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Surveys of the Street and Private Dog Population in Vadodara, India

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**HUMANE SOCIETY
INTERNATIONAL**
INDIA

Surveys of the street and private dog population in Vadodara, India

November 2017

Tamara Kartal and Dr Amit Chaudhari

Executive Summary

HSI conducted two surveys in Vadodara; a street dog survey across all twelve wards and a household survey covering the wards 1, 2, 5, 7, 8 and 9, where HSI and the Vadodara municipality plan to implement a sterilization and vaccination program, including microchipping.

Estimated dog populations are 2.42 street dogs per 100 people (17,695 females and 26,323 males, totalling 44,018) and 1.24 private dogs per 100 people across all wards. Extrapolating from 0.058 private dogs per household in the six surveyed wards by the number of households in the wards (Census, 2011) we estimate a private dog population of 9,897 in the six wards and 21,824 dogs in all twelve wards.

Sterilization rates among private dogs were low (36%) and the willingness of owners to sterilize their unsterilized dogs was very low (only 4% would be willing to have their dogs sterilized). Considering that 71% of all recorded females in this study were over the age of 2 (reproductive age) and 47% of them had at least one litter in their life, it appears that educational campaigns are needed to inform dog owners about the benefits of sterilizations and clarify some misconceptions. From street dog observations, we estimate that 48.9% across the twelve wards are sterilized, ranging from 30.4% in ward 1 to 65.3% in ward 5.

Vaccination levels were reported to be high among private dogs (94%). However we suspect that reporting bias might have influenced respondents to report that their dogs were vaccinated and that the actual vaccination rate might be lower. When dog owners were asked if they had visited a veterinarian in the last 12 months, only 75% said that they did, indicating that fewer dogs (than reported as vaccinated) have actually seen a veterinarian in the last 12 months.

The upcoming sterilization and vaccination program, which include microchipping, offers an opportunity to implement a wider scheme to promote and enforce responsible pet ownership. Throughout the program microchips can be used to verify the vaccination and sterilization status of dogs and will help to generate more accurate vaccination and sterilization estimates for the private and street dog population.

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Background

Vadodara is a city in the state of Gujarat in West India. With almost 1.6 million people (Census, 2011), Vadodara is the third largest city in Gujarat. Street dogs are common in Vadodara and the Vadodara municipality has implemented a sterilization and vaccination program across the city in collaboration with other NGOs prior to 2014.

In 2014 the Vadodara municipality reached out to HSI (Humane Society International) for help in conducting a street dog population survey because baseline and impact data was missing. HSI conducted a street dog survey in all 12 wards in October 2014 and estimated the dog population as well as the proportion of sterilized dogs (impact of the sterilization program). Following the survey, the sterilization program stopped but recommenced in 2017.

This report presents the detailed results from two additional surveys which HSI conducted in July and August 2017. Street dog surveys were conducted across all twelve wards in Vadodara using the methodology already implemented in 2014 to reassess the composition and sterilization rate in the street dog population. Extensive household surveys across six of the twelve wards (ward 1, 2, 5, 7, 8 and 9) were conducted to estimate the total private dog population and to explore dog demographics. Data included how private dogs contribute to the street dog population and a study of the human-dog relationship as a driver of street dog and private dog population dynamics. The household survey further included KAP (Knowledge, Attitude and Practices) questions assessing the level of rabies knowledge, bite wound treatment knowledge and bite treatment practices as well as practices and attitudes towards street dogs.

In July 2017 the municipality and HSI signed an MoU and agreed to implement a high-volume sterilization, vaccination and microchipping program over the next year until July 2018.

Survey Design and Methodology

HSI conducted two surveys. The KAP survey covered the wards 1, 2, 5, 7, 8 and 9 because HSI and the Vadodara municipality will implement a high-volume dog population management program in these wards. The street dog survey covered all wards.

Street survey objectives:

- Generate a reliable estimate of the relative and total dog population in Vadodara
- Estimate the proportion of sterilized dogs in the street dog population in 2017
- Assess street dog welfare by tracking body condition score and skin conditions as a proxy measure

Private dog survey (KAP) objectives:

- Generate a reliable estimate of the private dog population
- Understand private dog demographics and population dynamics
- Estimate sterilization and vaccination rates among privately owned dogs
- Assess the level of responsible dog ownership in the 6 wards
- Explore attitudes pertaining to the relationship between households and street dogs
- Assess knowledge about rabies and rabies prevention in case of a bite

Street Dog Survey

To generate a dog abundance estimate (total dog population size) we created set routes, also called index or standard routes, in Google Maps along residential roads and highways but avoiding expressways (dogs tend to avoid these roads). Routes are marked with a starting (flag) and end point (police officer). For easy access, the routes are saved as KML files and stored in Google My Places, which can be accessed from smart phones (online and offline).

A survey team, consisting of a driver and an observer mounted on motorcycles, conducted the surveys early in the morning at dawn. The observer uses both the Google Maps app and the OSM Tracker app on a mobile phone. OSM tracker is an application that enables the observer to record a dog sighting and relevant specifics about a dog (female, male or unknown adult, sterile/notched female or sterile/notched male, pup, lactating) as well as record welfare indicators such as skin problems and body condition scores (C1 to C5), which are saved together with GPS coordinates of the sighted dog. OSM Tracker produces a track record of all sighted dogs and their specifics along the route which was followed during the survey. The data is subsequently downloaded and stored in an Access database for analysis. The survey route was surveyed on two consecutive days, by the same survey team, to measure the accuracy and power to detect change.

Dog demographics and KAP survey

The survey was conducted using the smart phone app Epicollect5, which contained a prepared survey form for Vadodara. Households were surveyed by a team of two trained surveyors using questionnaires about 15-25 mins in length. Questionnaires included or excluded questions depending on whether the household owned a dog or not. The survey sample size was set at a minimum of 385 households to reach a 95% confidence level. Inclusion criteria for households were:

- Person had to be over 18 years old and resident at the address
- In case of dog ownership, the interviewee had to be the main care taker or at least well informed about the dog or dogs in the household

Participants were asked to confirm their consent to be part of the study and had the option to opt-out before the interview started. Once questionnaires were completed, the completed forms were saved and uploaded to a cloud-based database by the surveyor.

Household surveys were conducted using a systematic random sampling method, which samples a portion of the total available households in the area by randomly selecting the first household in the sample population, which was set as the tenth household counted from the set routes starting point (marked by a flag). From there on an appropriate fixed interval to systematically select the following households was utilized for random selection of the following households. Systematic random sampling in comparison to simple random sampling is less susceptible to researcher error. To obtain a representative sample, households were selected randomly following a pattern of every tenth household, either by foot or on a motorbike. To remain consistent throughout the survey either the left or the right side was chosen to be the survey side. In case nobody was available at the tenth household the main caretaker or person over 18 years of age was interviewed at the ninth or the eleventh household.

Results

KAP (Knowledge, Attitude and Practices) Survey

In total 2350 people (response rate of 90.56%) were interviewed for this study with 58.26% being female and 41.74% male (Table 1). The majority lived in semi-detached houses (56.4%), followed by apartments (26.4%) and detached houses (17.2%).

Table 1: Survey participant demographics

Human Demographics		
Sample size (yes)	Responds rate	
2350	90.56%	
Number of female respondents	Number of male respondents	
1369	981	
% female respondents	% male respondents	
58.26%	41.74%	
Housing		
Apartment	Semi-Detached	Detached
620	1325	405
% Apartment	% Semi-Detached	% Detached
26.4%	56.4%	17.2%

There were 0.058 dogs per household across the six wards. Extrapolation led to an estimate for the total dog population of 9,897 in the six wards and 21,284 in all of Vadodara, which translates to 1.24 "private" dogs per 100 people. Calculations are based on each ward and are discussed in more detail in table 2. The margin of error at the 95 confidence level is calculated for the proportion of households reporting to own a dog.

In the following sections, results of the questionnaire will be discussed. Participants were able to skip questions if they wished. Some results are therefore based on different total responses than the overall sample size for the ward.

Table 2: Population estimates by ward and entire Vadodara

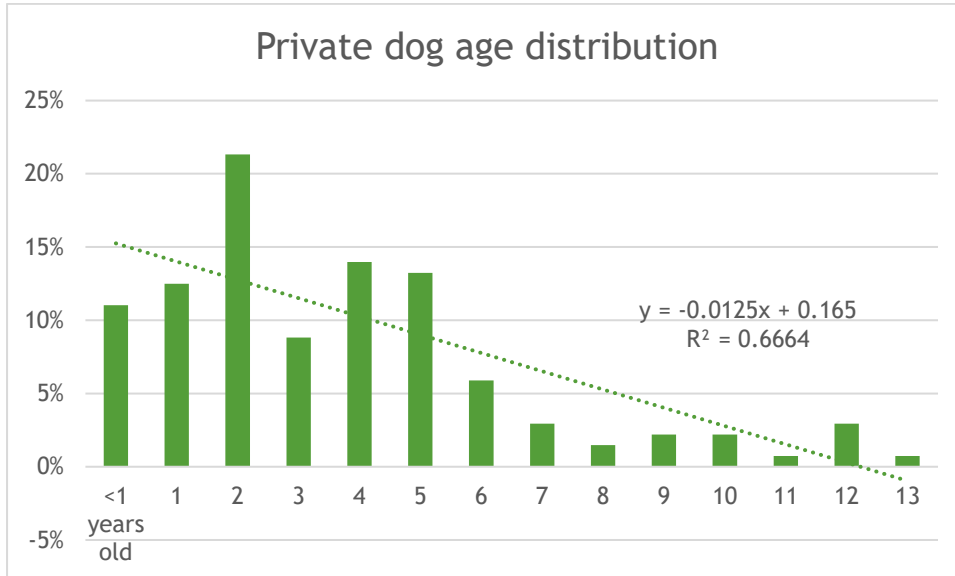
Ward 1				Survey results					Population estimates			
Sample Size (Yes)	Response rate	Human population in ward	Number of HH in ward	Number of dogs	Number of DOHH	Number of NDOHH	Percentage DOHH	Percentage NDOHH	Total dog pop	Dogs/100	Dogs/HH	Margin of error
388	94.40%	43555	9,274	22	19	369	4.90%	95.10%	526	1.2	0.06	2.1%
Ward 2				Survey results					Population estimates			
Sample Size (Yes)	Response rate	Human population in ward	Number of HH in the Ward	Number of dogs	Number of DOHH	Number of NDOHH	Percentage DOHH	Percentage NDOHH	Total dog pop	Dogs/100	Dogs/HH	Margin of error
388	86.61%	122,741	26,758	31	31	357	7.99%	92.01%	2138	1.7	0.08	2.7%
Ward 5				Survey results					Population estimates			
Sample Size (Yes)	Response rate	Human population in ward	Number of HH in the Ward	Number of dogs	Number of DOHH	Number of NDOHH	Percentage DOHH	Percentage NDOHH	Total dog pop	Dogs/100	Dogs/HH	Margin of error
399	99.50%	88,349	19,353	10	10	389	2.51%	97.49%	485	0.5	0.03	1.5%

Ward 7				Survey results					Population estimates				
Sample Size (Yes)	Response rate	Human population in ward	Number of HH in the Ward	Number of dogs	Number of DOHH	Number of NDOHH	Percentage DOHH	Percentage NDOHH	Total dog pop	Dogs/100	Dogs/HH	Margin of error	
387	88.76%	182,567	40,892	22	22	365	5.68%	94.32%	2325	1.3	0.06	2.3%	
Ward 8				Survey results					Population estimates				
Sample Size (Yes)	Response rate	Human population in ward	Number of HH in the Ward	Number of dogs	Number of DOHH	Number of NDOHH	Percentage DOHH	Percentage NDOHH	Total dog pop	Dogs/100	Dogs/HH	Margin of error	
397	89.41%	98,723	21,882	14	12	385	3.02%	96.98%	772	0.8	0.04	1.7%	
Ward 9				Survey results					Population estimates				
Sample Size (Yes)	Response rate	Human population in ward	Number of HH in the Ward	Number of dogs	Number of DOHH	Number of NDOHH	Percentage DOHH	Percentage NDOHH	Total dog pop	Dogs/100	Dogs/HH	Margin of error	
391	85.93%	236,097	52,860	37	36	355	9.21%	90.79%	5002	2.1	0.09	2.9%	
Total surveyed Households in ward 1,2,5,7,8 and 9			2,350										
Estimated total private dog population in the 6 wards				9,897	Estimated total private dog population in Vadodara				21,824				

