

# An investigation into the impact of educational programmes on the health and welfare of dogs in a rural area of North Goa in India.

Researcher and report written by Stephanie Panayiotou

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## **1. Introduction**

In the UK we commonly accept that the dog is man's best friend and dogs hold a valuable place within our society, supported by enforceable animal welfare laws. The situation in India is rather different, as the researcher initially experienced on her first trip to India five years ago. Over the past five years the researcher has spent time in India, particularly Goa, helping to support local charities in their Animal Birth Control (ABC) and welfare programmes, in particular a small NGO called Welfare for Animals in Goa (WAG). The researcher was able to experience first hand the dynamics between animals and people in both urban and rural areas of India and the subsequent consequences on the health and welfare of the animals. This project will particularly focus on the role, health and welfare of dogs within rural Indian communities.

Dogs are often seen as a nuisance in India as discussed by Cleaveland et al. (2006) due to the spread of disease, noise pollution, faecal contamination, livestock predation, spread of rubbish and uncontrolled breeding, which can result in deliberate abuse, poisoning and torture of animals. India has the highest rates of dog bites in the world with 36% of the world's human deaths caused by rabies (Kole, Roy & Kole, 2014).

Rural areas in India have the highest rates of disease and mortality (Patil *et al.* 2002; Rubel *et al.* 2003). Rabies is consistently one of the highest reported factors primarily due to large populations of free roaming dogs (Meltzer and Rupprecht 1998; Knobel *et al.* 2005; Jackman and Rowan 2007; Bourhy *et al.* 2010). This is primarily because these areas are less affluent and accessibility is a problem, which directly impacts on opportunities for education and access to medical care. Despite all these factors, dogs still play a role in many Indian village families.

Often in villages, dogs are acquired as pets simply by picking up a puppy that has been found on the street with the aim of using it as a guard dog. The majority of these dogs spend significant time chained up, are not sterilised, nor treated with prophylaxis for fleas and ticks (which act as vectors for disease) and rarely receive veterinary care. This becomes a perpetuating cycle as the dogs' physical and emotional needs are not met and therefore they start to display fear-based and pain-based behaviours resulting in less care and contact from their human carers.

Animal welfare includes both physical health as well as feelings in relation to their primary needs (Hewson, 2003). Based on this, the assessment for this project will cover the following for each dog assessed:

- Body condition score
  - Food and water (quality/quantity/access)
  - Vaccination history
  - De-worming history
  - Presence/evidence of ticks and fleas
  - Evidence of wounds
  - Skin condition
  - Neutered status
- 
- Freedom from pain, disease and injury
  - Freedom from discomfort
  - Freedom from fear and distress
  - Freedom to perform natural behaviours

The term 'human-animal bond' describes the relationship between humans and their pets and the positive psychological and physical benefits for their owners are well documented (McConnell et al. 2011). In the rural areas of India, dogs are seen less as companion animals and more as a means of providing protection for people's homes. Therefore there is less positive interactions with the dogs and less investment overall in the dogs health and welfare. Not only has there been substantial research into the 'one-to-one' benefits of human-dog interactions but additionally Wood et al (2007) have explored the community benefits and the positive ripple effects that extend beyond the dogs' owners. This is fundamental in rural India as it is very community based. With encouragement of the human-animal bond in some families this can extend outwards, over time allowing for a change in the perception of the role of dogs in communities, and enhancing the health and welfare of not only the dogs but of the people too.

## **2. Aims & Objectives**

- Enhance the health and welfare of a sample of dogs in a rural area of North Goa, India
  - Promoting and carrying out vaccination
  - Promoting and carrying out de-worming
  - Promoting flea and tick prevention (reducing risk of zoonosis)
  - Promoting neutering
  - Promote optimum feeding and drinking
  - Promote a suitable environment for the dogs
  - Addressing the 5 Freedoms to promote welfare
  
- Support and enhance the human-animal bond in the sample group
  - Educate the owners regarding suitable interactions with their dogs.

