
# Evaluating Mending Mamre: An Animal Welfare Intervention

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**Compulsory Declaration:**

This work has not been previously submitted in whole, or in part, for the award of any degree. It is my own work. Each significant contribution to, and quotation in, this dissertation from the work, or works of other people has been attributed, cited and referenced.

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**List of Acronyms and Abbreviations**

ABC: Animal Birth Control

CABS: Companion Animal Bonding Scale

PAS: Primary Attitude Scale

SPCA: Society for the Prevention of Cruelty to Animals

TNR: Trap-Neuter-Release

TPB: Theory of Planned Behaviour

UCT: University of Cape Town

WLA!: We Love Animals!

**Abstract**

The need to improve animal welfare and control companion animal populations is necessary for South Africa, especially in impoverished communities lacking resources and education to care for their pets responsibly. These programmes are often multi-dimensional in nature and aim to improve animal welfare in different ways. Sterilisation is often the first step but is not enough. Consequently, education is often used in combination, to teach responsible pet care and ownership to pet owners. By increasing their understanding and knowledge of animals it is hoped that the pets' overall quality of life and welfare improve. The following dissertation presents the findings of an evaluation conducted for the Mending Mamre Mass Education and Sterilisation Programme. This programme had four components: surgical sterilisation of pets and feral cats, basic veterinary care, education sessions and the rehoming of stray dogs. Three evaluations were performed (as requested by the clients): a programme theory evaluation of the education sessions, a process evaluation to understand why some residents refused sterilisation and an outcome evaluation to measure if the pets' living conditions and body scores had changed 16 months after the programme. Overall, the results of the programme theory evaluation demonstrated that: the activities and outcomes of the education sessions were consistent with similar programmes but the two causal pathways underlying the programme are not plausible. The results of the process evaluation highlighted that the most common reason why pet owners refused sterilisation was due to fear. Finally, the results of the outcome evaluation indicated mixed results; with an increase observed in the pets' physical wellbeing but an overall decrease observed in their quality of living conditions. With the results, the evaluator was able to make recommendations to the client and highlight considerations for programme improvement. Overall this study contributes to the paucity of research on evaluations of animal welfare interventions at the community level.

## Chapter One: Introduction

This dissertation presents an evaluation conducted for African Tails and FOUR PAWS South Africa, two animal welfare organisations based in Cape Town. The evaluand of this research was the Mending Mamre Mass Sterilisation and Education Programme (hereafter referred to as Mending Mamre or the Mending Mamre Programme). The programme was implemented in the small rural town of Mamre in the Western Cape. Mending Mamre aimed to improve companion animal welfare in the community as well as control pet overpopulation. This chapter provides an overview of animal welfare and the need for such programmes. The causal logic evaluations of animal welfare programmes are also presented. This is followed by a full programme description of the Mending Mamre Programme as well as the evaluation questions that guided the evaluation process.

### Defining Animal Welfare

According to the World Organisation for Animal Health, the term animal welfare refers to "the physical and mental state[s] of an animal in relation to the conditions in which it lives and dies" (OIE, 2019).

The list of Five Freedoms established in 1965 by the Brambell Report are the widely recognised guiding principles to measure animal welfare when an animal is under human control and care. Briefly these freedoms are: freedom from thirst and hunger, freedom from discomfort (i.e. having shelter), freedom from pain, injury and disease, freedom to express normal behaviour (i.e. having sufficient space, having the company of one's own kind) and lastly freedom from fear and distress (Webster, 2016).

This framework of animal welfare assessment is, however, problematic for two main reasons. Firstly, assessing animal welfare dichotomously via the presence and/or absence of freedoms exclusively, is less comprehensive in terms of measuring the quality of animal welfare or the subjective experiences of animals. Secondly, contemporary animal welfare thinking emphasises the promotion of positive welfare states *along with* the minimisation of negative welfare states (Littlewood & Mellor, 2016).

Littlewood and Mellor's Five Domains Model (2016), is a model designed specifically to facilitate "a structured, systematic and comprehensive assessment of animal welfare, with a focus initially on welfare compromise" (Mellor, 2017, p.3). Their five domains assessment

framework includes: nutrition/hydration, environment, health/functional status, behaviour and mental state. The primary role of this framework is to identify animals' welfare-significant internal states via domains 1 to 3 and animals' welfare-significant external circumstances in domain 4. Once these have been identified, any associated affective experiences are accumulated into the final domain to measure the animal's welfare status (Littlewood & Mellor, 2016; Mellor, 2017). The World Association of Zoos and Aquariums (WAZA) utilises this particular model to assess animal welfare (Mellor, Hunt, & Gusset, 2015).

**The Need For Animal Welfare Programmes**

The domestication of dogs and cats by humans began 15 000 and 10 000 years ago, respectively (Driscoll, Macdonald, & O'Brien, 2009). To date, these remain the most popular companion animals in the world (Driscoll et al., 2009), with estimates between 500 to 700 million globally (Hughes & Macdonald, 2013). In South Africa alone, it is estimated that there are seven million pet dogs and around two million pet cats (Spicer, 2012). The process of domestication, however, have resulted in negative phenomena which compromised dogs' and cats' welfare over time. It is for this reason that there is a need for animal welfare interventions that aim to improve companion animals' quality of life, and/or provide treatment to animals who have suffered at the hands of humans.

**Cruelty to companion animals.** Animal cruelty is defined as humans' infliction of suffering or harm onto animals either by omission (referred to as neglect) or consciously (referred to as abuse) (Warburton, 2004).

***Neglect.*** Animal neglect is the failure to provide basic care required for the animal to thrive in its environment (Warburton, 2004). This includes the provision of food, water, shelter and/or veterinary care. Initially, cases of neglect may appear less heinous than single, acts of violent abuse but severe animal neglect results in an animal suffering for extended periods of time which causes permanent injury or death (Warburton, 2004).

***Abuse.*** Animal abuse is intentional and occurs when a human purposefully inflicts physical harm on his/her pet. This can range from violently hurting, to torturing or even killing the pet (Warburton, 2004). Arguably, people who commit such acts are fully aware of the suffering they are inflicting on the animals which is referred to as zoosadism (Macdonald, 1963). Zoosadism has been argued by psychiatrists to be an indicator of a more serious human behaviour problem like psychopathy (Gleyzer, Felthous, & Holzer, 2002; Macdonald, 1963) as violence towards animals (at any age) is an antecedent to violence towards other humans (Henry, 2004; Kellert & Felthous, 1998; Wright & Hensley, 2003).

Unlike animal abuse, which is the product of the deliberate and purposeful infliction of pain and harm, it is possible for neglectful pet owners/caretakers to be unaware of their inability to provide the appropriate care for their animals (Warburton, 2004). If neglect of companion animals stems from a lack in knowledge on how to care for pets, there is hope to minimise this form of cruelty by teaching responsible pet ownership to pet owners and in so doing correct poor behaviours. Conversely, the cruelty towards animals which originates from zoosadism might only be curbed with prosecution or counselling of abusers, since the acts' roots lie in a desire to hurt animals.

Other than reducing animal neglect and abuse, animal welfare programmes also aim to control animal overpopulation.

**Animal overpopulation and its effects.** Irresponsible pet ownership or poor pet ownership practices have also led to the negative phenomena of animal overpopulation (Gunaseelan, Coleman, & Toukhsati, 2013). This is a problem which particularly affects poorer countries where animal populations are uncontrolled (i.e. not restrained or supervised) and uncared for which rapidly leads to an overpopulation of strays. According to the World Organisation for Animal Health, a stray dog refers to any dog that is not under the direct control of a person or is not prevented from roaming. More specifically, there are three types of stray dogs: (1) free-roaming owned dogs (owned but not under control or restriction at a particular time); (2) free-roaming dogs with no owners (not owned therefore under no control nor restriction at any time) and finally (3) feral dogs (domestic dogs that have returned to their wild state and that are no longer dependent on humans for their survival) (OIE, 2019).

Pet owners who let their pets roam freely because they do not have a fenced property or because they believe that it is part of an animal's nature to roam, actively contribute to the problem of animal overpopulation. These pets are also often not sterilised which leads to uncontrolled mating with other roaming pets or strays (Gunaseelan et al., 2013). This causes many unwanted litters that are not cared for and in turn, abandoned. If they survive, these unsterilized new strays further contribute to the overpopulation (Hindle, 1992).

Animal overpopulation in smaller areas poses a risk to community members. Stray dogs that form packs can become dangerous and attack other animals and people, especially children who are the first victims of dog bites (Chapman, Cornwall, Righetti, & Sung, 2000). Overpopulation also poses a public health risk because it creates a breeding ground for diseases which spread from animal to animal but can also spread from animal to human. These diseases are called zoonoses.

***Zoonoses***. Zoonoses are diseases that are spread from animals to humans, through a bite or scratch; from contact with an animal's parasites (e.g. fleas, ticks or worms); or simply from close contact with the animal (Seymour, 2018). There are at least 65 zoonoses that involve dogs and cats (Feldmann & Carding, 1973). Zoonoses outbreaks are prominent when stray overpopulation is present without the practice of preventive medicine (e.g. deworming and vaccinating). Some examples of zoonoses are given below, they cover deadly and non-deadly examples as well as different contamination methods.

Some zoonotic diseases carried by stray dogs are fatal, such as rabies which is a deadly virus spread to humans from the saliva of an infected dog, usually through a bite (Dodet et al., 2008). Since the disease is almost always fatal, a person who is at risk of contracting

rabies should immediately receive rabies vaccination and antirabies immunoglobulins (RIG) for protection (i.e. after being bitten). Non-fatal zoonotic diseases that stray or roaming dogs and cats carry include worms (hookworms, ringworms and tapeworms) (Pfukenyi, Chipunga, Dinginya, & Matenga, 2010). This is an example of zoonosis being contracted from exposure to the animal's parasites. Another zoonotic disease transmitted from cat faecal matter to humans is toxoplasmosis. This disease is particularly dangerous to a pregnant women's unborn child as it can cause miscarriage, stillbirth, or damage to the baby's brain (e.g. hydrocephaly) and eyes (e.g. cataract) ("Toxoplasmosis", 2017). This is an example of contamination via close contact with an animal.