Private Dog Demographics

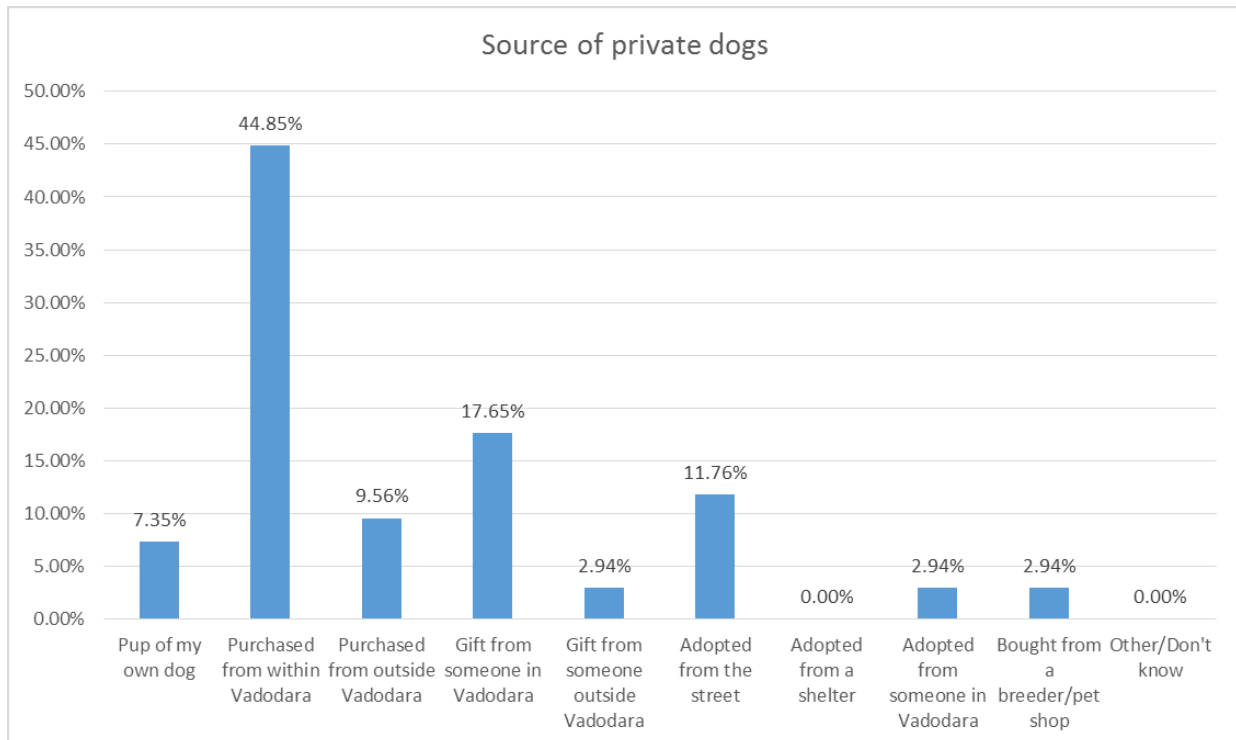
A substantial majority of private dogs in the 6 wards were male (71.3%) and 76% of all dogs were between the age of 1 and 6 (13% were older than 6 years and 11% were under 1 year old (Figure 1)).

Figure 1: Age distribution of private dogs in the 6 wards



Dogs were acquired from a number of sources. Most dogs were bought within Vadodara (44.85%), while 17.65% were received as a gift from someone within Vadodara, and only 11.76% adopted their dog from the streets (Figure 2).

Figure 2: Acquisition of private dogs



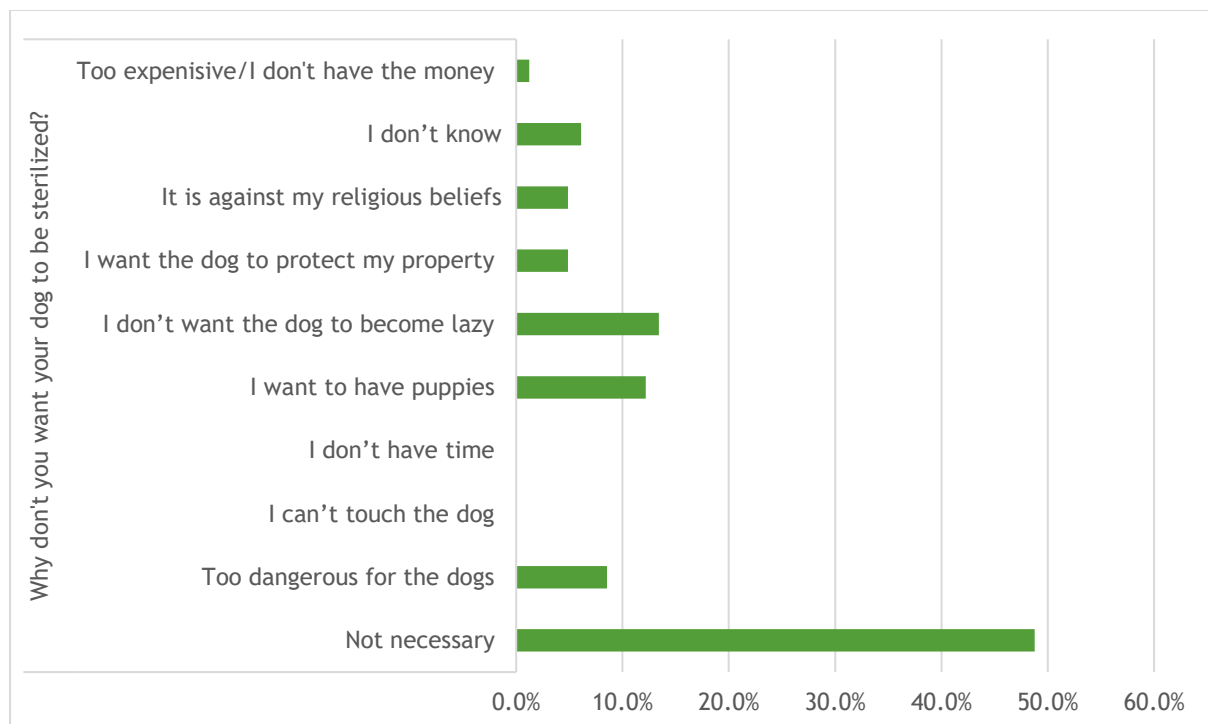
Responsible Dog Ownership Practices

Owners were asked about a variety of practices regarding dog keeping and care provided to their dogs.

Sterilization

Of the 136 dogs recorded in this study, 36% were sterilized (28% of all females and 36% of all males). Of the 87 unsterilized dogs only 4 dog owners (5%) would be willing to have their dogs sterilized free of charge. The remaining owners (94% of 87) were unwilling to sterilize their dogs, even when the service was offered free. Therefore, 64% of all dog owners were not willing to sterilize their dogs. The recorded reasons for not sterilizing included: not necessary (49%), fear the dog would become lazy (13%), and a wish to have puppies from the dog (12%) among other reasons (Figure 3). Education campaigns will be needed could encourage dog owners to embrace sterilization.

Figure 3: Reasons for keeping dogs intact versus have them sterilized, even if offered free of charge



Litters by private females

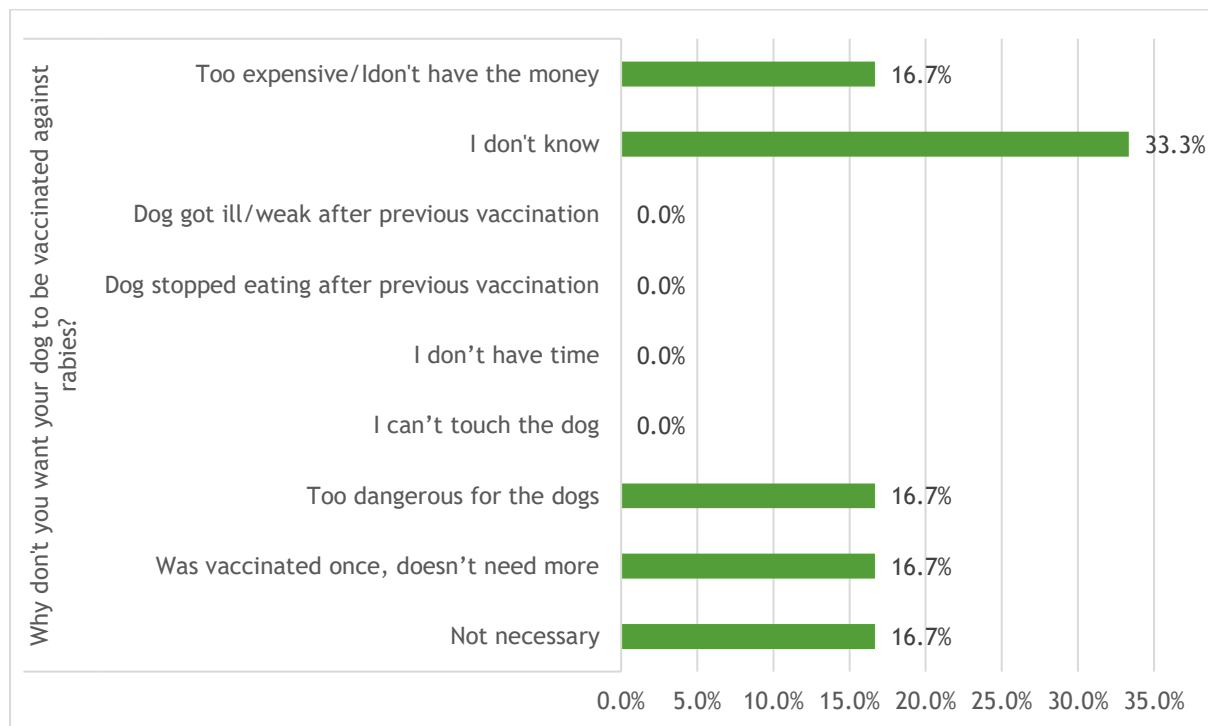
Of all females over 2 years old and unsterilized (71% of all females), 47% had had one litter and most (82%) were still unsterilized (82% of them) . 87.5% of them had one litter in their life and 12.5% had two litters.

When asked if owners wanted their dogs to have puppies, 12.5% said yes, 75% said that they think it is natural and another 12.5% said that they did not care if the dog got pregnant.

Vaccination

In contrast to sterilization rates, the proportion of vaccinated dogs (in the last 12 months) was very high (94%) in the 6 wards. Of the 10 dog owners with unvaccinated dogs, 6 said that they would not be willing to vaccinate their dogs, 3 would be willing and would pay a small fee while 1 would be willing if the vaccination was free (Figure 4).

Figure 4: Reasons for choosing not to vaccinate dogs



Visiting a veterinarian in the last 12 months

The majority (75%) of dog owning households reported visiting a veterinarian in the last 12 months. Therefore some of the dogs reported to be vaccinated would not have received that vaccination during a veterinary visit. It is possible that dog management programs have provided vaccination clinics only and owners did not specifically "visit" a veterinarian.

Confinement of dogs throughout the day

Exploring confinement practices of private dogs is challenging as questions are readily misinterpreted and respondents are either genuinely uncertain about the level of control they provide to their dogs on a regular basis or respondents are nervous about

admitting that the level of control is low to non-existent. Therefore, the respondent was asked about confinement at specific times (at the time of the interview as well as during the night).

The majority had their dogs inside the house when we conducted the survey (specify when this is)(76%) and only 8% of the dogs were reported to be loose outside and allowed to roam (Figure 5). Similarly, 82% kept their dogs inside the house with them at night and only 4% let their dogs roam outside (Figure 6).

The majority of households (75%) allowed dogs in all the rooms in the house while 13% allowed their dogs to be in all rooms except the kitchen.