Long term expected outcomes:

- Reduction in the risk of contracting endemic diseases for the dogs
- Reduction in the risk of contracting zoonotic diseases for the owners and the community
- Enhanced health and welfare of the dogs through improvements made to their environment
- Improved education regarding the dogs within the local community
- Reduced population of dogs through promoting sterilisation which will reduce spread of diseases, fighting, injuries, noise, faecal contamination, wildlife predation, spread of rubbish and uncontrolled breeding all associated with the excessive population of street dogs in India

### **3. Methods**

This was a prospective study in which the researcher designed a questionnaire incorporating both open and closed questions to assess several aspects of the dogs' health and welfare. The research took place in a rural village in Goa, India called Olaulim located near the town of Aldona. This village was identified as an area with little charity intervention as discussed with local charities and also with access to someone who could act as a translator for this project in this area.

The researcher had one colleague and one local translator who knew the village and advised on which homes to include in the research. The translator introduced the researchers and assisted with translation as needed for the pre-test questionnaire. Once the information was gathered, subsequent advice and education was provided to the dogs' owners. Educational material was pre-designed based on generic advice including the importance of vaccinating, de-worming, de-fleaing, sterilising, providing clean water and sufficient and appropriate food, ensuring comfort, good health and promoting the human-animal bond. This was presented as a simple A4 poster with images and basic text (see appendix 1), which the translator went through with each individual owner to ensure they understood what they needed to do and why.

At this point, the researcher (vet student) carried out any basic first aid, de-worming, vaccinations and flea treatments on the animals that were approachable. The researcher returned two weeks later with the same colleague and translator to carry out a post-test questionnaire to assess any implementation of the advice and any subsequent impact. A total of 20 dogs were included in the research.

The sample included mostly very low-income homes, but did include some homes that were higher income households.

## **4. Results**

Twenty dogs were included in the survey in total, 18 of these dogs were mixed breed 'Indian' dogs, one dog was a pug cross and one dog was a German Shepherd.

Not all dogs could be physically examined, but all dogs were assessed from a distance and those that were approachable were examined more closely. Out of the 20 dogs, advice was given for 18 of the dogs. The results can be seen in Table1.

Out of the 20 dogs, ten were not neutered initially and three of those were neutered before the second visit. The average body condition score (BCS) was 2.8/5 and this did not change within the two week period, two of the dogs had a BCS of 1.5/5 and 3 dogs had a BCS of 4/5, the others ranged from 2.5/5 to 3.5/5. Ten dogs were identified as having ectoparasites manifesting in a skin condition, therefore these two categories were grouped together, and this figure did not change over the two week period. Fifteen dogs were not protected against rabies (either because they had never been vaccinated or the vaccination was overdue). Out of these 15 the researcher was able to vaccinate 12 of them, whilst 3 were unable to be approached and therefore not vaccinated during this period. Seventeen dogs had either never been dewormed or their deworming was over due and all 17 were successful dewormed at the first visit. Twelve dogs did not have sufficient water or access to clean water, and there was a marked improvement on the post-test as only four still did not have access to clean water. At the pre-test three dogs demonstrated evidence of pain, seven demonstrated evidence of discomfort, 12 demonstrated evidence of fear or distress and 12 demonstrated an inability to perform natural behaviours. Out of these four latter qualities, there was no quantifiable change over the test period. There was no quantifiable method to assess the human-animal bond, however it was encouraged at both pre and post-test visits.

**Table1: Figures demonstrating the number of animals affected**

	Pre-test	Post-test
Not neutered	10	7
Average BCS	2.8/5	2.8/5
Skin/parasitic problems	10	10
<b>Unvaccinated (rabies)</b>	<b>15</b>	<b>3</b>
<b>Not dewormed</b>	<b>17</b>	<b>0</b>
Insufficient food	1	1
<b>Insufficient water</b>	<b>12</b>	<b>4</b>
Evidence of pain	3	3
Evidence of discomfort	7	7
Evidence of fear or distress	12	12
Inability to perform natural behaviours	12	12



## **5. Discussion**

All dog owners welcomed the research team into their home and appeared interested in the questionnaire and advice given. This was greatly appreciated by the research team as it was anticipated that there would be some apprehension by some of the dog owners. Having a local villager acting as translator was fundamental in the dog owners welcoming the research team into their home in addition to the research team making it clear that the purpose of the project was to help both the dogs, people and community.