Since contaminations of pets and humans are often the result of human activity, and that a major goal of controlling zoonotic outbreaks is to break this cycle, education of pet owners and the general public plays a critical role (Bugg, Robertson, Elliot, & Thompson, 1999 as cited in Robertson, Irwin, Lymbery, & Thompson, 2000). Individuals need to adopt better hygiene for themselves and for their pets and be more vigilant of their pets' health in general. Individuals should also be taught by professionals which zoonoses are present in their country/region and how to recognise the symptoms and associated dangers.

**Causal Logic Of Programmes Aiming To Improve Animal Welfare**

Programme stakeholders' understanding of what constitutes animal welfare will determine what components are included as part of an animal welfare intervention (Broom, 1991). Across the globe, however, there are common components used. These include sterilisation, basic veterinary care (e.g. vaccination) and animal welfare education (Hiby et al, 2017). Because there is no standardised approach to animal welfare, some interventions make use of a multicomponent model, whereas others may choose to focus on a single component. These common components are briefly outlined below.

**Sterilisation.** For some interventions, reducing and stabilising animal population and density is the main goal. To achieve this, surgical/chemical sterilisation is used. Sterilisation is referred to as an Animal Birth Control (ABC) Intervention in social science research and literature (Totton et al, 2010). ABC interventions typically offer free sterilisation to pet owners and capture stray dogs for sterilisation which they either release back afterwards (Reece & Chawla, 2013) or place in shelters to be rehomed (Hiby et al, 2017).

In similar practices, called Trap-Neuter-Release (TNR) programmes, feral cats are captured and then released back into feral cat colonies or if the feral cats can be socialised are

put up for adoption. Feral cats that are ill or injured beyond recovery are often euthanised (Levy, Gale, & Gale, 2003).

**Provision of basic veterinary care.** This component of typical animal welfare programmes usually supplements the sterilisation component above. Often sterilisation and basic veterinary care are performed together. The provision of basic veterinary care serves to control zoonoses outbreaks and other animal infectious diseases. The provision of care aims to not only improve the animals' quality of life but also minimise the risks presented by animals to public health and other animals (Hiby et al, 2017; Morters, 2014; Reece & Chawla, 2006). These interventions vaccinate, deflea and deworm as many pets and strays as possible.

**Education.** As animal cruelty and overpopulation have been found to stem from a lack of knowledge concerning companion animals and how to care for them (Warburton, 2004), some interventions, are solely educational in nature, with the desired outcome to teach responsible pet ownership to pet owners.

Improving responsible pet ownership is done by teaching pet owners about an animal's freedoms, needs, behaviours and emotional capacities as well as explaining to pet owners that there are negative effects to overbreeding, letting a pet roam freely and abandoning a pet (Hindle, 1992). Teaching responsible pet ownership can be done at the home with household visits by animal control officers or inspectors, or at schools or in the community by educators trained in delivering animal welfare or humane education lessons (Coleman, Hall, & Hay, 2008).

## The Effectiveness Of Programmes Aiming To Improve Animal Welfare

There is a paucity of available literature on the evaluations of animal welfare interventions targeting companion animals. This is not because the interventions do not exist, but rather because they are either not being evaluated, or the evaluations are not documented and published. Indeed, most evaluations of animal welfare programmes were found to be in the farming sector dealing with farm animals, or veterinary sciences and the teaching of animal welfare principles to university students. Additionally, most of the interventions targeting companion animals that were evaluated were zoonotic prevention interventions and as such were mostly concerned with population management and educating humans about zoonoses rather than responsible pet ownership and humane treatment of pets. Despite the lack of research available, some animal welfare interventions are detailed below which illustrate

different intervention components and how each component was used to achieve various outcomes.

**Sterilisation component combined with adoption (Levy et al., 2002).** This TNR programme ran from 1991 to 2002 on the University of Central Florida campus.

It incorporated sterilisation, the euthanasia of sick animals and the adoption of socialised feral cats. In 1991, volunteer campus employees and students started capturing free-roaming cats on campus and kept records of the sightings. They also included colony affiliation and socialisation status (feral vs socialised). In 1996 they recorded a total of 155 cats (116 feral and 39 socialised) on campus.

Once the cats were trapped on campus, they were brought to private vets or animal services for sterilisation and vaccinations against a series of feline diseases including rabies.

Socialised adults and kittens were removed from colonies and transferred to rescue organisations for adoption.

When completing a second cat population census in 2002, it was noted that only 23 cats remained on campus, indicating a reduction in the population from 1996, but perhaps the most important result was that no kittens were observed on campus after 1995. It is important to note that the adoption component accounted for a significant portion of the decrease in the cat population with nearly half of the 155 cats adopted (feral and socialised confounded).

**Sterilisation and vaccination components (Reece & Chawla, 2013).** This is an example of a humane rabies-control and dog population control programme in Jaipur, India. The programme combined the sterilisation and rabies vaccination of neighbourhood dogs (defined as "semi-dependent or independent from people for food, shelter and unrestricted in their movements" (Reece & Chawla, 2013, p.159). This programme ran over the course of eight years, from 1994 to 2002. It focused on sterilising and vaccinating female and prepubescent male dogs. They were captured humanely, and their exact location of capture was recorded for (post-surgery) release purposes.

All the captured dogs were transported to the ABC facility. If dogs were found to be suffering from a fatal disease, had a severely compromised welfare or were too aggressive to be roaming they were euthanised. Dogs that were already sterilised received booster rabies vaccinations. Dogs that were deemed healthy were sterilised.

Overall, the data collected over the eight-year study provided evidence that rabies could be controlled in Jaipur through the combination of ABC and vaccination of the neighbourhood dog population. In the programme zone, there was a decrease of rabies cases to nil while

there was an increase in rabies cases being reported in hospitals outside the programme zone. Additionally, the programme sterilised and vaccinated 65% of female dogs and 6% of males. The post-population surveys indicated a decline of 28 % in neighbourhood dog population over the eight years of the study.

Reece and Chawla (2013) noted that they had only vaccinated 35.5% of the whole neighbourhood dog population. This was a small coverage, but it nonetheless reached its outcomes. The research showed that when vaccination and sterilisation (i.e. population reduction) are performed together, the need for either is smaller (Anderson, Jackson, May, & Smith, 1981 as cited in Reece & Chawla, 2013). As such, combining sterilisation and vaccination of ABC programmes may be an effective and humane method for controlling rabies in areas with stray dog overpopulation and to create more stable populations.

**Education component teaching responsible pet ownership and empathy (Nicoll, Trifone, & Samuels, 2008).** The We Love Animals! (WLA!) Programme wanted to promote more positive attitudes among first graders in a Connecticut public school toward animals and to encourage first graders' empathy and understanding of animals with a focus on companion animals (i.e. dogs and cats and other pets like rodents). The WLA! Programme aimed to increase students' awareness of companion animals' needs and quality of life in particular. As part of the programme, therapy animals were included in classroom visits, and students were encouraged to build empathy through role-playing. Additionally, when students were introduced to live animals, they were asked questions about animals' needs and feelings. Following this, props (e.g. collar, water and food bowl) were showed to students and they were asked to discuss them and identify what needs of the animal they fulfilled.

The WLA! Programme consisted of six in-class lessons. Each lesson lasted 25-30 minutes. These lessons were conducted once every second week over four months by a humane educator.

Four groups participated in the study: 1) a group that received no humane education (control group), 2) a group that received only information about animals through activities and lessons in a book (KIND News), 3) a group that received the WLA! Programme (programme only) and 4) a group that received both the WLA! Programme and KIND News.

At the beginning of the study, all four groups were administered the Primary Attitude Scale (PAS). The PAS is a 23, yes-no item measure with high internal consistency (Ascione, 1992) that measures one's attitudes towards animals. After the WLA! Programme completion, all groups were re-administered the PAS, as well as the Companion Animal

Bonding Scale (CABS) for the first time. The CABS is a validated measured which measures the degree of bonding (i.e. relationships and behaviours) between a child and his/her companion animals. This is an 8-item scale (Poresky, Hendrix, Mosier, & Samuelson, 1987) which asks the extent to which the respondent is responsible for his/her companion animal's care as well as the amount of time he/she engages in activities with the said companion animal (Nicoll et al., 2008).

The results of this study indicated that, as measured by the PAS, the WLA! Programme significantly increased first-graders' self-reported empathy toward animals. No differences/effects were noted between the groups with regards to attitudes when looking at the CABS, but this may be due to the methodological shortcoming of only administering this measure at the post-test level.

As such, the conclusions that were drawn from this study were that the WLA! Programme with the combination of animal visitations was able to change young children's empathy towards animals.

**Humane Education (Adams, 2014).** Due to the growing need to improve animal welfare in rural impoverished communities in South Africa, the Swartland SPCA asked a UCT student, Leanne Adams, to design a humane education programme for them.

Adams'(2014) research focused exclusively on the welfare of animals in terms of human-directed behaviours, however, since improving animal welfare requires changes in pet owners' attitudes and behaviour, she incorporated two other programme components into her design that were deemed effective social interventions: a violence prevention component (with the aim to reduce interpersonal violence at a community level, in the hope this could extend to violence/abuse towards animals) and peer education/role modelling (with the aim to involve community members in the promotion of animal welfare concepts learned in the programme).

This research extolled the use of a multi-faceted/holistic approach to curbing animal abuse and highlighted that animal abuse should not be perceived as a single isolated event but rather, that it falls within the wider social issue of interpersonal violence. In fact, Arkow notes that holistic interventions are "more likely to be effective in disrupting the cycle[s] of violence [where] animal abuse and interpersonal violence [are] located" (Arkow, 2006 as cited in Adams, 2014, p.32).

**Programme Description Of Mending Mamre**

In the Western Cape, South Africa, two animal welfare organisations – African Tails and FOUR PAWS South Africa – partnered to establish a mass scale sterilisation and education campaign in the small impoverished community of Mamre, in February 2017. Mending Mamre: A Mass Animal Sterilisation and Education Project aimed to combat animal abuse and overpopulation and in so doing improve animal welfare in the under-resourced rural town. The programme was implemented from February 2017 to June 2018. During the intervention, 72% of the pet population in Mamre were sterilised.

The approach of the intervention to increase animal welfare standards included four components: 1) the surgical sterilisation of pet dogs and cats and feral cats coupled with the provision of basic veterinary care; 2) the distribution of resources like kennels, runners (cable run) and food (once-off) to households that had accepted sterilisation and were financially disadvantaged and/or had clinically underweight pets; 3) education on good animal husbandry, which included one-on-one adult education via household inspections and school programmes for the youth; and finally, 4) rescue and re-homing of stray and unwanted animals.