Figure 5: Confinement of dogs during the interview

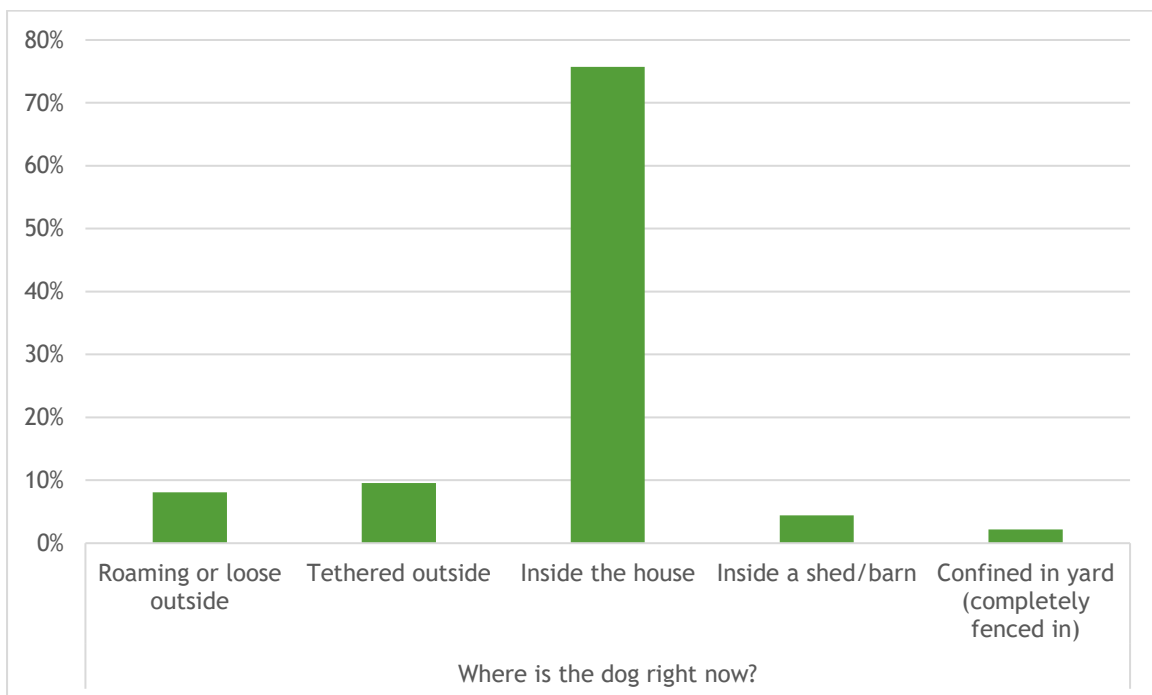
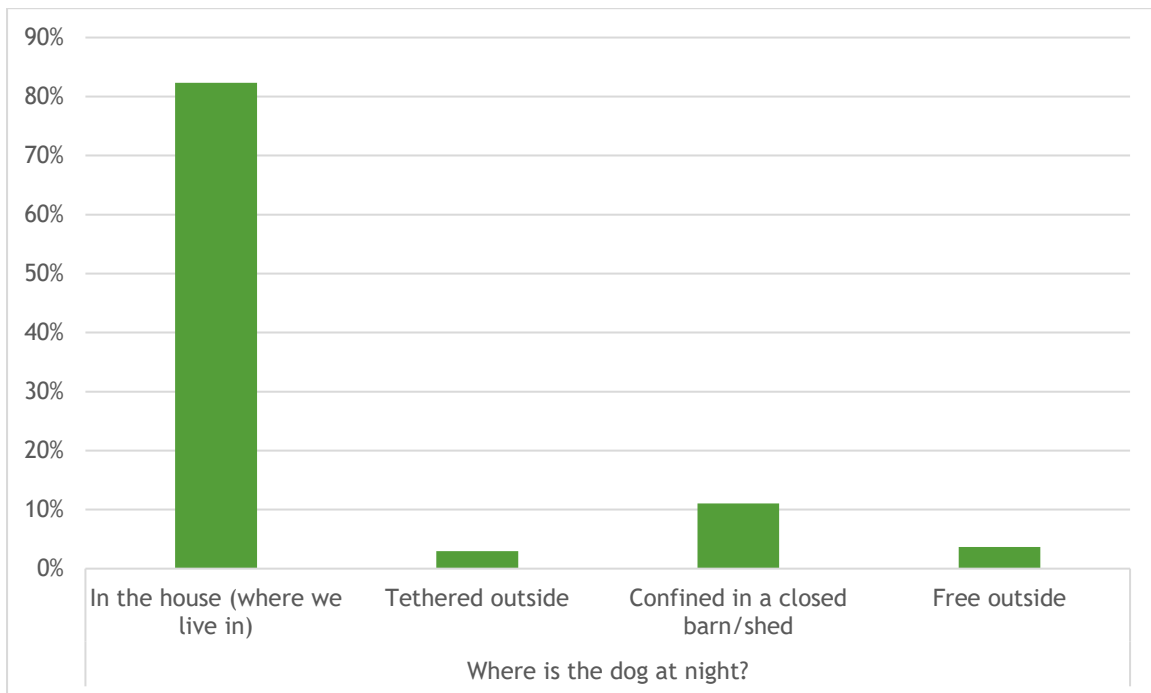


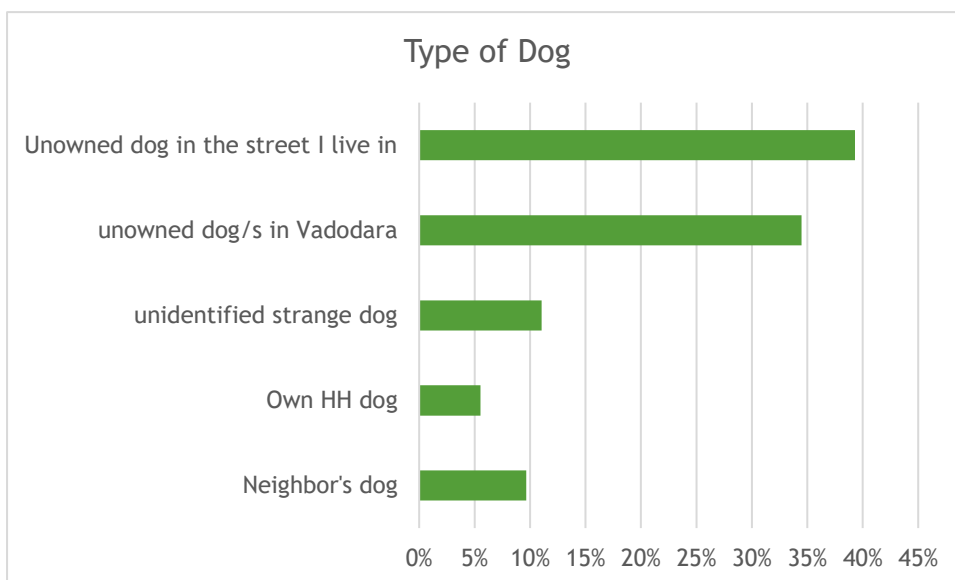
Figure 6: Confinement of dogs during the night



Additionally, we asked about the tethering of dogs outside the house. Forty-four percent (44%) said that they never tether their dog outside unsupervised, whereas 50% said sometimes and 6% all the time. Sixty-six percent (66%) of dog owners said that their dog is allowed to roam free at times and only 34% said that their dog is never allowed to roam.

Knowledge about Rabies, Rabies prevention and Dog Bite Incidence

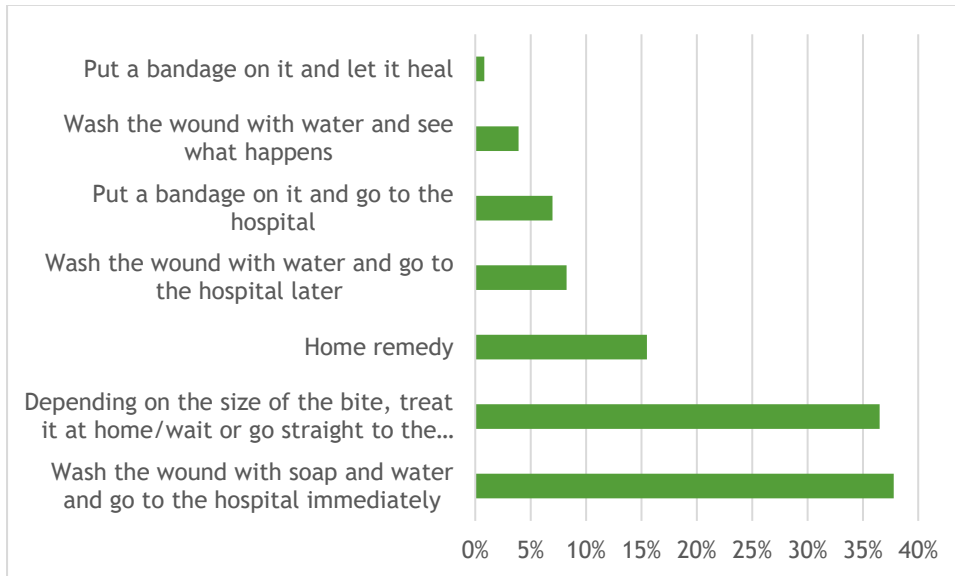
Overall knowledge of rabies across the wards was high. In the last 12 months, 6% of the households had an individual who was bitten by a dog. Only 15% of biting dogs were reported to be known (Figure 7).



In case of a bite, only 38% reported following the appropriate procedure of washing the wound with water and soap and immediately visiting a hospital. The remaining 62% would take alternative action (Figure 8).

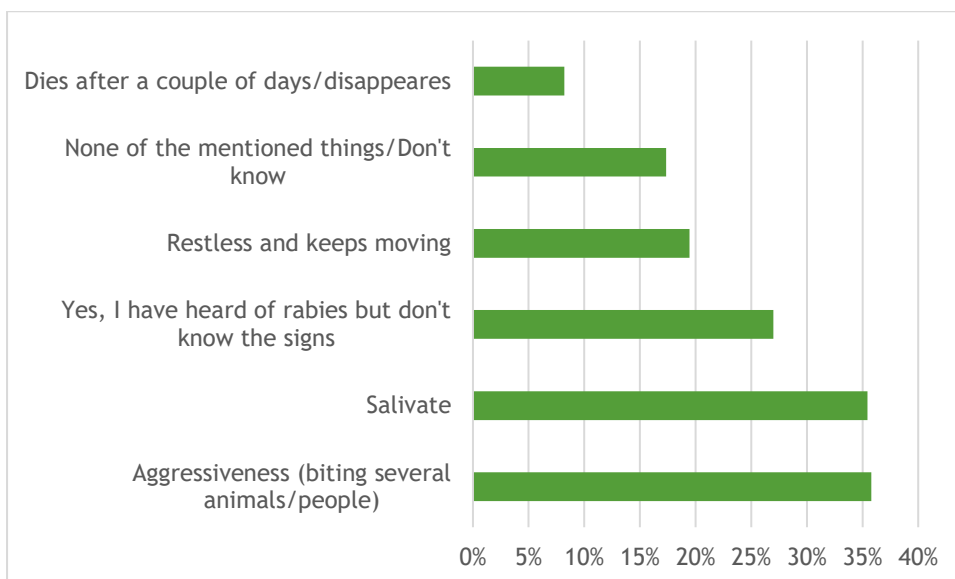
Knowledge about bite wound treatment is essential when it comes to saving human lives. Campaigns should include rabies education in future efforts.

Figure 8: “What would you do if you or someone in your household gets bitten by a dog?”



Knowledge of rabies symptoms was low with 44% stating that they either have heard of the disease but do not know the symptoms or described symptoms that are not part of the disease (Figure 9).

Figure 9: “Have you heard of the disease rabies and if so what are the signs?”



Comparison of rabies knowledge and dog bite incidences by ward

Dog bite rates vary across the six wards with the highest rate in ward 5 and lowest in ward 8 (Table 3). The reasons for this variation are unknown, as the private dog density is similar (Table 2). The dog bites reported from ward 8 were almost exclusively from street dogs whereas in ward 5 about 20% of the dog bites were from owned dogs (Figure 10)

Table 3: Proportion of respondents who experienced a dog bite in the last 12 months by ward

	Ward 1	Ward 2	Ward 5	Ward 7	Ward 8	Ward 9	Average for all 6 wards
% bitten by a dog in the last 12 months	6.70%	7.22%	8.77%	4.91%	1.01%	8.44%	6%

Treatment of bite wounds varied significantly (Figure 11). Ward 7 (91%) and 8 (94.5%) respondents reporting that they would 'Depending on the size of the bite, treat it at home/ wait to go to the hospital'. There might be an assumption that severity of the wound plays a role in rabies transmission or that not every dog bite patient should see a doctor. Either way, it is crucial that every dog bite is taken seriously as time is of the essence when it comes to rabies.

