

A STUDY OF PUBLIC PREFERENCES OF TRAP-NEUTER-RELEASE (TNR) AND TRAP-EUTHANASIA (TE) PROGRAMMES OF FREE ROAMING DOGS IN PENANG

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ABSTRACT. The presence of uncontrolled dogs is generally recognised as a significant problem for humans and animals. Trap-neuter-release (TNR) is a dog population management (DPM) concept adopted worldwide for reducing free-roaming dog populations (FRD). Trap-euthanasia (TE) is another concept in which FRDs are humanely trapped and then euthanised. This survey was conducted to determine public preferences between TNR or TE in managing the FRDs in Penang. Findings revealed that the public preferred humane methods of FRD population control such as trapping and taking to a shelter, adopting, spaying-neutering and TNR rather than TE. At the time of the study, TNR was being practised in Penang. The results indicated that 55% of the public did not favour it and 43% did not believe in its effectiveness to manage the FRD issue. 70% of the public interviewed disagreed with TE although aware that FRDs are unwanted and a nuisance at times. In general, the results showed public concern towards FRDs and encouraged the authorities to seek out improved methods of population and FRD control which is humane and acceptable to society.

Keywords: free-roaming dog (FRD), trap-neuter-release (TNR), trap-euthanasia (TE)

INTRODUCTION

The presence of dogs with or without their owners, but uncontrolled, is generally recognised to be a significant problem for humans and animals. They are known or called by different names in many parts of the society (Hughes *et al.*, 2013; Boitani *et al.*, 1995). Free-roaming dogs (FRDs) are defined as a family of dogs that stays in one community together and are not confined to a yard or a house. FRDs can be further divided into 2 main categories that include the owned dogs and unowned dogs (Hughes *et al.*, 2013; Boitani *et al.*, 1995; Young *et al.*, 2011)

WHO estimated that the total number of stray dogs, also known as FRDs, is about 200 million, and the total population of FRDs make up about 75% to 85% of the global dog population. The abandonment of these dogs might be related to irresponsible breeding, cultural and socioeconomic factors (Muthunuwan *et al.*, 2017; WAP, 2013; Massei and Miller, 2013).

Therefore, dog population management (DPM) is needed to be enacted for numerous animal welfare, public health and safety, and economic reasons (World Animal Protection, 2013; Massei *et al.*, 2013; Taylor *et al.*, 2017). DPM is aimed at improving the health and well-being of FRDs, reduce problems that they may cause and reduce the size or turnover of the population (Taylor *et al.*, 2017; FAO, 2007)

Food waste in garbage has also been suggested as an important factor in DPM. Better waste management has been implemented as part of some documented DPM programmes in other parts of world, for example India practises animal birth control and anti-rabies (ABC/AR) programme (Krishna, 2010; Raymond, 2015; Devleeschauwer, 2016).

The main objectives of DPM are as follows: reducing the incidence of human bite injuries, secondary infections and death, reducing or eliminating the transmission of rabies and other zoonotic diseases, reducing the level of noise and the amount of faecal contamination of the environment, reducing the incidence of traffic accidents, limiting the amount of negative publicity directed at governments and minimising the impact of reductions in tourism associated with FRDs.

The activities of DPM also include vaccination, control of access to food (habitat control), promotion of responsible dog ownership (RDO), prevention and control of reproduction, identification and registration of individual dogs, and the availability of shelters, re-homing centres and holding facilities.

DPM has included many programmes or schemes that have been practised for

many years by many countries. These schemes include the following: TNR, TE, Do Nothing, Stop Feeding, Trap and Take to a Shelter, Trap and Take to a Sanctuary, Trap and Abandon Elsewhere, and Trap and Relocate to Barn Home or other Location.

TNR is a method for reducing FRDs and is being practised in many parts of the world. This approach has been globally endorsed, accepted and strongly supported by the World Society of Protection of Animals (Tasker L., n.d.).

In TNR, FRDs are trapped in humane traps, spayed/neutered and vaccinated, and then returned to where they are being fed. Socialised adult FRDs are adopted by homes whenever possible. The FRDs that are not able to be re-homed are then released back to where they were trapped. These animals will be ear tipped, an ID for caretakers to identify them as animals that have been taken care of (foxfelina.com, 2012; Feral Cat Coalition, 2017; Faunalytics, 2012).