**Why Mamre was suitable for this intervention.** Mamre was chosen because of certain features it had. Firstly, no veterinary care was offered in its vicinity. Secondly, no parallel interventions nor assistance were provided simultaneously to the programme. Thirdly, Mamre was a poor area with most inhabitants being unable to afford veterinary care. Finally, Mamre was isolated from other towns , meaning that the likelihood of roaming pets/strays wandering from another town and mixing with the Mamre pets/strays was low.

**Components of Mending Mamre.** Their approach to increase animal welfare standards included the following components/activities:

***Sterilisation, provision of basic veterinary care and additional medical care.*** Volunteers from both African Tails and FOUR paws visited every household in Mamre to ask pet owners if they were interested in sterilising their pets. Acceptance or refusal of sterilisation was collected via standardised sheets recording animal information along with demographics such as residential address, as well as the name and contact number of the person who signed consent for sterilisation. All this information was added to an electronic database. Animal information included their physical wellbeing which was assessed using a

4-point feline and canine body condition scoring scale (which is available as Appendix D). The body score given to each pet was a whole number where:

1 was completely emaciated, parasite riddled with other ailments

2 was underweight and riddled with parasites or other medical issues

3 was a fairly acceptable body weight and condition with some parasites if at all

4 was in very good condition, with a good body weight

Once a sterilisation date had been set, the pet owner was contacted to discuss whether the pet should be picked up from the home address or had to be dropped off at the location where the surgery would take place. After the surgery, pets were either dropped off at their home address or picked up by their owners. Post-surgery, owners were given instructions on how to care for their pets, what to look out for and what to report. While pets underwent the sterilisation procedure they were also vaccinated, dewormed and deflead. Many were also provided with additional medical care that they needed such as care for a skin condition (e.g. Mange) or injuries (e.g. bite wounds, broken leg). Feral cats received the same treatment as pets. They were tracked down by volunteers and traps were set to capture them. They were then collected, sterilised and received basic veterinary care and any additional medical care needed after which they were released with a clipped ear back into their respective feral cat colonies. The clipped ear is a universal sign that animals have been sterilised.

Via the sterilisation of pets and feral cats, the programme aimed to control the animal population and in doing so, to avoid high numbers of homeless, abused and unwanted animals.

***Distribution of resources.*** While conducting household visits, volunteers were able to collect additional information about the pet's living conditions (e.g. daily access to food, water and shelter) and if a dog was humanely chained or tethered (i.e. if the chain/rope was longer than 1.5 metres).

The addresses of households that had accepted sterilisation and required resources like kennels and runners were recorded in an electronic database. African Tails and FOUR PAWS bought all of the resources from their suppliers at lower costs, or used donated items, and distributed them to the households in need. African Tails and FOUR PAWS also monitored the appropriate use of kennels with regular check-ups as kennels were high in demand and the costliest resource. Through the distribution of resources Mending Mamre aimed to assist and empower residents for whom it could be financially challenging to own a pet while improving the pets' quality of living conditions.

***Education on good pet care, household inspections and removal of abused pets.***

FOUR PAWS South Africa conducted education sessions on animal welfare for children by using material designed by the South African organisation Hero in my Hood. For this, the organisation visited every creche and the primary school multiple times to organise school activity days and events during school and public holidays. In total each creche was visited three times, with education sessions lasting between 30 minutes and an hour. The primary school was visited approximately ten times, with education sessions lasting the same amount of time. Finally, four holiday education sessions were held per school holiday, and these lasted up to three hours each (Four Paws' Stray Animal Care Project Coordinator, personal communication, May 28, 2019).

During these activity days, FOUR PAWS covered topics like how to feed and care for pets, why they were present in Mamre, why animal sterilisation was important and the need for basic veterinary care. The basics of animal behaviour and emotional capacities were also covered. For the two organisations, this component was deemed to be the crux of their programme, alongside the sterilisation component as it was the component that tried to instil long-term changes in behaviours and create habits within the community.

In addition to these youth-directed educational sessions, during household visits/inspections for sterilisation sign-ups, adult pet owners received one-on-one education and assistance on pet feeding, sheltering and humane tethering as well as when and how often medical attention should be given to pets. Adults were also taught about pets' emotions and social needs (i.e. the need to play, to be socialized and engaged with and to be walked).

Additionally, during household inspections, if there were signs of animal abuse, a note was made and the household address and animals' conditions were taken down. Immediately, the case was referred to the Society for the Prevention of Cruelty to Animals (SPCA) as they had the authority to 1) issue a warning or charge the pet owner under the Animals Protection Act or 2) seize the pet. Through its education sessions, the programme aimed to better animal welfare standards by educating the community about animal cruelty which often stems from a general lack of knowledge or unawareness on how to care for animals.

***Rescue and re-homing of stray and unwanted animals*** Any stray dogs in Mamre were picked up and brought back to the African Tails' head office where they underwent sterilisation and received basic veterinary care. After this, they were fostered in volunteers' homes until they were ready for adoption. This removed unwanted animals off the street of Mamre that sometimes served as the community's scapegoats for abuse or removed animals that were not cared for appropriately or were victims of cruelty to give them a better chance at life.

**Scope Of This Evaluation**

The clients' information needs directed the evaluation scope of this research. African Tails and FOUR PAWS South Africa were interested in evaluation results of specific elements of the programme. Firstly, they wanted information on the feasibility of their education component and specifically, whether the design of this component was suitable to achieve the programme's intended outcomes. Secondly, they wanted to understand why some households had refused to have their pets sterilised. Lastly, they wanted outcome-based data on the effectiveness of their intervention as this data would assist them in obtaining funding and motivating for the intervention's expansion into other areas in the future.

To investigate each of these three requests, the evaluator conducted three different levels of evaluation. These are discussed briefly below.

To respond to the stakeholders' first information need the evaluator conducted a programme theory evaluation. A programme theory essentially details how the programme activities are expected to bring about intended outcomes (Donaldson, 2007; Rossi, Lipsey, & Freeman, 2004). A programme theory evaluation aims to elicit a programme theory from stakeholders and then assess whether the causal pathways and underlying logic between activities and outcomes are plausible using social science literature and research (Chen, 1990; Donaldson, 2007; Funnell & Rogers, 2011).

To respond to the stakeholders' second evaluation need, the evaluator conducted a process evaluation. These evaluations typically investigate how well programmes operate by examining for example whether the services offered are successfully being delivered to the targeted recipients, or not (Rossi, Lipsey, & Henry, 2018). As such, this type of evaluation can allow evaluators to identify possible weaknesses and/or strengths in the rolling-out of a programme. Indeed, even though the programme had ended at the time of this research and that theory evaluations are often formative (meaning they provide information to guide

programme improvement during implementation) (Rossi et al., 2004), stakeholders intended on implementing the same programme in other communities. As such, an understanding of why some Mamre residents had refused the sterilisation intervention would be beneficial so that they could anticipate future reasons for refusal in other communities (and perhaps implement countermeasures to reach a larger portion of future pet populations).

Finally, to respond to the stakeholders' third evaluation need, the evaluator conducted an outcome evaluation. This type of evaluation measures a programme's effect on the target population by looking at changes in the outcomes that the programme aims to address (Rossi et al., 2004).

Aligned to these three scopes of the evaluation, the following evaluation questions guided the research:

**Programme Theory Evaluation questions:**

1. What are the underlying assumptions of the Mending Mamre Programme
2. What are the underlying assumptions of the educational component of the Mending Mamre Programme?
3. Are Mending Mamre's education component activities and proposed outcomes plausible?
4. Are the causal pathways of Mending Mamre's education component plausible?

**Process Evaluation questions:**

5. Why did some pet owners in Mamre refuse the intervention?
    1. Would they consider future sterilisation for their pets?

**Outcome Evaluation questions:**

6. Have the living conditions of the pets improved?
    1. Do the pets have daily access to water?
    2. Are the pets provided with daily access to food?
    3. Do the pets have daily access to (appropriate) shelter?
    4. Are dogs humanely chained?
7. Has the welfare of pets improved when considering their body score index?

# Chapter Two: Method

The following chapter presents the method[1] for each type of evaluation conducted. As such the reader is presented with three sections, the first details the method of the programme theory evaluation, the second presents the process evaluation method, and lastly, the outcome evaluation method is provided.

## Method For The Programme Theory Evaluation

The programme theory evaluation was conducted using Donaldson's (2007) five steps of developing and evaluating programme theory. These are outlined below.

### Steps 1 and 2: Engaging Programme Stakeholders To Develop An Explicit Programme Theory

Donaldson (2007) recommends that to develop an explicit programme theory with stakeholders, it is beneficial to include a diversity of programme stakeholder groups. Table 1 details the participants that were consulted in order to develop the programme theory of the entire Mending Mamre Programme, as well as the stakeholders who provided input for the programme theory of the educational component of the Mending Mamre Programme. The rationale for each stakeholder's inclusion was also detailed in the table.

[1] Given that this is evaluation research, the method chapter is somewhat different to a typical social science research method.

Table 1

*Stakeholder Sample who contributed to the Programme Theory Evaluation*

| Participants | Contributed to which programme theory | Rationale |
|---|---|---|
| Four Paws' Stray Animal Care Project Coordinator | Both | This stakeholder was responsible for: implementing the youth educational sessions in Mamre, the door to door education on good animal husbandry, overseeing the roll-out of the Mending Mamre intervention, the population database as well as signing up pets for sterilisation |
| African Tails General Manager | Overall programme theory of Mending Mamre | This stakeholder oversaw the roll-out of the Mending Mamre intervention, and was responsible for: the population database and the door to door education on good animal husbandry as well as signing up pets for sterilisation |
| Two Mending Mamre volunteers | Overall programme theory of Mending Mamre | These volunteers were some of the implementers of the Mending Mamre programme. They were responsible for running the youth educational sessions and the door to door education on good animal husbandry as well as signing up pets for sterilisation |
| Hero in my Hood | Programme theory of the youth education sessions | They designed the educational material used in the youth educational sessions |

**Nature of engagement.** The researcher took the participants through a process of backward and forward reasoning to understand each stakeholder's individual perspective on what the entire Mending Mamre Programme was trying to achieve and how; and to elicit the details about the programme activities, and what short-, medium-, and long-term outcomes the activities were intending to achieve (Chen, 2005; Donaldson, 2007). Because the evaluator was interested in constructing a programme theory as a chain of mechanisms (Funnell & Rogers, 2011; Rogers, 2008), she placed great emphasis on getting stakeholders to articulate if and how they believed the entire Mending Mamre Programme would lead to the desired outcomes in order to link the programme's activities to short-, medium- and long-term outcomes.