Figure 10: Type of dog households report dog bites from by ward

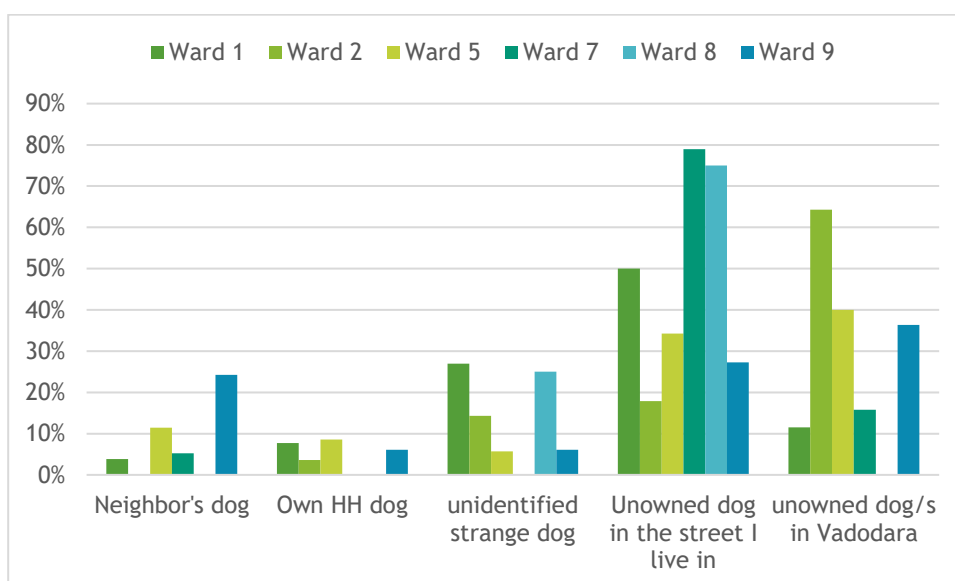
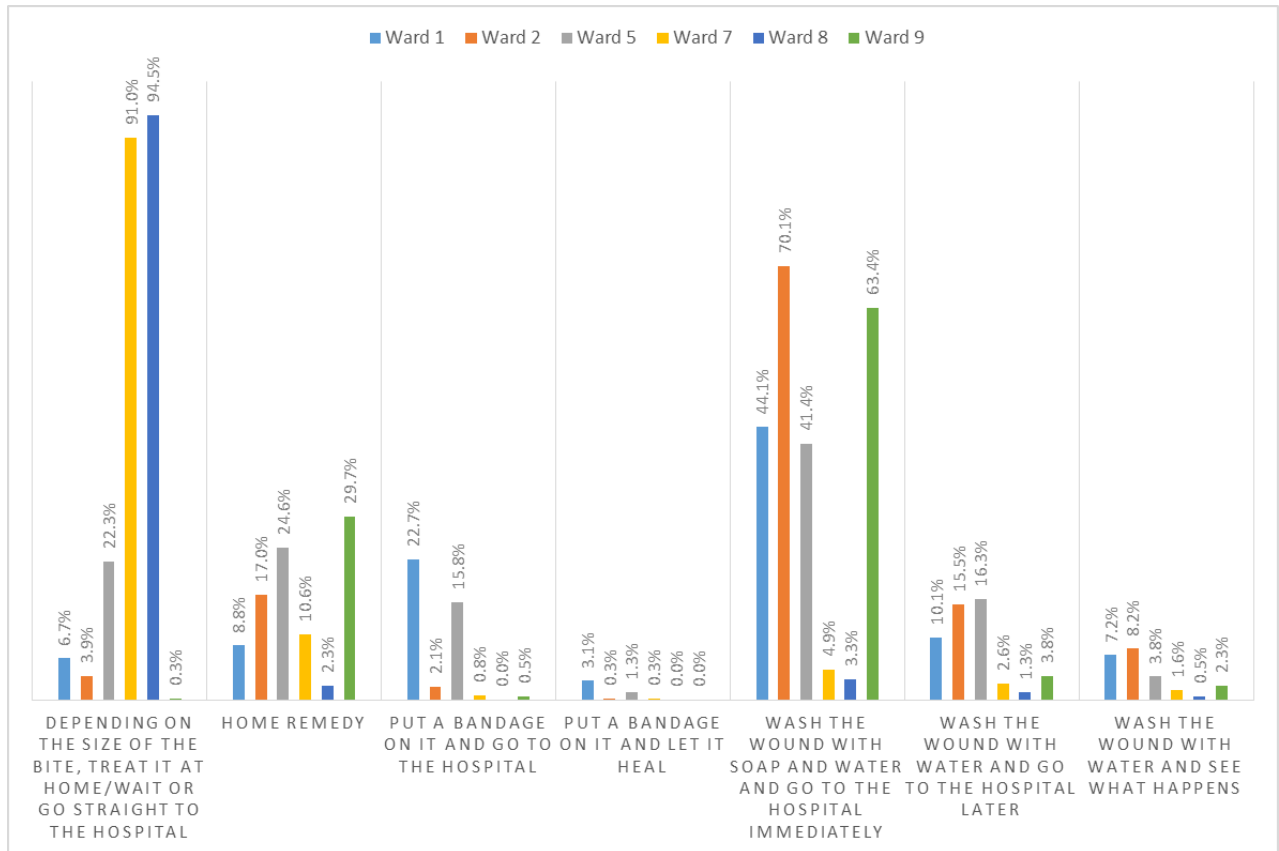
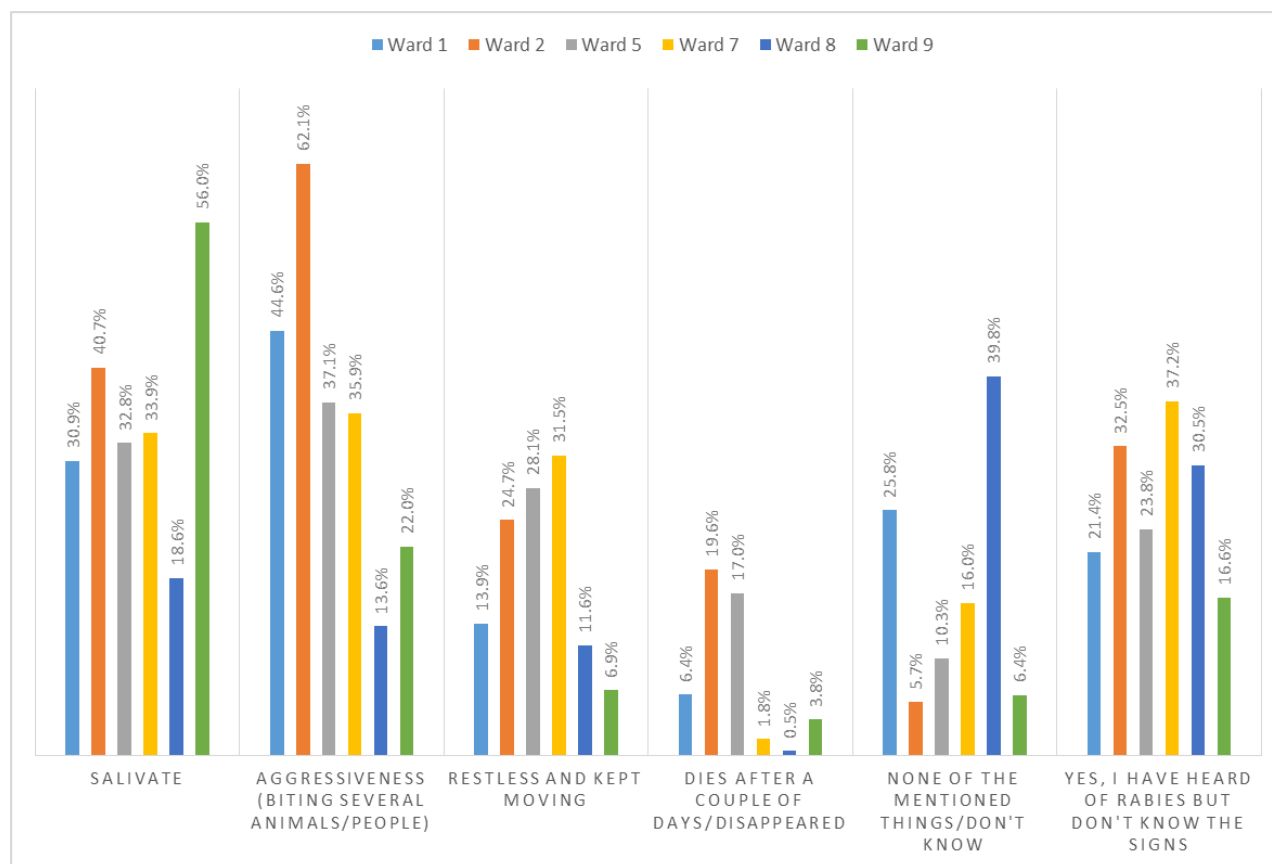


Figure 11: “What would you do if you or someone in your household gets bitten by a dog?”
By ward.



When asked if interviewees had heard of the disease rabies and the symptoms that come with it, the majority in most wards did know about the disease. However, many were unsure and would also say that they were not sure about the symptoms (Figure 12). Based on the answer choice “None of the mentioned things/ Don’t know”, ward 1 and ward 8 seem to have the highest proportion of respondents not aware of how to identify rabies (25.8% and 39.8% respectively) or are unsure. Educational efforts are needed in all wards considering the proportion of people choosing the two last answer choices either alone or in combination with other options. It appears that ward 8 has highest proportions of dog bites as well as knowledge gaps in regards to rabies identification and appropriate dog bite treatment.

Figure 12: “Have you heard of the disease rabies and if so what are the signs?” By ward and multiple answers possible.



Human-Dog Relationship private and street dogs

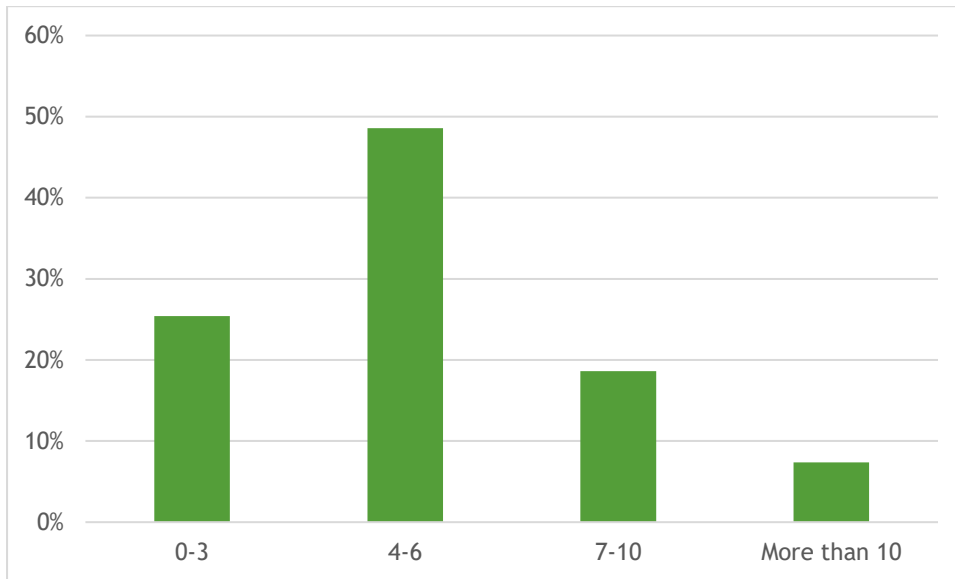
Dog owning households reported that about 8% had owned another dog in the last 12 months. Reasons for owning included 74% who owned a dog because they want a pet/companion, 19% said that they owned a dog because they wanted a pet but also for protection, and 7% said that they own a dog solely to protect the property or crops.

"No-dog" households were asked why they do not own a dog. Reasons included not liking dogs (38%), there is no need for a dog (28%), there is no space for a dog (16%), and that it is against their religious beliefs (5%) or they were not sure (4%).