Volunteer caretakers will then check on these animals off and on in which any dogs that are observed to be wounded or in need of medical care will be cared for. These animals will also be vaccinated with annual basic and rabies vaccinations.

Any new dog found straying around the area without an ear tag will be considered a newcomer and trapped. This new dog will undergo the same process of spaying/neutering and vaccination. Once completed, it will be ear tagged and fit to be released. Caretakers will then try to re-home them. If not successful, they will be released in the area where it was found.

TNR has pros and cons. The pros include the following (Winter L., 2004;

Jackman, 2007): (1) it is less expensive than other approaches because caregivers and other volunteers will help; (2) it has been found that dogs are healthier after being spayed/neutered; and (3) dogs treated in TNR are ear-tipped, so that it is easy to notice a new dog that may need to be treated.

The recapture of treated dogs and field observations have demonstrated improved dog health. Dogs that had been sterilised showed weight gain, improved coat luster and quality, improved skin conditions, and fewer parasites and venereal tumours (HSI, 2001). Nuisance behaviours like fighting, yowling and spraying are reduced or eliminated (Abbate C.E., 2018).

The TNR scheme has also pressed for changes in waste disposal. The overall ultimate answer to FRDs population control is to control the availability of edible wastes which seem to be the source of feed for them (Jackman, 2007).

The cons of TNR are: (1) FRDs need to be trapped. These dogs are very good at hiding and trapping them is not as easy as it seems They have adapted to their environment and know their way around the area. (2) FRDs that cannot be re-homed but are returned to where they are found, can contract diseases such skin diseases and be wounded from accidents or fights causing them more pain and misery.

TE is another scheme practised a long time ago in which FRDs are trapped humanely and then put to sleep (Ortega-Pacheco *et al.*, 2011; WAP, 2000). OIE (2011) has considered euthanasia as a method to reduce the number of stray dogs to an acceptable level in order to reduce the risk of rabies and other zoonotic diseases and to

prevent harm to the environment and other animals (OIE, 2011; Andrews,1993).

Several societies such as the WSPA does not condone mass destruction as a measure to control population of dogs and cats except in circumstances when euthanasia is considered the most humane option. Animals considered for euthanasia are those which are sick or dangerous. However, euthanasia can also be accepted in animals which are unsuitable for homing and need to be returned to the streets, and to alleviate overcrowding in shelters so as not to compromise the welfare of animals held in there (Ortega-Pacheco *et al.*, 2011).

Several methods of euthanasia are used for dogs but not all can be considered as an acceptable method (Tasker, n.d.; ICAM Coalition, 2007). Bearing in mind personnel safety, efficacy and costs, the preferred method commonly used is the intravenous injection of sodium pentobarbitone. There are different methods for euthanasia in dogs which are well described elsewhere but some of these methods still remain controversial (Close, 1997). A reliable method should always produce rapid loss of consciousness until death occurs.

It is compulsory to confirm the death of an euthanised dog before the body is disposed of or left unattended. If an animal is not dead, another method of euthanasia should be performed immediately. The carcass should be disposed according to the local ruling legislation to avoid the risk of residues. Incineration is considered the safest way for disposal of carcasses (Ortega-Pacheco *et al.*, 2011).

MATERIALS AND METHOD

This research project is based on a survey with questionnaires and interviews. Respondents are from two main categories: the public and the non-government bodies (NGO). Three sets of questionnaires were given to these groups, respectively following the hierarchical level of the respondent. All respondents were required to fill in a consent form acknowledging their participation. They could choose to be interviewed or to fill in the questionnaires.

The questionnaires for the public respondents were divided into five main sections: (a) basic information of participant, (b) ownership of dogs, (c) free-roaming dogs, (d) waste management, (e) general thought of animal welfare issue, (f) general thoughts of rabies and (g) general thoughts of dogs and awareness of rabies.

The respondent's preference of TNR or TE were in 7 questions in sections (e) and (d), as outlines of the respective DPM, and given in the questionnaires to all public respondents. Respondents were then requested to comment on their preference and give credence to what could be the best management of FRD.