Following this, stakeholders were taken through the same process to discuss the educational component exclusively and how its activities were believed to lead to the intended short-, medium-, and long-term outcomes and ultimately the impact. Additionally, stakeholders were asked to provide a causal description and explanation for these links. Once the evaluator had collected all stakeholders' inputs, she collated their perspectives into two distinct programme theories: one for the entire Mending Mamre Programme and a second one for the educational component.

### Step 3: Presenting The First Draft To Programme Stakeholders

Once draft programme theory diagrams were developed for both the overall Mending Mamre Programme and the educational component, the evaluator emailed these to the programme stakeholders for verification and approval. They were asked to confirm that the diagrams represented their understanding of the programme's underlying causal mechanisms and whether any changes were required. After a final and agreed upon programme theory diagram was established, the evaluator proceeded with the plausibility check as part of Donaldson's fourth step (2007). This check was conducted for the educational component only, as requested by the client.

### Step 4: Plausibility Check

The evaluator conducted a plausibility check of the programme theory of the youth educational component of the Mending Mamre Programme. Using evidence from social science and evaluation research, the evaluator assessed whether the educational component's activities and intended outcomes were achieved in comparable programmes. Additionally, the evaluator assessed the plausibility of two causal pathways underlying the programme's logic.

The plausibility assessment was based on literature on animal welfare education programmes including responsible pet care and ownership education programmes, anti-animal cruelty programmes, and animal welfare promotion programmes. The literature was located using the University of Cape Town's (UCT) online library database. Multiple electronic databases like Google Scholar, Sage Journals Online, Wiley Online Library and SpringerLink were consulted. No timeframe search parameters were set for the articles and journals consulted. For articles to be chosen for inclusion: 1) they had to be about animal welfare education or humane education programmes, 2) the literature had to be in English, 3) the programmes mentioned had to target younger population (e.g. children / teenagers) or adults not involved in animal-related professions (e.g. farmers, veterinarians or professions requiring a knowledge of animal welfare like animal slaughtering).

**Step 5: Final Assessment**

The evidence gathered through the extensive literature search enabled the evaluator to judge the plausibility of Mending Mamre's educational component and recommend changes to the programme stakeholders. The findings from the literature search and the final programme theory diagram are presented in the Programme Theory Results & Discussion Chapter.

## Method For The Process Evaluation

### Research Design

For the process evaluation, a descriptive research design was deemed appropriate. Descriptive research aims to provide in-depth descriptions of a phenomenon and its characteristics (Nassaji, 2015). It is a research design used to observe and describe a subject or problem without any manipulation of variables by the researcher (Magilvy & Thomas, 2009). As such, it often requires that the researcher make use of non-invasive data gathering tools like survey and interview techniques (Gall, Gall, & Borg, 2007).

Due to the nature of the research questions, the process evaluation made use of qualitative data collection. The goal of qualitative data collection is to procure the researcher with " a rich description and [an] in-depth understanding of the phenomenon of interest [...]" (Magilvy, 2003, p. 123 as cited in Magilvy & Thomas, 2009).

The use of a descriptive design using qualitative data collection methods was deemed fit to uncover why some pet owners had refused the programme's pet sterilisation. Using this research design programme stakeholders could understand why they were not reaching the entire pet population in Mamre.

### Participants

The participants who were selected to participate in the process evaluation consisted of all the households that had refused the pet sterilisation intervention offered by the Mending Mamre programme.

### Sampling

The evaluator was given access to the programme's pre-intervention data where all of Mamre's pet owners who had accepted or rejected the intervention were listed. In total, 143 households refused the intervention. However, it was neither practical nor feasible to include the entire population in the study, therefore a sample size calculation was performed to determine how many households should be included in the final sample size to draw reliable results from the sample (Kadam & Bhalerao, 2010). The evaluator used the website Raosoft® (www.raosoft.com) ideal for population surveys and recommended by McCrum and Gardner (2010) to compute the sample size. The evaluator wanted a low margin of error (5%) to make the results more trustworthy (Kadam & Bhalerao, 2010; McCrum & Gardner, 2010). Additionally, the confidence level was set at 95% to ensure the results captured the true

population parameter (Kadam & Bhalerao, 2010; Rumsey, 2002). The computed formula yielded a required sample size of 105 households. Random sampling was used to select these 105 households from the sampling frame of 143 households.

The use of random sampling gave each household the same probability of being chosen, thereby making the final sample an unbiased representation of the total population (Marshall, 1996).

**Measure and Procedure**

To answer the evaluation question, the evaluator and data collectors administered an open-ended self-report questionnaire to the selected households that refused the pet sterilisation intervention. Only one member per household received a questionnaire. However, data collectors prioritised the pet owners rather than other household members since it was often the owner of the pet who refused sterilisation and their rationale needed to be captured.

The questionnaires consisted of two open-ended questions preceded by a cover page which required respondents to give their consent before participating. The cover page informed them of their rights as research participants as well as the purposes of the research being conducted. If they gave their consent, they were then administered the questionnaire where the data collectors took down their answers. The first question asked the respondent to provide the reasons for refusing the pet sterilisation and the second question asked whether the respondent would consider future pet sterilisation and if so, when and where as well as how this would be funded. The cover page and questionnaire can be found respectively as Appendix A and B.

The assisting data collectors spoke Afrikaans and English. Their role was to explain the purpose of the research to participants, obtain consent from participants, administer the questionnaires in the language most comfortable for the participants and to fill in the questionnaires (in English) by taking down respondents' answers verbatim. They were also available to answer any additional questions regarding the research being conducted or concerning the participants' pets' health.

**Data Analysis**

A thematic qualitative analysis was performed to discern and discuss the themes that emanated from the responses collected. Thematic analysis is "a method that identifies, analyses and reports patterns (i.e. themes) within the data [...] and organises and describes [a] data set

in rich detail" (Braun & Clarke, 2006, p.6). Its richness comes in part from the fact that it searches for patterns across an entire data set rather than a single data item like a narrative analysis or a case study would (Murray, 2003).

One of the benefits of thematic analysis is its design flexibility (Braun & Clarke, 2006). As it is not embedded in any theoretical framework, a thematic analysis is a flexible research tool that procures rich and complex data (Braun & Clarke, 2006). An added benefit of this flexibility is that the researcher can, for example, define what is worthy to be a theme as well as what is considered prevalent enough within the data set (Braun & Clarke, 2006; Murray, 2003).

This thematic analysis followed the most influential thematic analysis methodology: Braun and Clarke's six-step framework (2006). As such, the data was first read for familiarisation purposes (step 1), then initial codes were generated (step 2), then a search for themes began (step 3), these themes were then reviewed (step 4), and defined (step 5) and finally the analysis report was written-up (step 6).

## Method For The Outcome Evaluation

### Research Design

The outcome evaluation also used a descriptive research design. Indeed, the rich description of phenomena that this type of design provides the researcher with, was deemed useful to give stakeholders an idea of whether there was an increase in animal welfare in Mamre.

Given the nature of the evaluation questions and the phenomena that needed to be measured, quantitative data collection was necessary. Quantitative data collection refers to collecting information that is more objective in nature and often translates to numerical data, unlike qualitative data which can be said to be subjective and translatable to textual data (Lans & van der Voordt, 2002). An advantage of using a quantitative approach in this evaluation is that the vast amount of numerical data could be summarised succinctly in central magnitudes like averages and frequencies and subsequently organised in tables (Lans & van der Voordt, 2002) to reflect the state of pets at post-intervention.

### Recruitment And Sampling

As aforementioned, the evaluator had access to the programme's pre-intervention data where all of Mamre's pet owners were organised on an excel sheet. As such, the evaluator created a new excel sheet for pet owners who accepted the intervention where certain key criteria had to be met, namely: (1) households had to have accepted the sterilisation intervention, (2) households had to be located in the streets that were part of Mamre (so households in the peripheries were excluded); (3) households had to have a street number (so farms, or households with missing street numbers were excluded as they were difficult to locate), and (4) households had to have no missing pre-test data on any evaluated measures (so households that were missing pre-test data on any evaluated measures – body score, shelter, water, food, chaining were excluded).

Once the data was organised, a total of 698 households were retained as the sampling frame that fulfilled the inclusion criteria set by the evaluator. However, again it was neither practical nor feasible to include the entire population in the study, so a sample was extracted. For this, a sample size calculation was performed in the same way as for the process evaluation. The required sample size yielded by the calculation was 249 households. Computer software randomly selected the 249 households

**Measures**

To answer the evaluation question, the evaluator and data collectors administered post-test measures which collected data on (1) pets' physical wellbeing via a 4-point feline and canine body condition scoring scale, and (2) pets' living conditions via a standardised dichotomous checklist which evaluated whether basic animal needs were being met. Both of these measures were initially used by African Tails and FOUR PAWS during the pre-test data collection.

**Measure for pets' physical condition.** The pets' physical condition was measured using a 4-point feline and canine body condition scoring scale. The body score attributed to the animal was a whole number which adhered to the following rubric decided by African Tails:

(1) completely emaciated, parasite riddled and other ailments

(2) underweight and riddled with parasites or other medical issues

(3) fairly acceptable body weight and condition with some parasites if at all

(4) very good condition, good body weight

This scoring system was adapted from Singh, Laflamme, Ballam, Nielsen, and Kalishman's (2004) 9-point silhouette system for cats and dogs. This visual scale is attached as Appendix C. The reason why African Tails and FOUR PAWS deviated from this point system is because of its lack of applicability in a poor community like Mamre for multiple reasons.

Firstly, the scale by Singh et al. (2004) proposed too many body conditions that simply did not exist in Mamre. Indeed, a 9-point system accommodates for subtle changes between body conditions in dogs and cats that do not exist in poor communities with animals living in poor conditions. For example, it is evident that obesity is not prominent therefore, the scores 7 to 9 would rarely or even never be used. Additionally, in poor communities there are no large visible differences in animals' conditions (i.e. that range from morbid obesity to skeletal emaciation): there are not many degrees of emaciations or many degrees of good condition; but rather emaciated animals on the brink of death, emaciated animals that can still survive, animals that are in good condition and then animals that are actually healthy.

Secondly, by providing data collectors with so many body scoring options, it may increase their chances of scoring inaccuracy. A 9-point scaling system would give room for error and confusion when rating the pets resulting in between scores.