Perception of street dog density and previous dog management

Interviewees were asked how many dogs they see in the street they live in, in the early morning hours (Figure 13). Most (49%) encounter about 4-6 dogs in their street and only 7% said they would see over 10 dogs in their street.

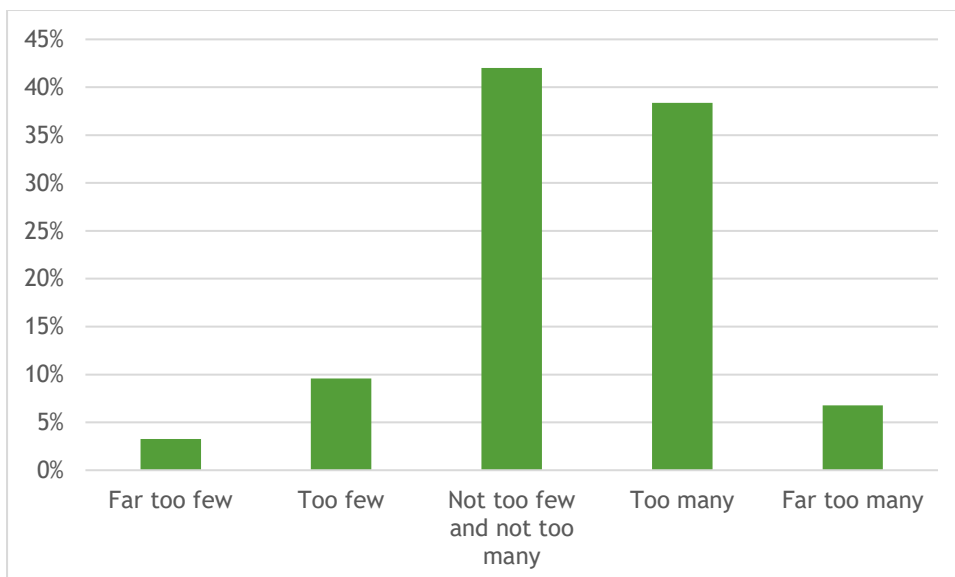
Figure 13: “In the morning hours, how many dogs do you see on the street you live in?”



When asked how they felt about the number of dogs on their street most respondents (42%) were not concerned about the number of dogs in their street and felt that there were not too many or too few on their street. However, almost the same proportion (38%) thought that there were too many dogs on their street (Figure 14).

52% reported that they think the number of dogs in their street stayed about the same in the last 12 months, 35% thought the number had increased and 13% thought the number had decreased.

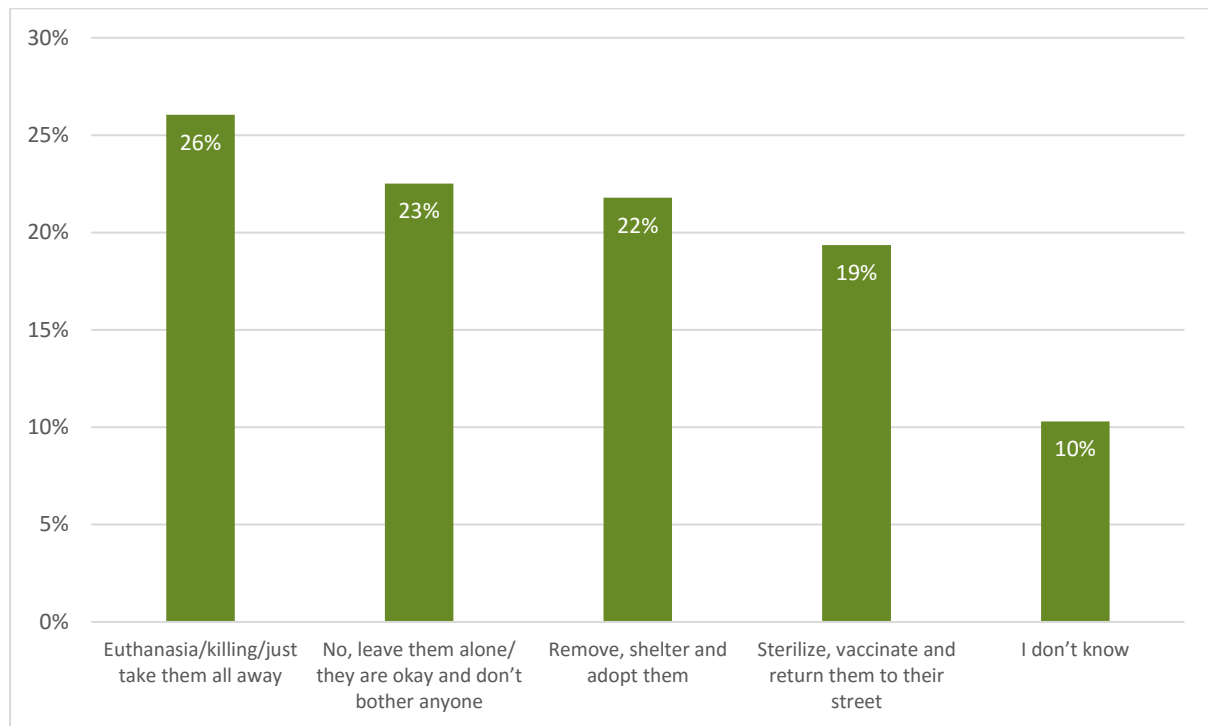
Figure 14: “Considering this number, what do you think about the number of dogs?”



Opinions whether and how street dogs should be managed were very diverse across the wards (Figure 15). 10% did not know if or how street dogs should be managed, whereas 22% and 19% were in favour of “Remove, shelter and adopt” as well as “Sterilize, vaccinate

and return” respectively. 23% thought that street dogs should be left alone and not managed at all and 26% would like to eradicate street dogs through euthanasia or any other method.

Figure 15: “Do you think street dogs should be managed and if so how?”



Dog population management has been implemented across Vadodara for the last years, however only 25% of respondents stated that there has been any street dog management in the area they live.

Perception of street dog density and previous dog management, by ward

The below figures show a very similar distribution of responses to questions pertaining to the number of street dogs, street dog density and dog management for each ward (Figure 16-18). The number of street dogs appears to be similarly distributed across the intervals provided as answer choices. Overall, respondents perceived street dog densities similarly, however respondents in ward 9 appear to be relatively positive towards the street dog density in their ward. Only 14% said that there are too many dogs, compared to the average of 38% across all wards and 22% responding that they think there are “too few” and 13% “far too few” street dogs on their street, compared to 10% and 3% on average for all six wards respectively (Figure 14 and 17).

Street dog population growth in the last 12 months was perceived similarly across the wards. Ward 2 appears to have the most respondents (35%) who said that the street dog population decreased in the area they live in (compared to 13% on average for all wards). And in ward 5 55% of the respondents said that the street dog population has increased in the last 12 months (35% on average) (Figure 18).