Questions were the following: (1) Do you observe stray dogs eating from the garbage containers. (2) What are your opinions on trap-neuter-release (TNR) projects. (3) Do you believe that TNR programmes will help in reducing the stray population. (4) What are your thoughts on trap-euthanize (TE) schemes. (5) Do you believe TE schemes are effective in reducing the stray animal population. (6) What method is most effective, in your opinion, in

order to make a decline in the stray animal population. (7) What would you like to see done to improve animal welfare in our area or help people with animal-related problems.

Non-probability sampling technique was adopted for this survey, specifically the convenience approach, as described by Elfil and Negida (2017) (Fazly Ann *et al.*, 2019). The method was selected due to the specific criteria of targeted respondents, which are: local Penang respondents, pet dog ownership, feed FRDs, easy accessibility, nearby functional distance, availability at a given time and willingness to participate in the survey.

Study area

The study was conducted in the state of Penang from five districts: north-east Penang island, south-east Penang island, north Seberang Perai, south Seberang Perai and south-west Penang island. Over the last few decades FRDs have inhabited the city and the neighbouring settlements, in many cases straying away from humans in search of food.

Analysis

The questionnaires are designed so that responses could be analysed by a Likert scale of strongly agree to strongly disagree. Statistical analysis for each answer is according to the aspects outlined in each question.

RESULTS AND DISCUSSIONS

A total of 200 sampled questionnaires were returned. There were 157 public respondents who fulfilled the criteria of targeted respondents.

Demographic Profile of Respondents

The demographic characteristics of respondents are shown in Table 1. Based on the results, the highest number of respondents were pet dog owners with 92 (63.4%) responses compared to 53 (36.6%) with no pet dog. Only 34.4% feed the FRDs and 65.6% do not. 61.5% of respondents were males and 38.5% females. The highest number were respondents above 30 years old [49 (33.1%)] and the lowest were less than 20 years old [10 (6.8%)]. 57.3% of the respondents lived in terrace house, 19.7% in other types of residential that includes high-rise buildings like condominiums and apartments. The findings also revealed that in 22.7% of respondents live in households of at least six persons.

Overall response of respondents in managing free-roaming population

The results indicated that the respondents were aware of the FRD issue and wanted to resolve it in a proper manner. Many of them were concerned, open and positive-minded about the welfare of the dogs. Table 6 shows that 71.5% of respondents wanted the overpopulation of FRDs to be reduced and enforcement to be applied for roaming pets.

26.3% (85) of respondents stated that the prevailing ordinance against animal

cruelty and neglect should be practised in order to protect FRDs at the same time.

Effective mode of reducing free-roaming dog population

In Table 4, the public were in favour of placing FRDs in animal shelters and adoption schemes compared to other options. Spaying/neutering alone was third in choice as being effective to solve the main overpopulation problem of FRDs as they were concerned that they can be disease carriers and be aggressive at times even though the population will gradually reduce in the long run.

The TE mode was commented to be an inhumane method and the public preferred other humane modes of DPM. Table 1 shows that it was forth in choice after other methods.

TNR was the least favoured by the public even though this scheme was being carried out. Their main concerns were that releasing them even after neutering and vaccination would still pose a danger as disease carriers and aggressiveness.

Trap–neuter–release (TNR) scheme

This section of the survey was to identify the preference of respondents regarding the current practice of TNR and concomitantly, their confidence in its effectiveness in managing and reducing FRD. Figure 1 and Table 2 shows that majority of the public was not in favour of TNR; 34% (49) disagreed and 21% (31) strongly disagreed about this practice resolving the FRD issue.

Table 1. Demographic characteristics of respondents in the study of management of FRDs in Penang. (The total number of respondents were 157. The figures in this table omit missing data.)

