondents were less likely to have adequate knowledge of the law than were the males. These two findings deserve further investigation.

The observations on a severe underutilization of animal shelters in Taiwan were confirmed by this study. Only 5% of the participants in this study reported ever having visited or used the shelters’ services. As few as 4 of 387 participants reported ever adopting dogs from animal shelters, which was in agreement with another study (Hsu et al., 2003) and was much lower than the government report (Fei, 2003). Because attitudes against canine euthanasia are commonly reported in Taiwan (Hsu et al., 2003) and in other Asian countries (Hood, 1998), the importance of encouraging Taiwanese to adopt dogs from animal shelters cannot be overemphasized in resolving dog overpopulation problems in this country.

The findings that only 12% of the participants in this study reported having a good or better impression about animal shelters and that most of them had never visited or acquired any kind of services from animal shelters provided strong evidence of the public’s lack of confidence in Taiwanese animal shelters. These findings also suggest that the reports from nongovernmental animal protection groups in Taiwan and other countries regarding inhumane treatment of impounded strays in some animal shelters in Taiwan have greater influences on Taiwanese perceptions about animal shelters than do the positive reports from the Taiwanese government. This lack of confidence might be one of the major reasons for the underutilizations of animal shelters in Taiwan.

We further found that even among respondents who had visited or used the shelters’ services, only about one third had a good or better impression about the services received. Although these people consisted of only a very small proportion (5%) in this study, the impact among them of losing confidence might be large, considering that social contacts were found to be the second most commonly accessed information source about animal shelters in this study. Furthermore, this minority group of people might be the ones who care most about animal shelter related issues, such as animal welfare and pet overpopulation: Their important role as the missing link between public and these issues cannot be overlooked.

The finding of high expectations of animal shelters among Taiwanese suggests that most of Taiwanese still value the role of animal shelters in their community. Less than 50% of the respondents felt that the Animal Protection Law did an acceptable or better job on stray dog control. Promoting animal welfare in general, they further indicated the areas regarding animal protection measures in Taiwan.
that most demand improvement. The future strategies should start with improving the animal shelters’ image and then to rebuilding communications that are more effective between animal shelters and the public, perhaps through the public medium and the existing animal shelters’ visitors and users.

REFERENCES