Figure 16: Number of street dogs in the early morning

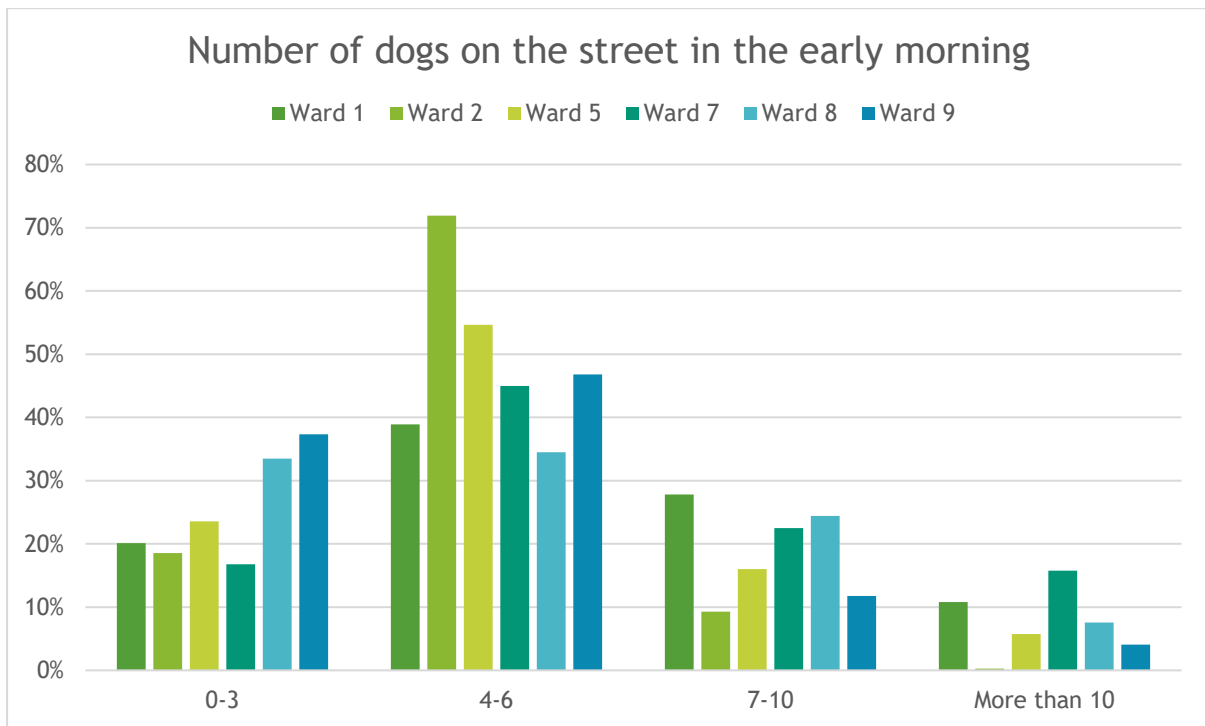


Figure 17: Perceived density of street dogs on their street

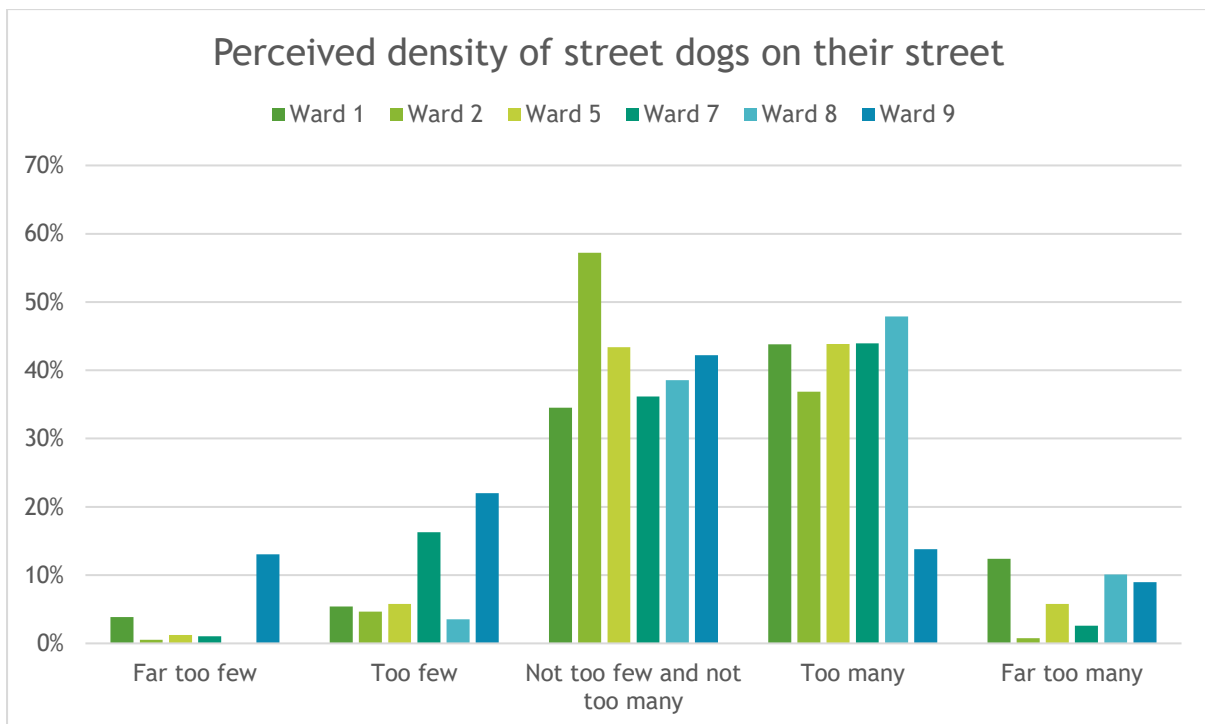


Figure 18: Perceived street dog population growth

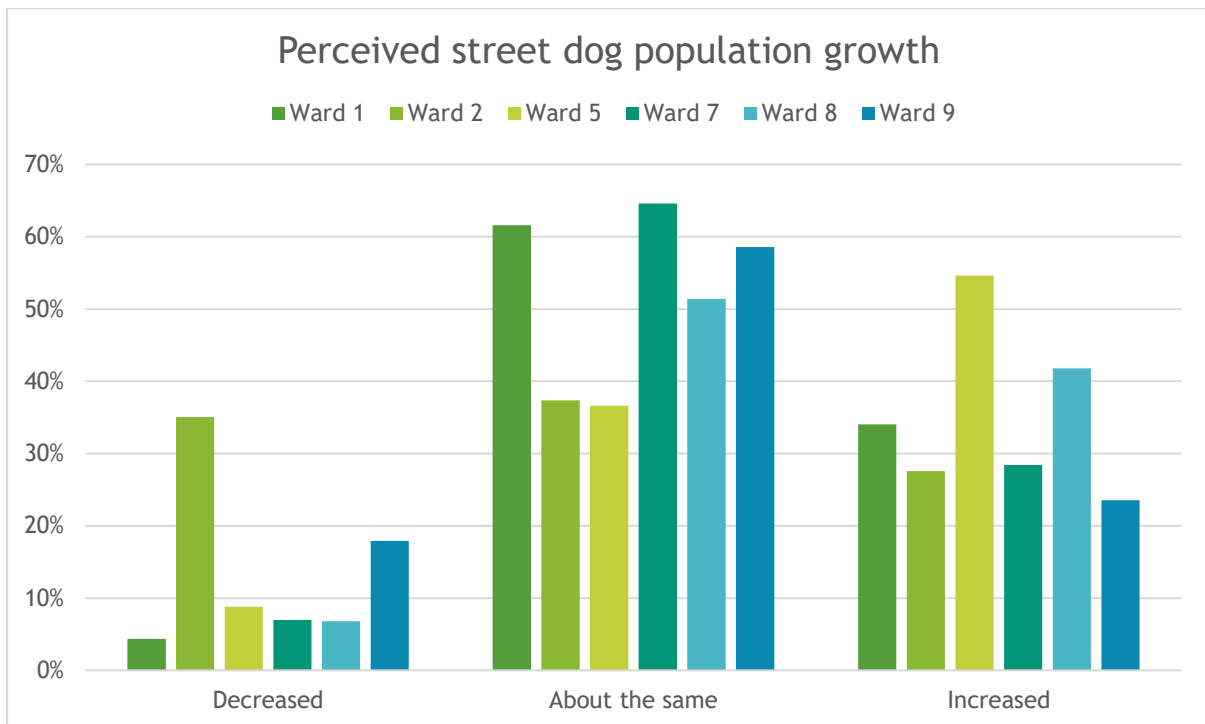
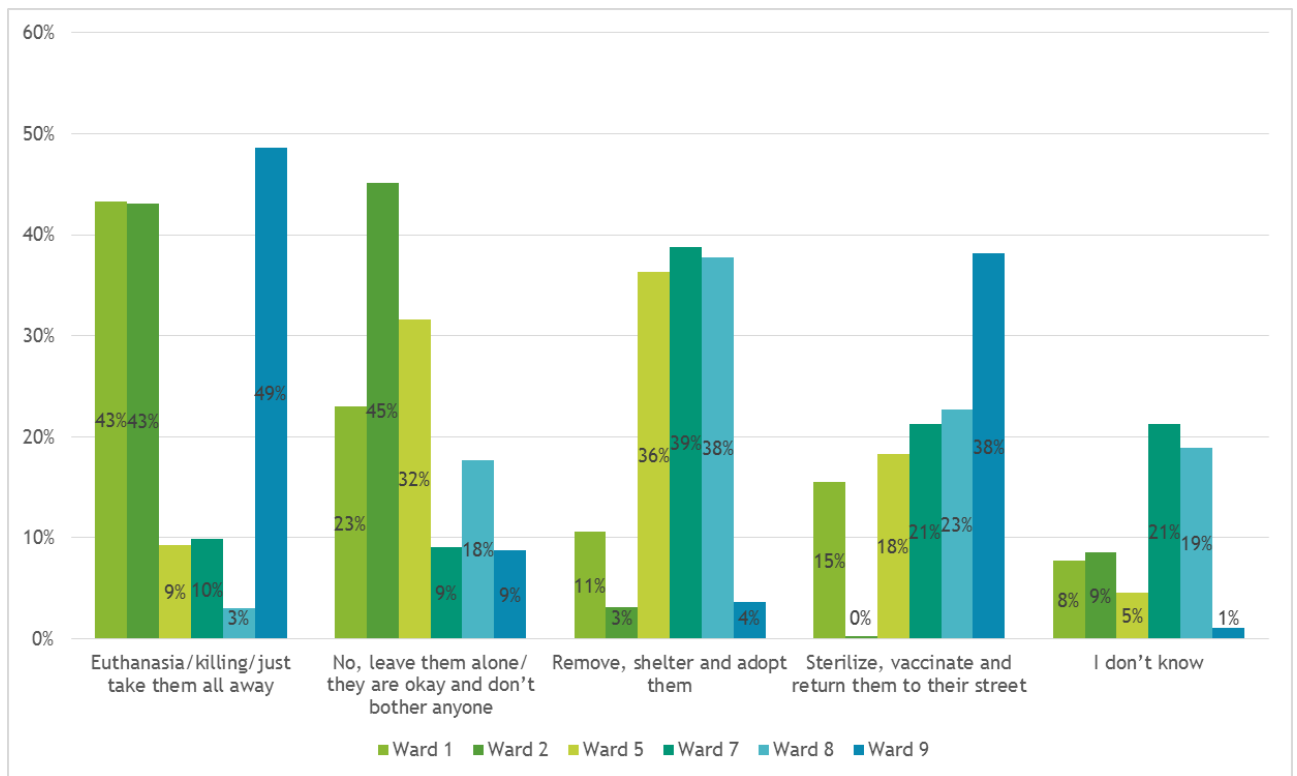


Figure 19 shows how diverse survey participants' opinions are regarding the best street dog management strategy. Respondents in ward 9 appear to have very strong opinions in two opposite directions. 49% think that street dogs should be euthanized or in any other way removed and 38% think that sterilization and returning them to the street is the best way to manage street dogs, while 9% think that there is no need for any management, 4% think they should be removed and adopted out and 1% was not sure if or how street dogs should be managed. Similarly opposing were answers from survey participants in ward 2, with 43% wanting to eradicate street dogs by euthanasia or any other way of removal and 45% don't want to manage the street dog population at all.

Figure 19: “Do you think street dogs should be managed and if so how?” by ward



Interaction with street dogs

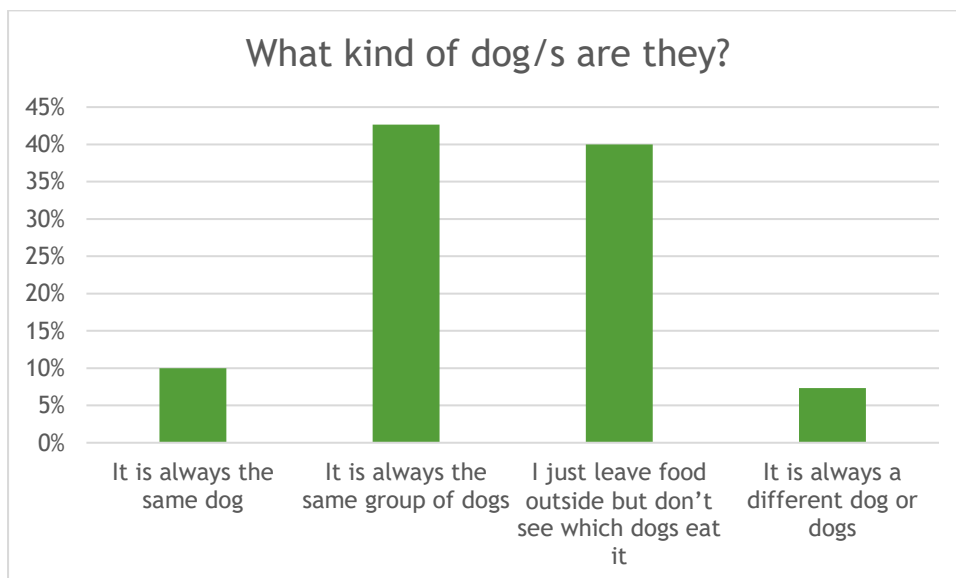
The questionnaire included several questions in regards to the level of interaction and care between respondents and street dogs. 16% and 43% of the respondents reported that they either feed street dogs every day or sometimes, respectively. 6% feed street dogs once a week and 4% several times a month. Only 29% said that they never feed street dogs (Figure 20)

Figure 20: Proportion of respondents feeding street dogs



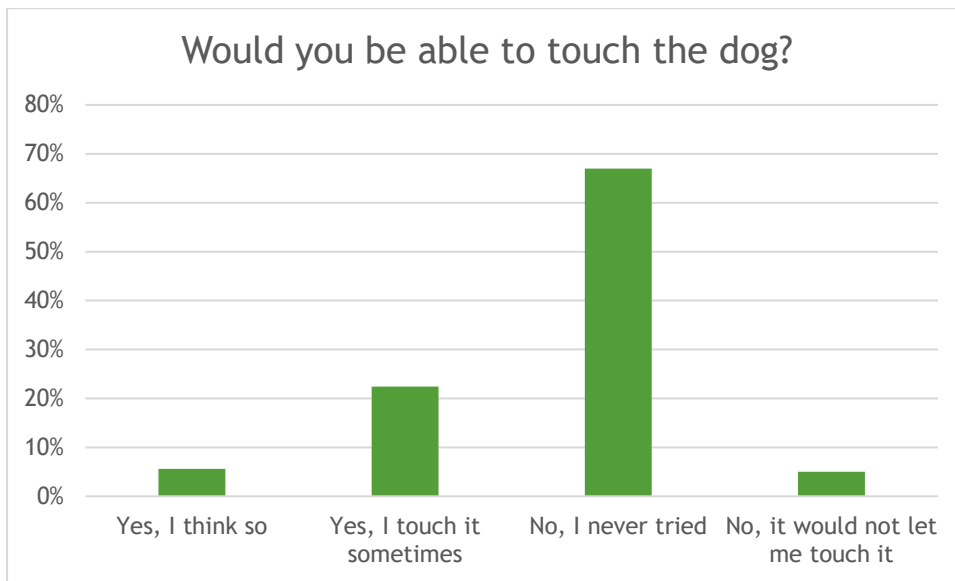
It appears that the majority routinely feed the same dogs (Figure 21). Forty-three percent (43%) report that they always feed the same group of dogs and 10% always feed a single dog. Another 40% do not feed specific dogs but leave food outside and 7% report that they always feed different dogs.

Figure 21: "What kind of dog or dogs are they?"



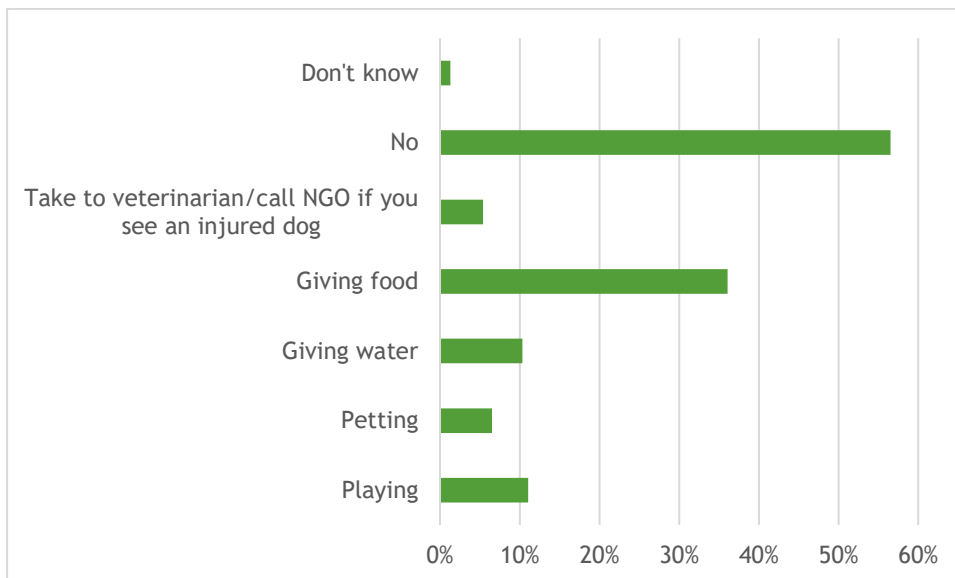
Dog feeders commonly (67%) reported that beyond providing food there is no physical contact with the dog (Figure 21). However, 22 % report that they sometimes touch the dog or dogs they feed. Others report that they could touch the dog (6%) and 5% report that touching the dogs they feed would not be possible.