Characteristic	Number of Respondents	Percentage (%)	Characteristic	Number of Respondents	Percentage (%)
Sex			Volunteer to feed FRDs		
Male	88	61.5	Yes	54	34.4
Female	55	38.5	No	103	65.6
Age (Years)			Number in household		
20 and below	10	6.8	1-2	38	25.3
21-30	48	32.4	3-4	47	31.3
31-40	49	33.1	5-6	34	22.7
41 above	41	27.8	7 and above	31	20.7
Ownership of dogs			Type of residents		
Yes	92	63.4	Terrace house	90	57.3
No	53	36.6	Semi-detached	30	19.1
			Bungalow	6	3
			Others	31	19.7

Table 2. Respondents preference on Trap-Neuter-Release (TNR) scheme against Trap-Euthanize (TE) scheme.

Respondents Preference	Respondents, n (%)				
	Strongly Agree	Agree	Not concerned	Disagree	Strongly disagree
What are you opinion on Trap-Neuter-Release (TNR) projects	10 (7)	30 (20)	26 (18)	49 (34)	31 (21)
What are your thoughts on Trap-Euthanize (TE) schemes	22 (31)	10 (7)	11 (8)	57 (39)	45 (31)

Table 3. Respondents credence on Trap-Neuter-Release (TNR) scheme against Trap-Euthanize (TE) scheme

Respondents Preference	Respondents, n (%)		
	Believe	Do not believe	Not certain
Do you believe that TNR programmes will help in reducing the stray population	54 (31)	76 (43)	46 (26)
Do you believe TE schemes are effective in reducing the stray animal population	56 (31)	63 (35)	62 (34)

Table 4. Respondents preference on effective mode of reducing free roaming dogs population

Respondents Preference	Respondents, n (%)					
	Spaying/neutering	Trap Euthanize (TE)	Trap Neuter (TNE)	Adoption	Animal Shelter	Others
What method is most effective in your opinion in order to make a decline in the stray animal population	58 (14)	48 (12)	26 (7)	76 (19)	123 (31)	69 (17)

Table 5. Respondents observations on waste management and free roaming dog population

Respondents Observation	Respondents, n (%)	
	Yes	No
Do you observe stray dogs eating from the garbage containers	111 (77.1)	33 (22.9)

Table 6. Respondents response on improvements done for the free roaming dog population*

Respondents Preference	Response given by respondents, n (%)			
	Reduce pet overpopulation	Enforce current ordinances about roaming pets	Enforce current ordinances against animal cruelty and neglect	Others
What would you like to see done to improve animal welfare in our area or help people with animal-related problems	123 (38.1)	108 (33.4)	85 (26.3)	7 (2.2)

* The total number of responses were 323. The figures in this table are more than the number of respondents (157) as respondents were not given a limited choice of number in answering.

Only 27% of the public agreed and accepted the TNR scheme, 7% (10) strongly agreed and 20% (30) agreed in regards of the implementation of it. 18% (26) were not concerned if TNR were used or not to resolve the FRD issue

In the case of effectiveness of the TNR scheme in DPM to solve the FRD issue (Figure 2 and Table 3), 43% (76) of respondents answered that they were not confident.

One of the main concerns of the respondents was that the dogs released and not re-homed after TNR can still contract diseases such skin diseases and be inflicted with wounds due to accidents or fights causing more pain and misery to them over the long run. This could lead to further problems such as transmission of disease to other animals such pet dogs and cats, or, even worse, to residents staying in the area.

31% (54) of the respondents agreed that TNR scheme is effective. 26% (46) were doubtful.

As shown in Figure 2, 26% (46) of public were still doubtful on how effective this scheme would be even though it was the prevailing practice.

Trap-euthanasia (TE) scheme

The respondents were very strong in their opinion of TE. 70% (102) of the public disagreed with this practice. Out of the 70%, 31% (45) strongly disagreed. 39% (57) disagreed (Figure 3 and Table 2). The reason given for their disagreement was that it is inhumane to kill animals in general in this manner and other ways should be adopted.

Only 22% (32) of the respondents were in favour of TE and they considered it as a

permanent solution in resolving the FRD matter. Out of the 22% (32) that agreed, 15% (22) strongly agreed and 7% (10) agreed that TE scheme is good to be implemented for DPM.

Analysis also showed that 8% (11) of the respondents were not concerned whether TE was used to resolve the FRD matter or not even though they were not very knowledgeable about it.