**Measure for pets' living conditions.** The pets' living conditions were assessed using a standardised dichotomous checklist which looked at 4 items pertaining to the standards of the pets' quality of life. Namely: whether pets had daily access to fresh water and food, whether they had appropriate shelter and to what extent pet dogs had the freedom to roam (i.e. whether they were chained and if so if their chain was at least 2 metres as per SPCA requirements).

The four items that were chosen for the evaluation represent basic needs that should be fulfilled as part of pet owners' responsibility as caretakers and were the factors considered in the pre-test data. These items also form part of the Five Freedoms that animals are entitled to as living and sentient creatures (Bekoff & Pierce, 2017; Webster, 2016) as discussed in Chapter One. This measure can be found in Appendix D.

## Procedure

The evaluator and data collectors approached the selected households and requested permission to enter their property to document the physical and living conditions of their pet(s). If participants were interested in participating, data collectors explained their rights as research participants, the purpose of the research and the measures that were being used. Pet owners were also informed that the data was being collected as a follow-up from the Mending Mamre intervention that they had previously taken part in. Participants were requested to give their consent for data collectors to enter their property and collect data. The consent letter can be found in Appendix E. When pet owners were absent or refused to participate, another household was randomly selected on the list in order to include 258 in the research.

The data was collected on the weekends of the 18th and 19th of January 2019 (Friday and Saturday), the 2nd of February (Saturday) between 9 am and 4pm and the 16th of February (Saturday) from 9am to 4pm as per the recommendations of African Tails and FOUR PAWS. Over these different days of data collection, data collectors were divided into pairs to complete the body scoring of pets and the assessments of pets living conditions. This was done to increase inter-rater reliability for the pet body scoring, to reduce the chances of a body score being too subjective or biased by personal standards. Additionally, at least one of the data collectors in each pair spoke Afrikaans since Mamre was a majoritarily Afrikaans speaking town.

A second round of data collection took place on Saturday the 8th of June 2019, where the evaluator returned with a single assistant for data collection. They returned to Mamre to remeasure only the daily access to food and water for pets that had gone from having daily access to both at preintervention, to no longer having daily access to either at post-intervention. This was decided when all the data had already been collected and analysed, in order to control for the likelihood that this effect was a single, isolated event rather than a tendency.

### Data Analysis

The pre- and post-test data was compared using descriptive and inferential statistics.

## Ethical Considerations

The evaluator first sought permission from African Tails and FOUR PAWS South Africa to conduct the evaluations during an initial client meeting. Along with the permission granted, the evaluator gained access to the programme's pre-test data. The signed permission letter from the organisations can be found in Appendix F.

Ethics approval to conduct the evaluation was sought from the Commerce Faculty's Ethics in Research Committee. Approval was obtained in mid- November 2018 (Ethics Approval Certificate number: REC 2018/011/145).

To protect the rights of the participants, participants needed to first agree to participate in the study before providing any information. Data collectors ensured that all participants were aware of the purpose of the research and their rights as participants by distributing and explaining the consent forms that participants had to sign before participating. Participation was entirely voluntary and as such, participants were made aware that they could withdraw at any time without consequences. There were no foreseen risks or benefits to the study. Participants were ensured that their anonymity would be maintained (i.e. that sensitive information such as names or residential addresses would be excluded from the final report).

All the data collected was stored online on UCT's new data management system and will be made accessible to other UCT students after a time set by the evaluator. This process is compulsory as the research was conducted by a UCT student and with UCT resources, automatically entitling UCT to all data collected as its intellectual property.

## Chapter Three: Programme Theory Evaluation Results & Discussion

This chapter presents the results of the programme theory evaluation undertaken for the client. To remind the reader, a programme theory diagram was elicited from stakeholders for the entire Mending Mamre programme, as well as a programme theory specifically for the educational component. Each programme theory's development is presented first, followed by the plausibility assessment of the educational component. The chapter concludes with the feasibility of the educational component, the issues noted with the two causal pathways as well as recommendations.

### Developing The Programme Theories

*Evaluation question 1: What are the underlying assumptions of the Mending Mamre Programme*

As detailed in the Method Chapter, stakeholders were taken through backwards and forward reasoning to elicit their understanding of how the activities in the Mending Mamre programme contribute to the expected outcomes (Donaldson, 2007). As a starting point, first, only the programme activities and long–term outcomes were detailed. Figure 1 depicts the block diagram that was developed during the first engagement with the stakeholders.

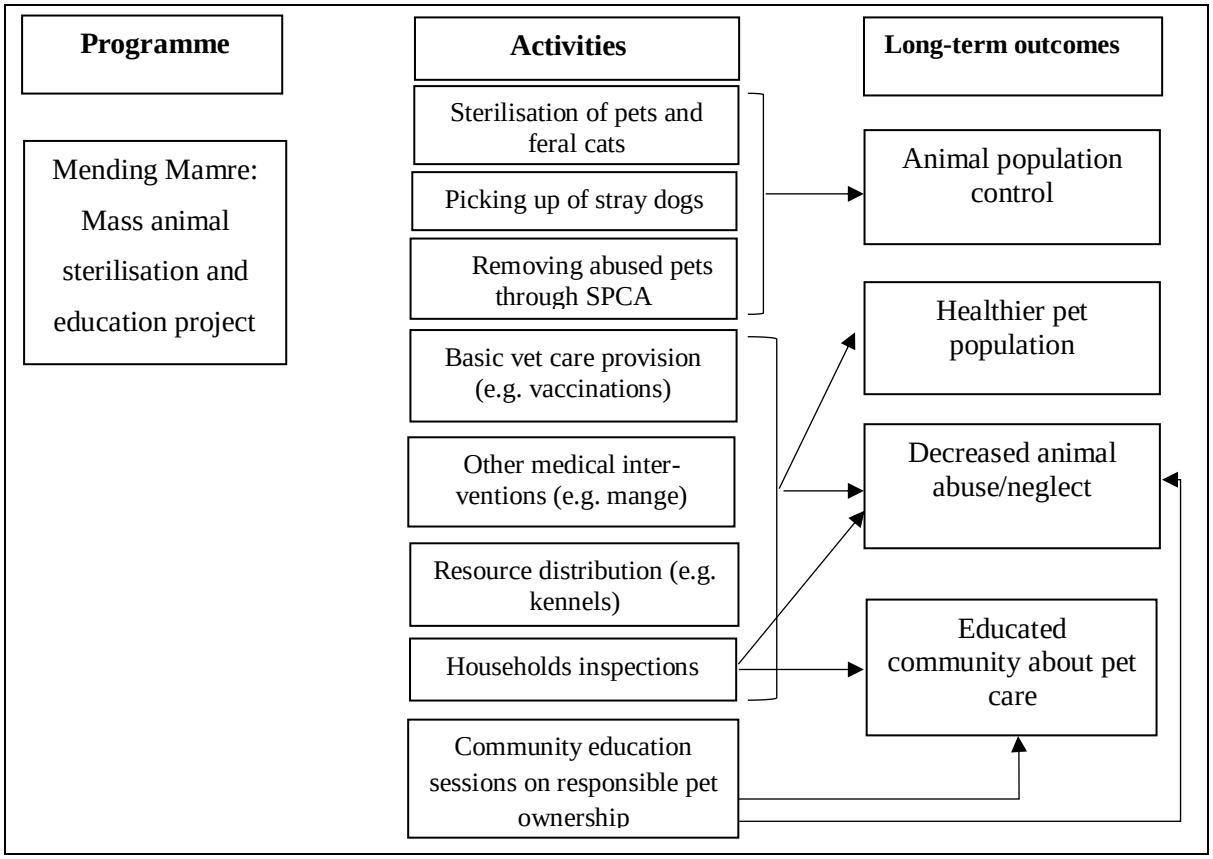


*Figure 1*. Initial programme logic of the Mending Mamre Programme

The activities versus long-term outcomes approach enabled the evaluator to document the main causal pathways of the Mending Mamre programme as envisioned by the stakeholders. Sterilisation at a macro level was agreed to be a necessary activity in curbing and controlling the dog overpopulation problem in Mamre because pet owners are known to let their dogs roam freely and unsupervised. The removal of strays as part of the programme was also deemed to contribute to population control in the community.

The provision of basic veterinary care and medical interventions aimed to address the spread of illness among the pet population in Mamre as well as to treat ill pets. These programme activities involved deparasiting, vaccinations and treatment of other medical conditions such as mange and bite wounds.

Based on reports of animal cruelty, the programme also included education-based activities. Animal cruelty ranges from purposeful abuse against pets and strays, to cases of neglect due to unawareness (African Tails General Manager, personal communication, July 6, 2018). Thus, the education sessions aimed to educate the public about how to care for their pets and engage in responsible pet ownership. These education sessions were delivered to the community predominantly via school and creche visits. As part of the educational activities, household inspections also took place. During inspections, cases of animal abuse were

reported to the SPCA. Due to the fact that Mamre is a poor community, programme stakeholders were aware that being a responsible pet owner might not be financially feasible for all community members. As such, another programme activity involved the donations of resources (e.g. food and kennels).

As shown in Figure 1, the stakeholders asserted that these activities of the Mending Mamre programme resulted in a controlled animal population, a healthier pet population, decreased animal neglect and abuse as well as an educated community.

In order to get further details on how these activities contributed to the long-term outcomes of the programme, the evaluator probed the stakeholders about the short- and medium-term outcomes of the programme. After stakeholder engagement, Figure 2 was developed.