Figure 22: Level of interaction



The survey participant was asked if he or she or other members of the household, including children, ever interacted with street dogs in any of the stated ways (Figure 22). 57% said that nobody in their household interacts with street dogs in any way. 36% reported that someone provides food (lower than when directly asked if they feed dogs) to street dogs, 11% play with street dogs, 10% provide water, 7% pet dogs, 5% have called a NGO or provided veterinary care for injured street dogs and 1% do not know.

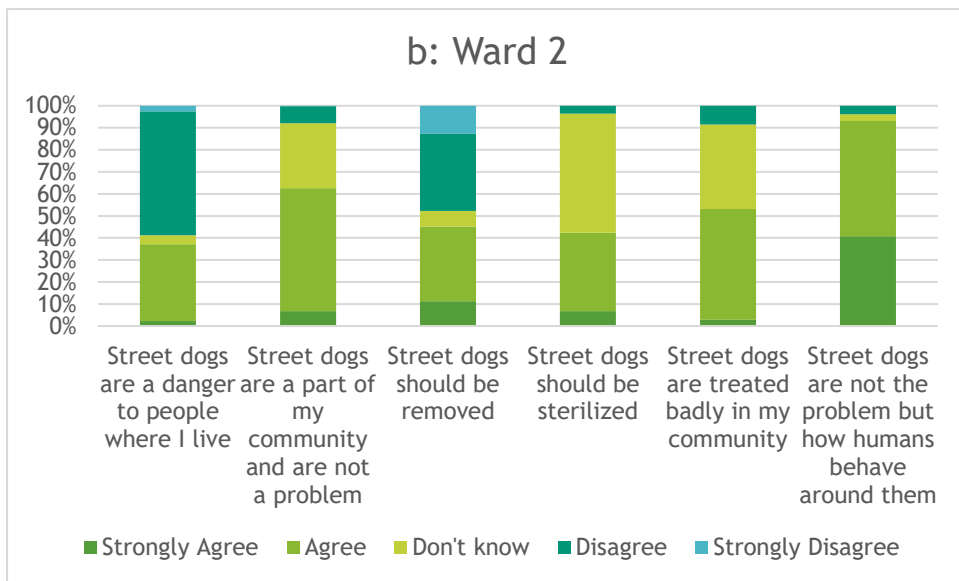
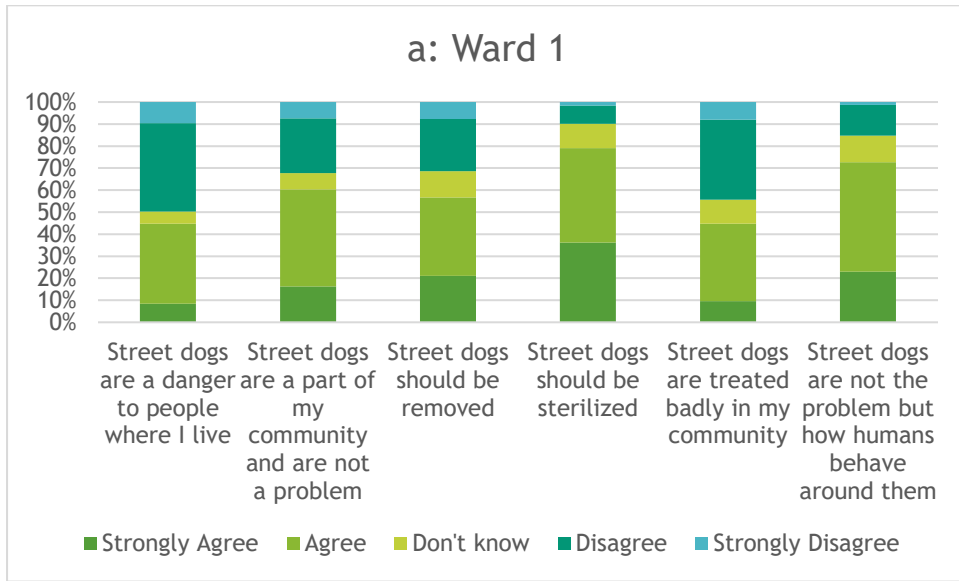
Figure 22: Care provided to street dogs by someone in the household

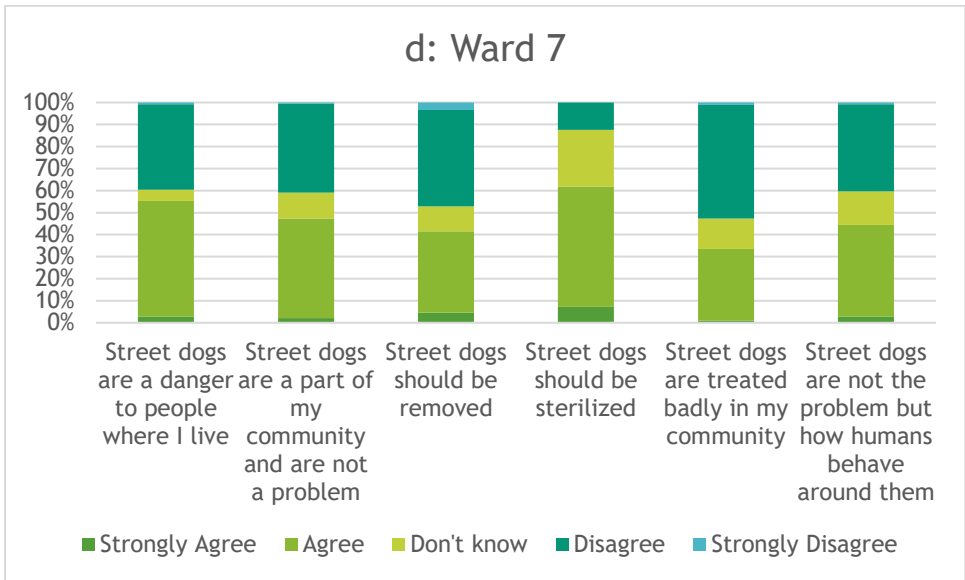
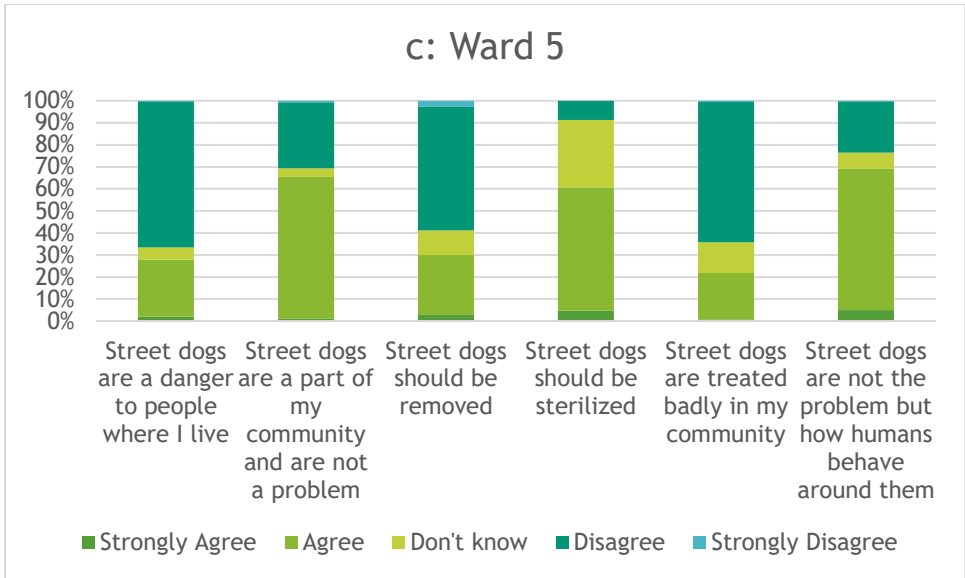


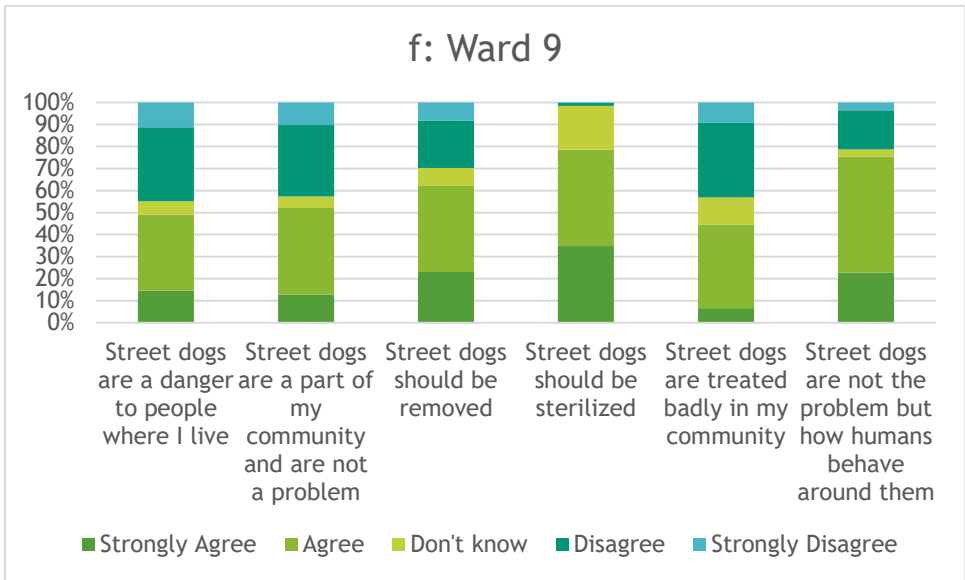
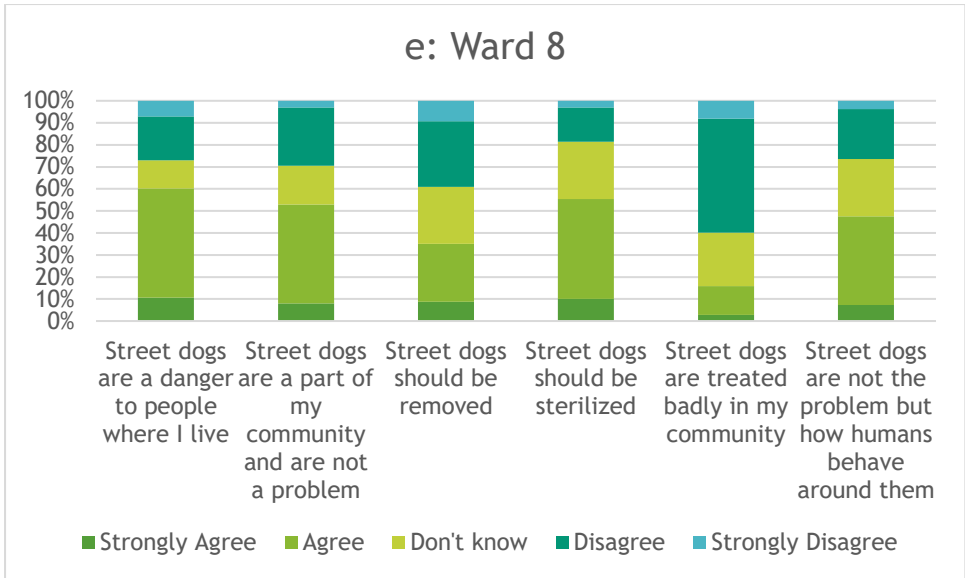
Attitudes towards street dogs

To quantify attitudes of interviewees regarding street dogs and street dog management, the questionnaire included 6 Likert items with five answer options, from strongly agree, agree, don't know/neutral, disagree to strongly disagree. The results are summarized in figure 23.