### **i. Body Condition Score**

Whilst the average BCS would appear to be adequate, this average is a result of some dogs that are over weight and some that are underweight so it is better to look at the individual scores that show the majority of animals either lacking in nutrition or being over fed/lacking in exercise. The two dogs with a BCS of 1.5/5 were clearly underweight, these dogs also showed significant fear aggression and were chained up permanently, they were the only two dogs in the survey that were not released off their chain at all due to their behaviours. This is of increasing concern for both the health and welfare of these two dogs. Their low BCS could be due to numerous factors, but mostly likely in this case due to a lack of suitable food intake (either provided or consumed if a bowl is not always in reach or contaminated with faeces/urine) and ectoparasites. There were three dogs with a BCS of 4/5 and the rest were between 2/5 and 3.5/5.

### **ii. Skin/Parasitic Problems**

Effective parasite control can be very challenging in any household, especially where there are multiple animals, when free roaming is allowed and there is a lack of effective and affordable treatment options to treat the animals and the environment. The main ectoparasites that causes the dermatological disease demodicosis in the dogs in rural India are *Demodex canis* mites which are readily transmitted amongst dogs, particularly affecting the young and those that are lacking in nutrition (Reddy et al. 2014).

Flea and tick treatment was applied to those dogs needing it, however the environment was not treated which could be a reason for the lack of efficacy or the parasites could be resistant to the treatment or perhaps the dogs skin had not had the chance to recover from the previous parasite load. To truly tackle ectoparasites, a strict protocol would need to be applied to the animals, their environment and ensure follow up treatment which was not possible within the time frame of this study. Effective ectoparasites treatment is not something that the majority of village households could afford and

therefore it is perhaps an important consideration to include ectoparasites control alongside any ABC programmes and vaccination drives carried out by charities ensuring rural areas are also covered.

The dogs who are affected by ectoparasites are a concern in terms of animal welfare as these parasites not only can cause life threatening anaemia, but they will also be in considerable discomfort from the itchiness and skin lesions which often lead to secondary infection, all of which are associated with demodicosis. Furthermore these ectoparasites can transmit diseases to the dogs, several of which are zoonotic which are potentially fatal especially if medical treatment is not sought (Scott, Miller & Griffen 2001).

### iii. Vaccination

The owners of the dogs that were not vaccinated against rabies were very happy for the researcher to vaccinate them (this was done free of charge funded by the researcher). There was no resistance from the owners and they were all grateful for the free vaccination for their pets. Some (3) of the owners said they thought they had vaccinated their dogs as a puppy but had not kept it up as they were not willing to take the dog to the vets, either because they had trouble handling their dog, or they didn't know where the nearest vet was and they did not want to spend the money or time as it was not a priority for them.

Rabies is a lethal zoonotic disease with dogs acting as reservoirs (WHO, 2005). Dogs can also transmit rabies to other species such as cattle and many villagers rely on their cattle to provide them with an income either through agricultural use or for milk and they also use them for mortgage if no formal banking channel is available (Biswas & Sinha, 2008). If rabies was to get into the village it would be catastrophic for all involved and therefore it was a priority to vaccinate as many of the dogs as possible. The research team were successful in vaccinating every dog that was approachable and they made it clear the reason why vaccination was important, with the aim of encouraging those that took part in the survey to disseminate this information within their community to encourage further vaccination. The advice included where they could get free vaccinations for any dogs unvaccinated against rabies.

### De-worming

Filariasis is endemic throughout India with filarial nematodes being responsible for diseases including heartworm in dogs which also has zoonotic potential (Rani et al.

2010). All dogs that needed deworming were dewormed, if the researcher could not approach them, the tablet was given to the owners to give to the dogs with their food. Deworming tablets are cheap and easily available in India and educating dog owners about their importance is fundamental in preventing diseases such as heartworm. This component of the project was highly successful as it did not require any time or cost for the owners and they understand the importance of it and were happy for their dogs to be dewormed. What is uncertain is if they will comply with the on-going recommended deworming protocol that was advised to them.

#### iv. Food

Dog food can be expensive in India and the standard practice is to feed the dog the leftovers from the household meals, which often consist of rice, and flat bread, and is sometimes accompanied by chicken, fish or lentils. It was difficult to truly evaluate the nutrition, as the research team were not present at meal times so this specific information was gathered through questioning. It is therefore important to accept the lack of reliability regarding the dogs' dietary intake. The concern would be a lack of protein in the diet when the dog is only fed rice and bread as protein is not synthesized within the body and is essential for growth and maintenance of health (Srivastava, 2012). Each household was reminded of the importance of including a portion of protein with most meals (lentils, fish or chicken).