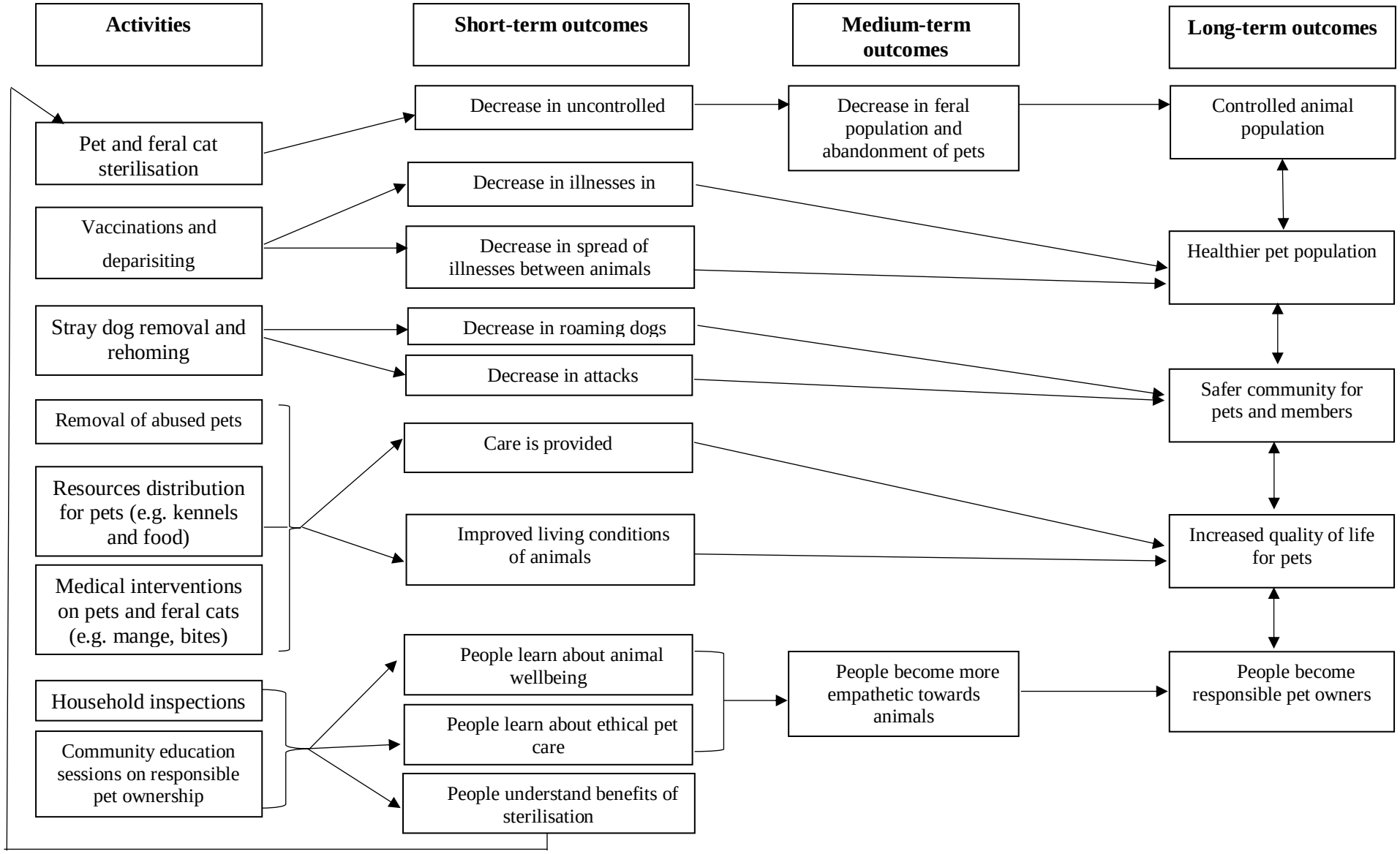


*Figure 2.* Programme theory diagram for the entire Mending Mamre programme

This draft diagram (Figure 2) was then sent to stakeholders for feedback and approval. Stakeholders agreed that the diagram represented the programme theory of the Mending Mamre Programme and it was thus accepted and finalised.

*Evaluation question 2: What are the underlying assumptions of the educational component of the Mending Mamre programme?*

As with the previous development of the programme theory diagram, stakeholders were engaged in order to elicit the activities and impact of the educational sessions. The box diagram for these components is depicted in Figure 3.

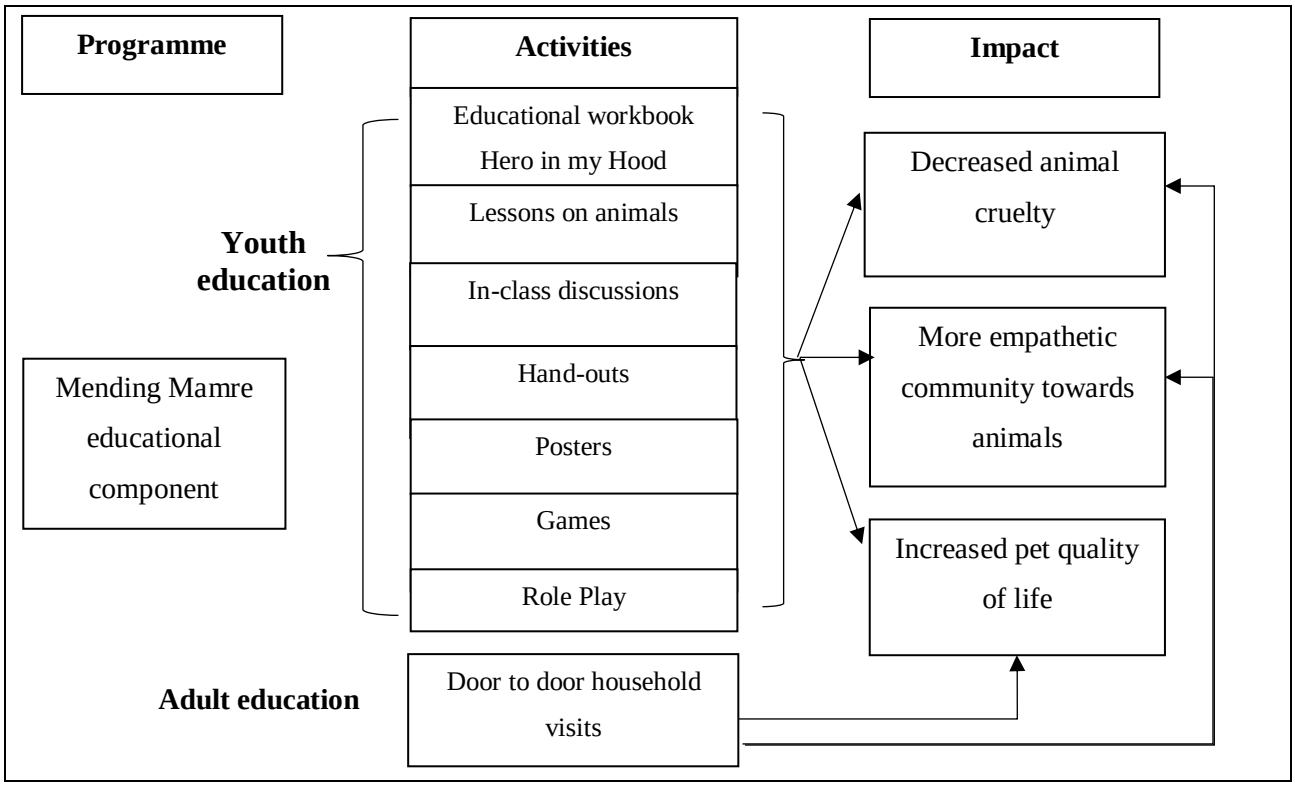


*Figure 3.* Initial programme logic of the education sessions

As shown in Figure 3, the educational component of the Mending Mamre programme is divided between activities targeted at the youth and activities targeted at adults in the community. In terms of the youth activities, the stakeholders visit schools, crèches and host events in the community library in order to teach children empathy, responsible pet care and animal welfare. Majority of this content is covered in the Hero in My Hood Workbook. This can be viewed as a training manual of sorts. It is a fun activity workbook for children. The

content and activities are designed to increase the youth's knowledge and understanding of animals' needs and animal behaviours. In so doing, the stakeholders believe humans will become more empathetic towards animals, especially when they are equipped with the knowledge to become better caregivers. This, in turn, is thought to lead to a positive change in the treatment of pets (i.e. a reduction in animal cruelty). Figure 4 explains the adult educational activities in more detail.

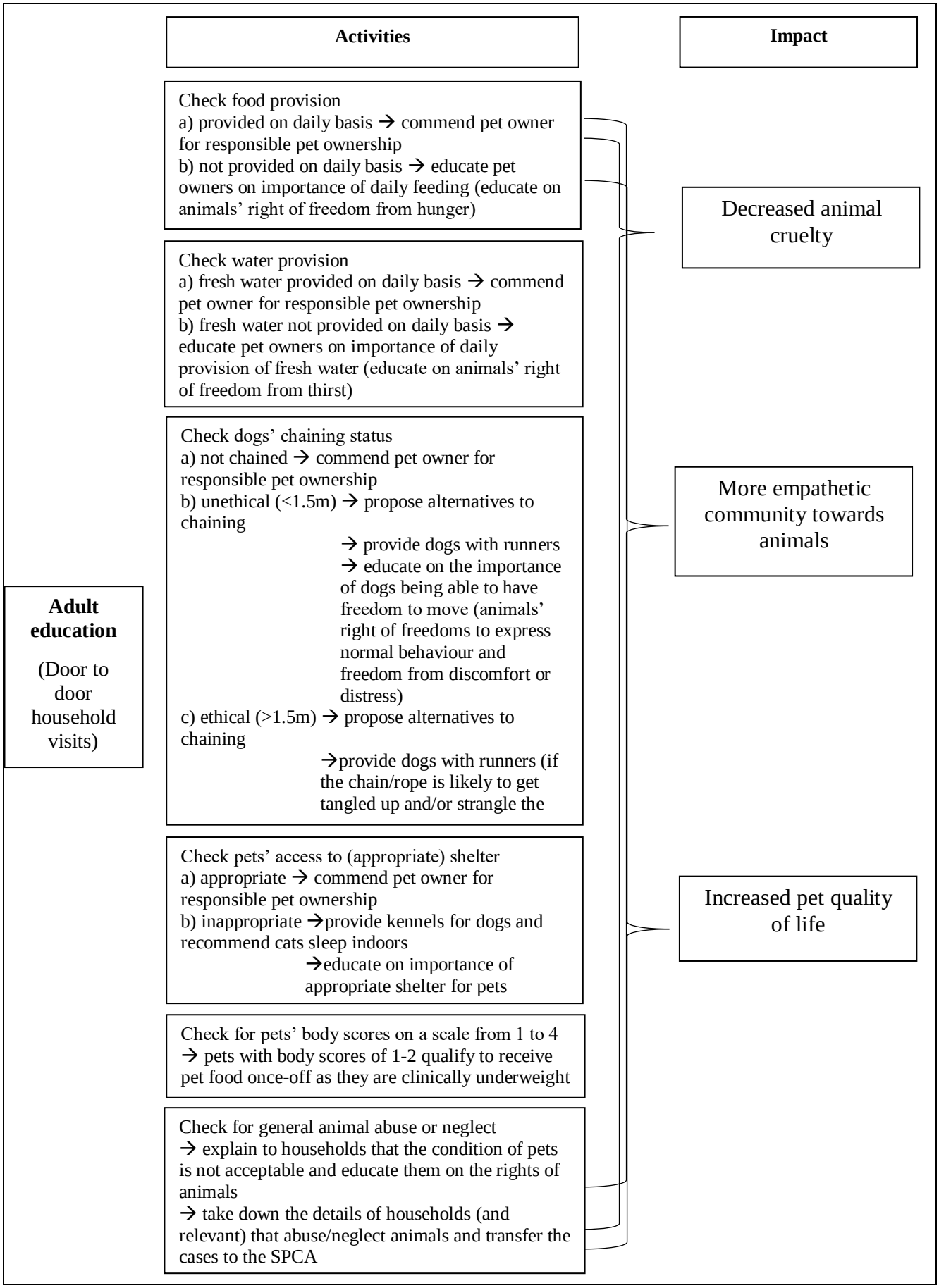


*Figure 4.* Initial programme logic of the adult education sessions only

As shown in Figure 4, adults are educated during household inspection visits. As part of the mass sterilisation project programme staff and volunteers knock on doors to promote the free sterilisation (and other benefits) as well as to assess the conditions of the pets of the households. Based on their observations they then teach owners in a one-on-one interaction. This knowledge is thought to result in the community knowing how to care for and provide for their animals' basic needs, with the ultimate goal of reducing abuse.