Euthanasia is only a temporary remedy to cure symptoms rather than causing other problems of overpopulation. It should be only considered as the last recourse after a long process of evaluation. This procedure also may be required in specific scenarios to balance the overcrowding of dogs, to reduce the risk of zoonotic transmission and damage to the environment, and to avoid unnecessary suffering. However, ethical concerns are to be considered when healthy animals have to be killed.

35% (63) of respondents were not confident that the TE scheme will resolve the FRD issue as shown in Figure 4. They were not in favour of this scheme.

The public were against the TE scheme as they did not think that it will that it will resolve the problem of FRD overpopulation, or any animal in particular. It will only cause a vacuum effect in which more animals will come in the area and occupy the space which was cleared by the TE scheme.

Overall choice of method most effective in resolving free-roaming dog (FRD) population

The last question to the respondents was about their best choice of methods which

they think could resolve the FRD problem. Respondents clearly answered that TNR was not favourable even though it was the prevailing method in Penang. Only 7% (26) were in favour of this scheme. Figure 5 shows that 31% (123), the majority, were in favour of the animal shelter scheme. The main concern expressed was that in releasing the FRD, after neutering and vaccination, to its original site, they still posed a danger as disease carriers and may show aggressive behaviour at times.

The findings of this study very clearly showed that the public were in favour of more humane schemes such as the trap and take to a shelter, adoption and spaying/neutering (Table 4 and Figure 5).

19% (76) chose the adoption scheme as a solution compared to 12% (48) who chose TE. This clearly indicates and proves that the public preferred and wanted a humane solution (Table 4 and Figure 5).

The adoption together with spaying/neutering scheme places FRDs in animal shelters, thereby providing opportunities for a second chance at a home. Most of these homes would accept both strays and animals relinquished voluntarily by their owners.

Food waste in garbage has been suggested as an important factor in DPM. Better waste management has been implemented as part of some documented DPM programmes in the world. For example, animal birth control and anti-rabies (ABC/AR) programme in India. Results of this study showed that 111 (77.1) of respondents linked the FRD problem with the waste management system in their residential area. Only 33 (22.9%) of respondents had

mentioned that they did not notice any FRDs near garbage areas (Table 5).

The spaying/neutering scheme was favoured by 14% (58) of respondents. It was not as popular compared to the three mentioned earlier. The concern expressed was what would happen to the FRD after spaying/neutering even though the procedure could help to reduce the population.

The preference of respondents towards humane ways of managing FRD, combining all three ways of DPM will have an added advantage as to trap, neuter and re-home or also known as TNRe-home. In TNRe-home, FRDs will be trapped, neutered and re-homed to a new home.

TNRe-home is enforced by Section 24 of the Laws of Malaysia, Animal Welfare Act 2015 (AWF 2015) where an owner must carry out the responsibilities of providing a proper environment, proper diet with the animal being able to exhibit its natural behaviour, and protection from pain and suffering from disease. In this Act, the owner is defined as a person involved in the trap and neuter, and therefore, must carry out the duties as owner.

CONCLUSION

In conclusion, the findings in this study indicates that the respondents were aware of FRD issues and wanted a solution in a proper manner. Many of them were open and positive minded about it and at the same time very concern over the welfare of the dogs.

Even though TNR was the prevailing scheme practised, many public participants

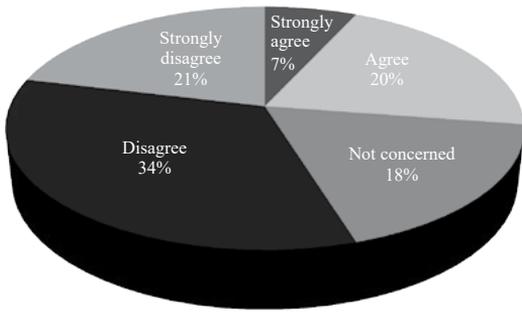


Figure 1. Percentage of respondents' preference according to the number of respondents' favoritism to Trap-neuter-release (TNR) scheme.