Figure 23 a-f: Likert items for each ward





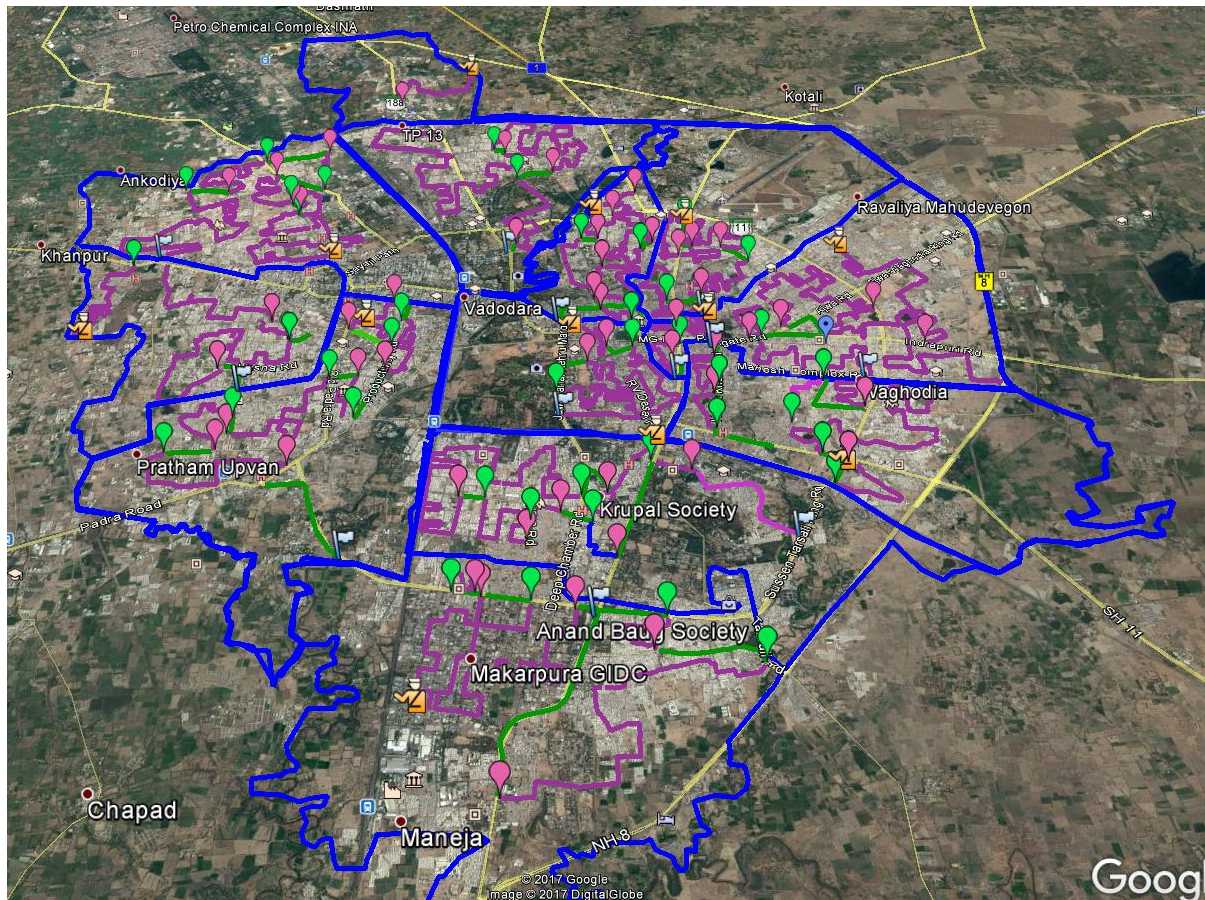


Street dog survey

HSI conducted two street dog surveys in all twelve wards in Vadodara, the first in October 2014 and a follow-up in July 2017.

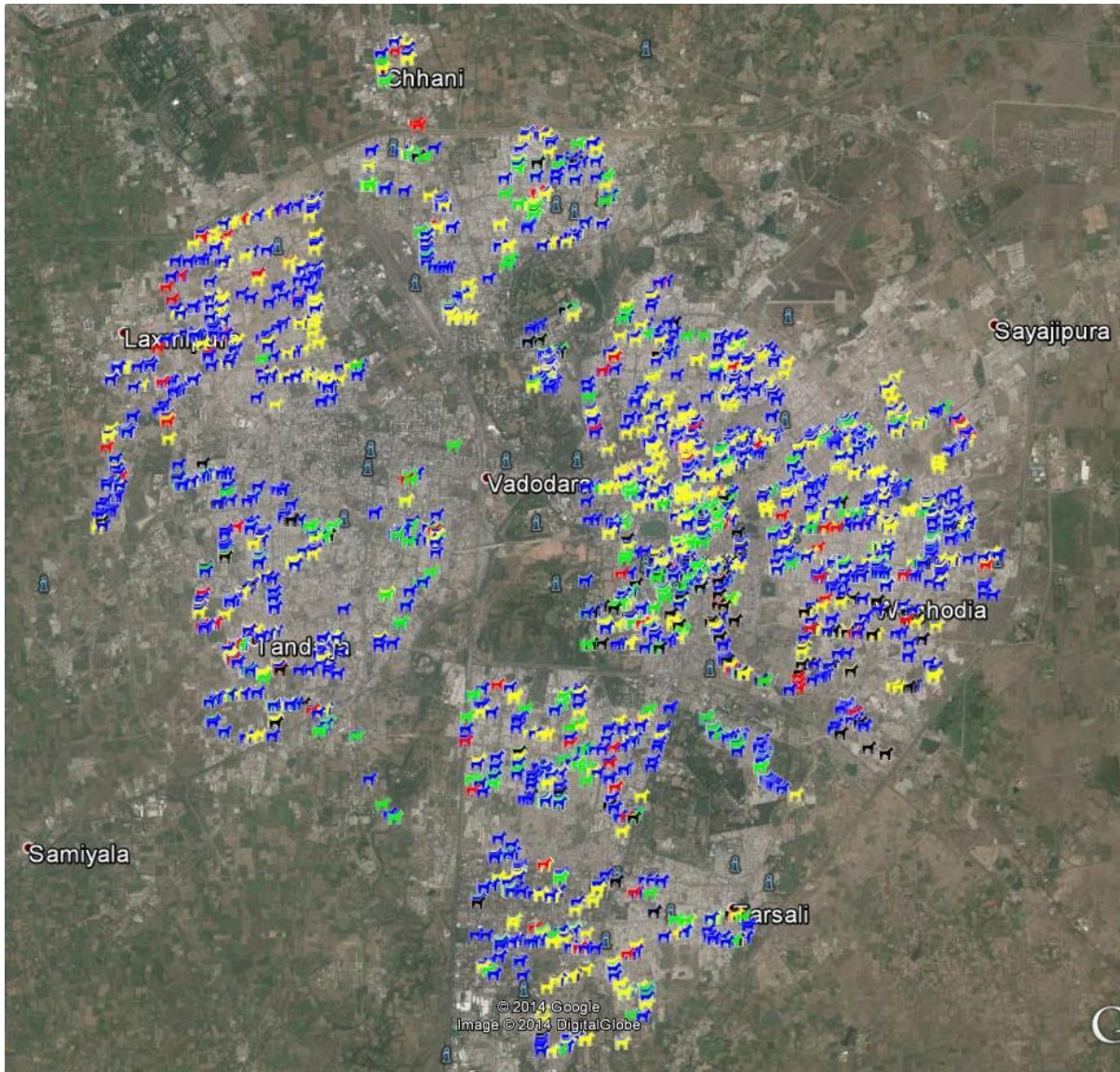
For both surveys we followed the same routes across the wards (Figure 24)

Figure 24: Survey routes through the twelve wards in Vadodara



GPS coordinates, collected with OSM tracker, enable us to map observed dogs and summarize the composition of the dog population (Figure 25). Dog icon colours translate as follows: Green = Female sterilized (ear notch present), Yellow = Female unnotched, Red = Lactating, Black = Male sterilized (ear notch present), Blue = Male unnotched.

Figure 25: Observed dogs in all 12 wards in Vadodara during the 2014 survey



From our 2014 survey we estimate a total dog population of 44,018 dogs roaming on the streets in Vadodara (2.42 dogs per 100 people, based on the 2011 census of the urban /metropolitan area), extrapolated from the observed dogs/km by total street length. Of the estimated 17,695 females and 26,323 males, 5,093 (29% Female) and 2,593 (10% Male) were sterilised. 5577 dogs were counted over 449 km of street length surveyed; the average dog density was 12.65 dogs per km.

Our survey results in July 2017 show significant differences between wards in terms of the proportion of sterilized dogs (Table 4). While the average female dog sterilization rate for Vadodara is 48.7%, ward 1 has the lowest estimated female sterilization proportion (26.7%) and ward 7 the highest (60.9%).

Table 4: Summary of the street dog survey results regarding sterilization

Vadodara Street Count - July 2017		
Ward Number	% Total Sterilized	% Sterilized Female
Ward-1	30.4	26.7
Ward-2	47.5	44.2
Ward-3	54.5	50
Ward-4	45.5	44.4
Ward-5	65.3	58.7
Ward-6	44.1	47.8
Ward-7	60.2	60.9
Ward-8	55.2	52.4
Ward-9	41.8	42.5
Ward-10	48.6	54.8
Ward-11	44.2	43.7
Ward-12	51.5	54.7
Vadodara Average	48.9	48.7

Discussion and Recommendations

Private ("owned") dog populations have long been excluded from the street dog population management discussion for two predominant reasons. First, there is a long held assumption that there are relatively few private dogs in India. Second, it is assumed that private dogs and street dogs are two separate non-interacting populations.

HSI suggests that dog demographic and KAP surveys show that not only should private and street dogs be considered as an interacting community of dogs (both are dependent on human behaviour, control and food/water provision) but also that the private dog population in Vadodara is substantial (one-half the street dog population in the city).

This has multiple implications for sterilization and vaccination programs.

Private dogs need to be included in dog population management programs. They likely contribute to the street dog population because their litters are reared under relatively close human supervision and food provision and because a large number (about two-thirds) of them roam the streets with street dogs. The rate of abandonment of private dogs and pups from private dogs has not been determined but it is likely that street dogs are recruited from the private dog population.

The sterilization rate among private dogs was low (36%) and the willingness of owners to have their dogs sterilized was very low (only 4% were willing). Considering that 47% of all females of reproductive age had had at least one litter, educational campaigns to address misconceptions of the effects of sterilization on individual dog behaviour and the benefits that come with owning sterilized dogs are needed. Sterilization efforts for street dogs should also continue as the mean sterilization rate is 48.9% across the twelve wards.

Confinement practices are another issue that needs to be addressed in any education campaign. Confinement of private dogs is an important when dog management programs aim to reduce the number of roaming dogs and aim to control rabies.

However, campaigns need to be planned carefully to prevent secondary welfare issues both for public health and for dogs. For example, if the confinement of dogs is promoted without proper guidance, it is likely that it will result in an increase in tethered dogs. The constant tethering of dogs leads to dog welfare problems and an increase in the risk of dog bites.

On average 6% of the households reported experiencing a dog bite in the last 12 months. We would expect this number to decline over time with more effective and humane dog management.

Vaccination levels were reported to be high among private dogs (94%). However, it is possible that reporting bias might have influenced respondents to report vaccination because respondents know it is the right thing to do. When asked if dog owners had visited a veterinarian in the last 12 months only 75% said that they did, indicating that fewer dogs (than reported as vaccinated) have actually seen a veterinarian in the previous year.

The upcoming sterilization and vaccination program, which includes microchip identification, offers an opportunity to implement a wider scheme to promote and enforce responsible pet ownership. Throughout the program, microchips can be used to verify the vaccination and sterilization status of dogs and will help to generate more accurate vaccination and sterilization estimates for the private and street dog population.

Further it is strongly recommended that a responsible pet ownership campaign be implemented to promote sterilization, vaccination and microchipping as well as to promote rabies awareness and prevention.

A dog registry will provide further control over the private dog population and could function as a tool to promote dog sterilizations and vaccinations.