Both the youth and adult education components are envisioned to result in decreased animal abuse and neglect, increased animal empathy, as well as increased quality of life for pets.

To further document the causal pathways between the activities and impacts the stakeholders were probed and taken through backward and forward reasoning to develop more linear pathways which included short-, medium and long-term outcomes. After the second engagement with the stakeholders, Figure 5was developed.

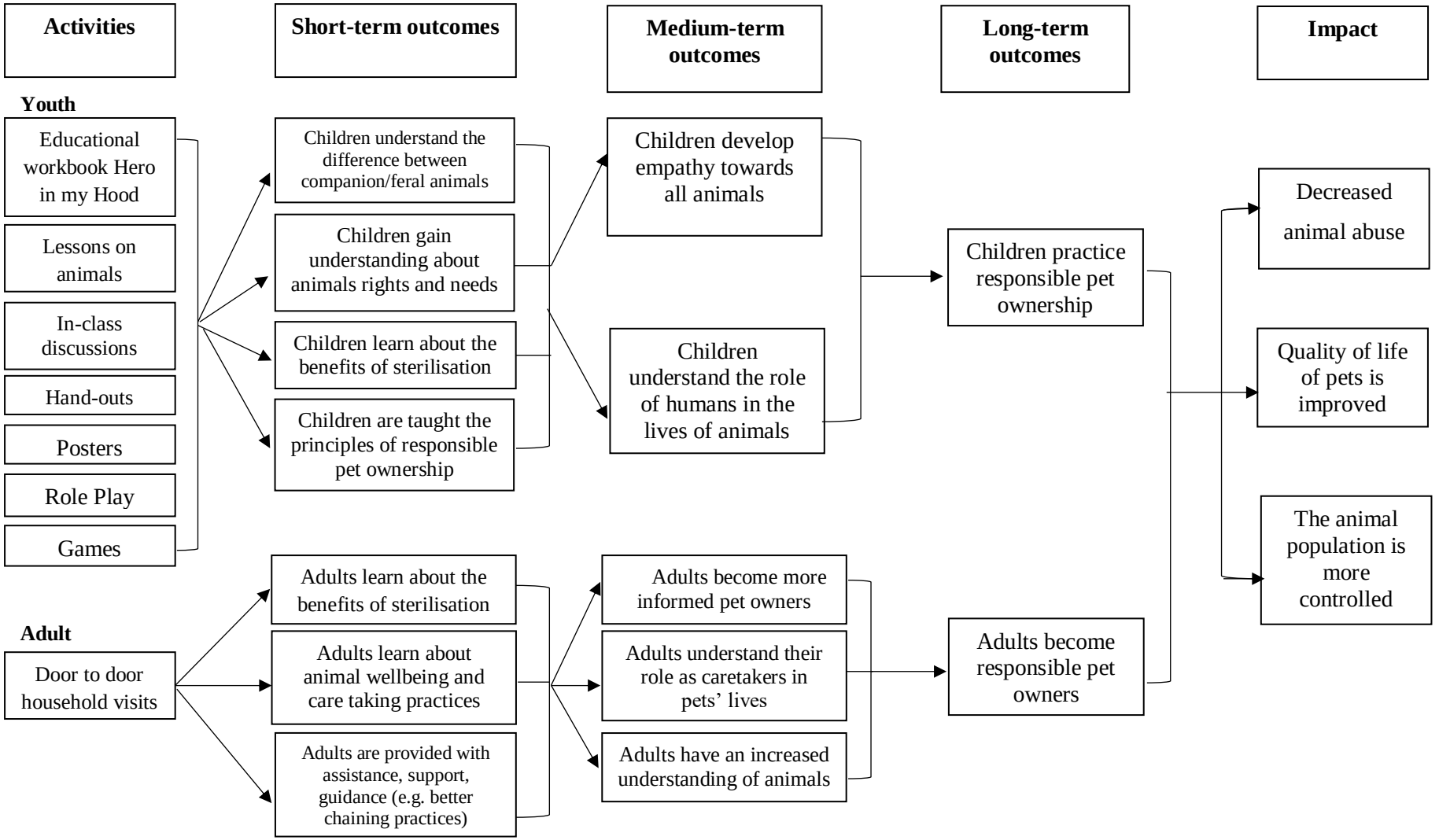


*Figure 5.* First draft of the programme theory diagram for Mending Mamre's educational sessions

Figure 4 depicts how the education session activities interrelate with the short-, medium- and the long-term outcomes as well as the programme impact . This diagram was sent to stakeholders for feedback and approval. Stakeholders requested that some changes be made. These changes included adding one long-term outcome: the transference from animal-directed empathy to human-directed empathy and one impact: the creation of a more cohesive community. Subsequently, Figure 6 was created by the evaluator including the requested changes (highlighted in blue). This figure obtained overall agreement from stakeholders.

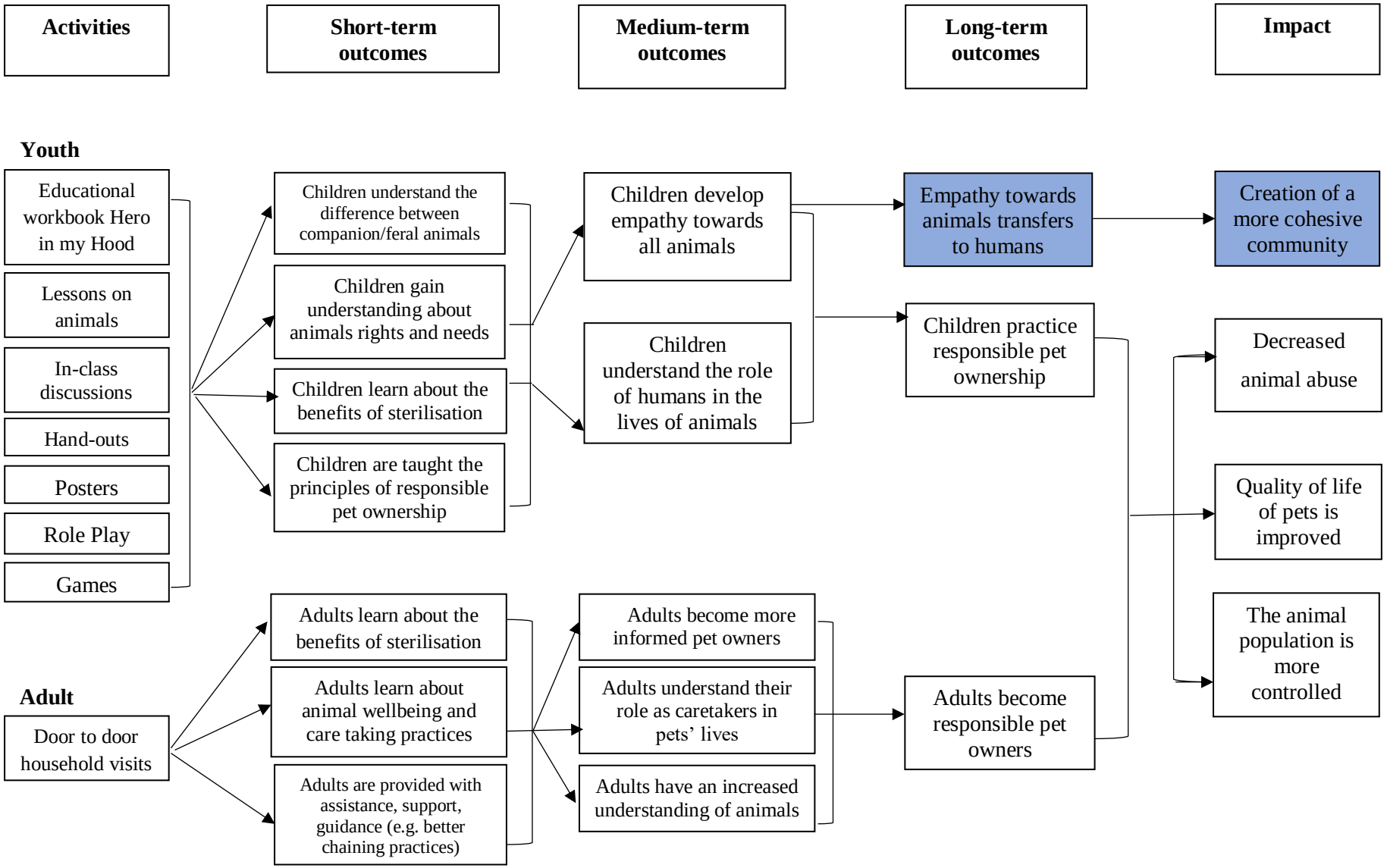


*Figure 6.* Final programme theory diagram of the education component

**Plausibility Assessment Of Mending Mamre's Education Component**

The client was not concerned with a plausibility assessment for the entire programme. Logically if a pet is sterilised it leads to the animal population being controlled. Thus, given that the links in the programme theory diagram of the Mending Mamre programme are mostly common-sensical, a plausibility assessment was only conducted for the educational component of the programme. The next section presents the results of this assessment.