The advice given also included not giving fish bones, as they have been known to cause serious injuries based on reports from other charities and welfare workers.

#### v. Water

There was a general lack of clean water available for the dogs in this study. In some cases there was no evidence of water at all, and most frequently it was found that there would be a bowl but either not in reach of the dog on a chain, it would be very dirty or would be empty. Two bowls in two different households had urine in their water bowl. During the first stage of the research it was made clear the importance of water and what constitutes sufficient water for the dog as many owners were surprised that providing some water once a day was not sufficient.

When the research team carried out the follow up visit, there was a significant improvement in this category with only four dogs not having access to sufficient clean water compared to 12 dogs two weeks earlier. This was clearly the most significant change over the two-week period that required the owner to implement a change. The researcher proposes that the reason the access to appropriate water for the dogs was

the most successful enhancement was because it did not cost the owners any money and took minimal time to carry out. Those owners that made this change were greatly praised for their acknowledgment of what needed doing and ensuring that an appropriate water supply was provided for their dogs. Ideally an additional follow up visit would ensure that the supply of sufficient clean accessible water was maintained.

#### vi. Pain

Three dogs showed clear signs of pain, one was chained up so tightly there were lesions around his neck, one dog had recently been in a fight with another dog and had bite wounds on his body and the third dog had a prominent swelling around his penis which was very painful on palpating even close to the area. None of these dogs had received veterinary care. A dog experiencing pain without receiving any medical treatment is a great welfare concern. When discussed with the owners, they did not consider taking their animal to the vets for the following reasons: they did not realise the dog was in pain, they did not know how to access a vet, and they were concerned about the costs. Most concerning was that none of the owners of these dogs even realised that their dog was in pain. The research team explained to the owners how they identified the dogs as being in pain and the significance of this to their health and welfare. The owners did appear concerned when they were told that their dogs were in pain, however the issue is not only identifying pain but also ensuring they can affordably access veterinary care for their animals when necessary. The locations of low cost charity veterinary clinics were clearly detailed to the owners. On the revisit, the dog with the bite wounds and the dog with the swelling around his penis were better, however the research team administered treatment to these animals so it is unclear as to whether or not the owners would seek medical treatment in the future. In order to assess this further, additional follow up visits would be required.

#### vii. Discomfort

This was primarily the case with the dogs that had evidence of ectoparasites and those who did not have access to a suitable area for sleeping. The lack of improvement in those appearing to experience discomfort is paralleled with the lack of improvement in ectoparasites control. It is therefore assumed that should the ectoparasites be more effectively controlled, the dogs would be in less discomfort from the itching and skin lesions associated with ticks and fleas. As with pain, a dog being in discomfort is a welfare concern and it is important to consider the long-term management of ectoparasites to alleviate discomfort associated with them.

### viii. Fear/Distress & Inability to perform natural behaviour

A significant number of the dogs (60%) showed signs of fear and distress, which was mostly evident by barking or snarling on approach of the research team. These same dogs also were unable to perform natural behaviours, due to being chained up for a significant amount of time, a lack of enrichment and a lack of company (either human, dog or both).

The biggest concerns for animal welfare in this group of dogs were those that were permanently chained up. One owner said that when the dog was let loose, he chased and killed their chickens and neighbours chickens (which contribute to the household's livelihood) and the owners were not willing to lead walk the dog as it would be too difficult and time consuming.

One owner said she walks her dog once a week and she was unable to do it more often due to time constraints, on the revisit she did say that she increased that weekly walk to 20 minutes from 15 minutes.

The most extreme case was an eight-year-old dog that the family owned since being a puppy and had been chained up since then, the chain was so tight the dog could not stand up without his neck lowered. When questioned about their reasons for this, the man of the family explained that the dog was very excitable as a puppy so they had to chain him up at times, then he would bark and they started to get scared of him. Over time they did not know how to handle him and, in what appears to be out of frustration, the dog would apparently try to bite on occasions, resulting in the family leaving him chained up permanently. Considerable time was spent with this family to encourage them to spend time with their dog, explaining both how and the purpose. After returning for the second visit the family said they had not spent more time with the dog as they were very busy, however they did change his collar and extend his lead. In this case, despite saying they cared for the dog, it appears that the fear towards the dog was overwhelming, in addition to not finding the time to commit to the human-animal relationship. In this case, especially as the situation has been long term, the family would need frequent visits where somebody would spend time with them and their dog working on enhancing the human-animal bond between them, and if this was not possible it would be prudent to discuss euthanasia as the dog's welfare is severely compromised.