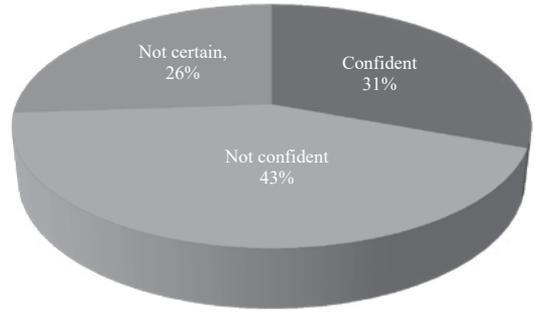


Figure 2. Percentage of respondents' confidence of effectiveness to Trap-neuter-release (TNR) scheme.

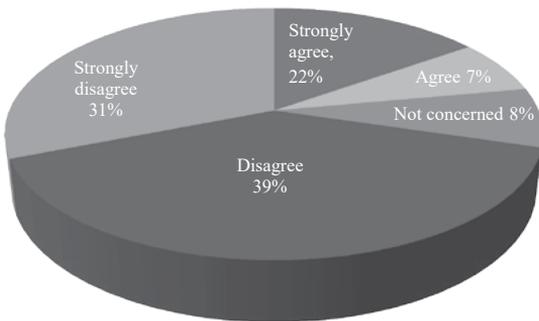


Figure 3. Percentage of respondents' preference according to the number of respondents' favoritism to Trap Euthanasia (TE) scheme.

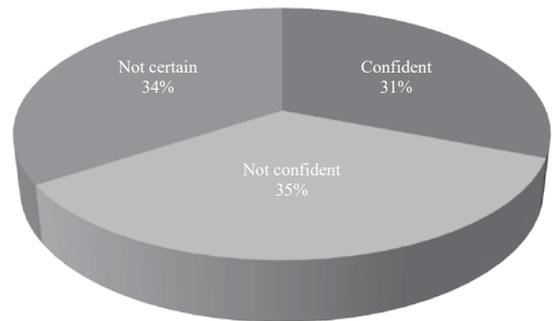


Figure 4. Percentage of respondents' confidence of effectiveness to Trap Euthanasia (TE) scheme.

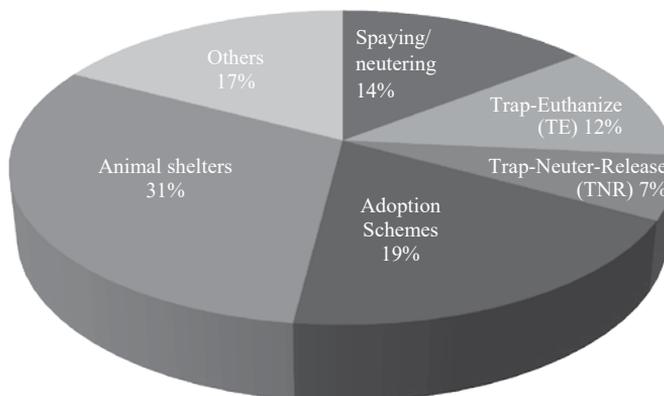


Figure 5. Percentage of respondents' preference of overall effective choice of method.

were not in favour of it and expressed their thoughts and beliefs in the questionnaire. This could be because they do want a positive and humane approach to the FRD issue rather than TNR. Hence, other humane and environmental friendly DPM schemes should be thought of and adopted in addressing this matter for the betterment and welfare of the FRDs.

The public respondents were also not in favour of the TE scheme as it was said to be inhumane to euthanise the FRDs, even though their presence is unwanted and can cause variable problems at times. A note to remember also is that nothing can solve the problem of dog overpopulation except the capacity of us humans to understand the situation and take action to avoid the birth of unwanted puppies, and become responsible owners in order to further prevention and avoid relinquishing pets.

This study clearly showed that the public were in favour of more humane schemes such as the trap and take to a shelter, adoption and spaying/ neutering.

Therefore, the best solution for the best interest of animal welfare will be a combination of all three schemes that is the trap-neuter-rehome (TNRe-home) which is the prevailing method, in line with the Department of Veterinary Service policy and also with responsible ownership requirement of the Animal Welfare Act 2015 that allows FRDs to be trapped, neutered/spayed and re-homed either in shelters or through adoption.

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