If animals are displaying fearful behaviour and/or are unable to perform natural behaviours, a larger project would be needed to investigate the causes of the behaviours, understanding the relationship between the owners and the dogs and the reasons for the restrictions applied to the dogs. Following this, should the owners express compliance to make welfare enhancing changes, significant time will need to be spent with both the owners and the dogs to be able to observe changes in the dogs' behaviours. Any significant behavioural change will take time and this was beyond the scope of this study, however encouraging basic changes was hoped to be a step in the right direction.

#### x. Human animal bond

It was difficult to truly assess the current bond between owner and dog for each of the subjects and it did appear to vary greatly. The majority of the dogs displayed fear aggression to the research team but the majority did not appear to display any form of aggressive behaviour to their owners. However many of the dogs displayed submissive behaviours with their owners implying that they were fearful (van der Borg et al. 2015).

The dog owners were encouraged to spend time with their dogs, to play with them and provide them with different forms of stimulation. It was also explained that hitting the dog (which was observed on several occasions and also indicated by the fear submission of many of the dogs towards their owners) is not useful in any way and whilst it may be what others do in the village, it only hurts the animal and is an ineffective means of training a dog. It was explained to the owners that rather than punishing the dog, it would be better if they focused on rewarding the dog and also to view the dog as part of the family rather than just a guard dog and with a happier relationship between the two, not only does the dog benefit but so does the family as the relationship will be more rewarding.

## **6. Conclusion**

In order to achieve the aims of this project, the focus was on making small practical and realistic changes with a focus on one health within a local community. The research team did not want to overwhelm the participants or appear to be making unrealistic suggestions but rather educate them about changes that can enhance the health and welfare of their animals and in turn support their own health and wellbeing.

The most successful components of the project were the vaccinations against rabies, the deworming and the supply of clean, adequate and accessible water. This is a substantial step in the right direction especially considering the extremely high rates of dog and human deaths caused by rabies in rural India as well as the high nematode burden. Furthermore water is an essential component to health, since especially in the heat dogs can die from a lack of water.

The components of the project where a difference was not observed could be partly due to insufficient follow up visits to encourage compliance and time between visits to allow for a difference to take place such as with 'evidence of fear/distress'. In order to observe changes in behaviour, there needs to be a more extensive educational programme that allows more time with the owners and their dogs, and a longer period overall to allow time for the behaviour to change.

While in many cases it was evident that owners cared for their dogs, there was a general lack of knowledge regarding how to look after them, what their needs are and how to ensure optimum health and welfare. Furthermore even with the education provided, there was a lack of implementation of suggested changes that required the input of time. It is also fundamental to consider that with cultural differences the standard of health and welfare that can be achieved is unlikely to be the same as in the UK.

In summary, it is evident that there is a requirement for extensive educational programmes to be carried out in rural areas of India to impart knowledge to dog owners and communities on basic dog healthcare and to encourage mutually beneficial productive human-dog interactions. Educational programmes need to ensure they are composed of multiple visits and provide realistic targets for the rural communities.

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I would also like to extend my thanks to Welfare for Animals of Goa (WAG) for their help in organising and executing the project and also for the endless work they do to enhance animal welfare in Goa, provide medical treatment, conducting educational and animal birth control programs whilst also providing a shelter to manage the overpopulation of street animals.



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## **Resources**

Welfare for Animals in Goa: [www.wagoa.com](http://www.wagoa.com)

**Appendix 1:** Educational handout for dog owners

 **WELFARE FOR ANIMALS IN GOA (WAG)**  
Is a registered Charitable Trust . Registration Number: BRZ-BK4-00013-2012

**LOOKING AFTER YOUR DOG**

**1. Vaccinate, De-worm, De-flea, Sterilise**



**2. Clean Water Daily & Healthy Food**



**3. Comfort & Good Health: Soft & clean bedding, no pain, no disease, no injury**



**4. Happy Dog: Play time with humans and dogs, walks**



**The Animal Welfare Act 2006**



is a new law that provides better protection for all animals, including pets

1. Has a suitable environment to live
2. Has a healthy diet
3. Is able to exhibit normal behaviour
4. Has appropriate company
5. To be protected from pain, suffering, injury & disease

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