*Evaluation question 3: Are Mending Mamre's education component activities and proposed outcomes plausible?*

In order to determine which social science literature to consult for the plausibility assessment, the evaluator first needed to determine whether the design of the educational component was based on animal welfare education or humane education. Although these two terms of used interchangeably in the literature, programmes conforming to animal welfare education and those following a humane education design do differ in terms of their activities and outcomes. To decide which principles underpinned the programme, the evaluator consulted the definition of animal welfare and humane education. Both concepts are defined below.

Animal welfare education aims to promote positive attitudes (i.e. views) towards animals (Broom, 2005). These programmes aim to teach participants an understanding of animals' basic needs (i.e. daily water, food, shelter and space ), animal rights / freedoms (i.e. freedom from hunger/thirst, discomfort, pain/injury/disease, to express normal behaviour, from fear/distress) and how humans are responsible for providing the appropriate care to ensure that the animals' needs are met and that their rights are not violated (Broom, 2005; Burgess-Jackson, 1998). In line with this, animal welfare education also teaches the appropriate skills to interact with animals to ensure that animal welfare is respected (Broom, 2005; Burgess-Jackson, 1998).

Humane education is the teaching of respect, compassion and empathy towards all living creatures (Arbour, Signal, & Taylor, 2009; Ascione, 1997; Jalongo, 2014; Unti & DeRosa, 2003). Tolerance and sensitivity towards all living things are the foundations of humane education (Ascione, 1997; Wagner, 2014). Programmes grounded in humane education include content on animal welfare but go further to introduce environmental and social justice content as well (Arbour et al., 2009).

From the definitions above it is apparent that animal welfare education forms part of humane education but because it focuses specifically on animals and issues pertaining to their wellbeing and treatment, it does not have the same goals as humane education which are broader and target environmental and social issues as well as animal welfare.

If we assess the content and activities of the educational component of the Mending Mamre programme, the activities focus exclusively on animal welfare issues (i.e. companion animals' wellbeing and treatment). Based on this assessment, animal welfare social science research and literature were consulted to determine whether the educational activities and proposed outcomes of the education component of the Mending Mamre programme were consistent with previous programmes (i.e. programmes that had similar goals) and whether the causal links between activities and outcomes were plausible.

**Alignment of the education component's programme activities with comparable programmes.** To gauge how well the content of the educational component aligned with animal welfare learning outcomes, Table 2 was created. This table compares the activities that are usually found in animal welfare education programmes to those that are included in the education component of Mending Mamre.

Table 2

*Broad Activities for Animal Welfare Education and whether they are Included in Mamre's Education Component*

| Activity | Number of programmes using this activity (excluding Mending Mamre) | Academic sources | Education component's inclusion of the activity |
|---|---|---|---|
| Direct physical contact with animals | 2 | Coleman, Hall, & Hay, 2008; Scheib, Roeper, & Hametter, 2010 | No |
| Lessons about animal behaviour | 4 | Coleman, Hall, & Hay, 2008; Gyllenhammar, 2015; Scheib, Roeper, & Hametter, 2010[3] | Yes |
| Interactive discussions with students | 3 | Gyllenhammar, 2015; Scheib, Roeper, & Hametter, 2010[3] | Yes |
| Classroom material (e.g. poster) | 2 | Scheib, Roeper, & Hametter, 2010[3] | Yes |
| Role playing | 2 | Aguirre & Orihuela, 2010; Coleman, Hall, & Hay, 2008 | Yes |
| Games | 2 | Scheib, Roeper, & Hametter, 2010[3] | Yes |
| Educational/ informative booklets | 2 | Scheib, Roeper, & Hametter, 2010[3] | Yes |
| Excursions in nature | 1 | Scheib, Roeper, & Hametter, 2010 | No |
| Students engage in creative writing on animal welfare topics | 2 | Aguirre & Orihuela, 2010; da Cunha, Martins, Pellizzaro, de Barros, Pampuch, Wouk, Ferreira, Garcia, & Biondo, 2016 | No |
| Students draw animals | 2 | Gyllenhammar, 2015; da Cunha, Martins, Pellizzaro, de Barros, Pampuch, Wouk, Ferreira, Garcia, & Biondo, 2016 | No |
| Skits | 0 | | Yes |
| Door to door visits | 0 | | Yes |

[3]*Note: This study mentions two programmes: Tierprofi and Walk the Dog*

As seen in Table 2, four activities usually found in animal welfare education programmes and/or recommended in animal welfare literature were not found in the education component of Mending Mamre. This includes: exposing children to direct physical contact with animals, going on excursions in nature, making students engage in creative writing on animal welfare topics and making students draw animals.

However, as evidenced, the remainder of the activities found in animal welfare education programmes were all found in the educational component indicating that it covers most content areas in other animal welfare education programmes. As such, given that overall the educational component shows a lot of similarities with other programmes intended to produce similar outcomes, it can be argued that the activities in Mending Mamre's education component are mostly consistent with animal welfare education programmes.

**Alignment of the education component's programme outcomes with comparable programmes.** To assess the plausibility of the educational component's outcomes, the same six programmes (as used in the activities section above) were reviewed. The outcomes outlined in these programmes were then sorted into ten broad outcomes. Mending Mamre's educational component's outcomes were then compared.

The outcomes that were most common across the animal welfare programmes were: increased knowledge concerning animal welfare concepts; providing the necessary knowledge and skills to become responsible pet owners; and creating awareness and recognition that animals have feelings and emotions. Table 3 was created in a similar manner to Table 2, to document the results of the outcomes' assessment.

Table 3

*Broad Outcomes for Animal Welfare Education and whether they are Included in Mamre's Education Component*

| Outcome | Number of programmes found stating this outcome (excluding Mending Mamre) | Academic sources | Education component's inclusion of the outcome |
|---|---|---|---|
| Ability to distinguish between different animal groups (e.g. farm, wild, domestic) | 2 | Gyllenhammar, 2015; Scheib, Roeper, & Hametter, 2010 | Yes |
| Increased knowledge and understanding of animal welfare concepts and animals (e.g. animal needs, freedoms, cruelty, animal behaviours) | 6 | Aguirre & Orihuela, 2010; Coleman, Hall, & Hay, 2008; da Cunha, Martins, Pellizzaro, de Barros, Pampuch, Wouk, Ferreira, Garcia, & Biondo, 2016; Gyllenhammar, 2015; Scheib, Roeper, & Hametter, 2010[3] | Yes |
| Increased knowledge on how to care for pets' welfare as pet owners | 2 | Coleman, Hall, & Hay, 2008; da Cunha, Martins, Pellizzaro, de Barros, Pampuch, Wouk, Ferreira, Garcia, & Biondo, 2016 | Yes |
| Increased awareness and recognition that animals have feelings and emotions | 3 | da Cunha, Martins, Pellizzaro, de Barros, Pampuch, Wouk, Ferreira, Garcia, & Biondo, 2016; Coleman, Hall, & Hay, 2008; Scheib, Roeper, & Hametter, 2010 | Yes |
| Participants understand the negative effects that feral and nuisance domestic pets have on the environment | 1 | Coleman, Hall, & Hay, 2008 | No |

[3]*Note: This study mentions two programmes: Tierprofi and Walk the Dog*

Table 3 continued

| Outcome | Number of programmes found stating this outcome (excluding Mending Mamre) | Academic sources | Education component's inclusion of the outcome |
|---|---|---|---|
| Participants become more responsible pet owners | 3 | Coleman, Hall, & Hay, 2008; da Cunha, Martins, Pellizzaro, de Barros, Pampuch, Wouk, Ferreira, Garcia, & Biondo, 2016; Scheib, Roeper, & Hametter, 2010 | Yes |
| Participants are able to use behavioural strategies to prevent dog bites/attacks | 2 | Coleman, Hall, & Hay, 2008; Gyllenhammar, 2015 | No |
| Participants understand the complex nature of relationships between animals and humans (e.g. dependence of animals on humans, humans' roles as caretakers) | 2 | Scheib, Roeper, & Hametter, 2010[3] | Yes |
| Knowledge of how to identify dog behaviours via body language and emotion reading | 1 | Coleman, Hall, & Hay, 2008 | Yes |
| Participants are provided with assistance, support and guidance at their place of residence | 0 | | Yes |
| Participants know the importance and benefits of sterilisation | 0 | | Yes |
| Children develop empathy for all animals | 0 | | Yes |

[3]*Note: This study mentions two programmes: Tierprofi and Walk the Dog*

As seen in Table 3, two outcomes usually intended in animal welfare education programmes were not found in the education component of Mending Mamre, namely, that participants understand the negative effects that feral and nuisance domestic pets have on the environment and that participants are able to use behavioural strategies to avoid dog bites/attacks.

Additionally, the educational component of the Mending Mamre programme had three outcomes that no other comparable animal welfare education programme set out to achieve, namely: participants are provided with support and assistance at their place of residence, participants know the importance and benefits of sterilisation and that children develop empathy for all animals.

However, the remaining eight outcomes found in comparable animal welfare education programmes were all found in Mending Mamre's educational component, indicating that the educational component overall has similar outcomes to other animal welfare education programmes.

*Evaluation question 4: Are Mending Mamre's education component causal pathways plausible?*

The next section of the chapter presents the overall plausibility assessment of the education component's main causal pathways. This is followed by recommendations for future implementations of the education component in other communities, based on the results.

**Plausibility assessment of causal pathways.** The evaluator assessed the activities and outcomes of the educational component and observed that overall the underlying logic of the programme or the resultant outcomes from the programme activities are derived from two main causal pathways being achieved.

The first pathway assumes that teaching responsible pet ownership leads to positive changes in animal welfare. The second pathway is based on the assumption that teaching animal-directed empathy transfers to human-directed empathy which ultimately creates a more cohesive community. These pathways will be assessed individually below.

***First Causal Pathway: Teaching responsible pet ownership will lead to decreased animal abuse and an increase in pets' quality of life.*** This causal pathway was chosen for assessment because it was the overarching link that tied the educational activities to the stakeholders' main goal of improving animal welfare in Mamre: by decreasing animal abuse and improving animals' quality of life.

Indeed, stakeholders envisioned that education sessions designed to teach the community members how to become more responsible pet owners would lead to behavioural change which would in turn positively impact animal welfare in Mamre.

*Effects of responsible pet ownership (and lack thereof) on pets and the community.* Briefly, responsible pet ownership can be defined as teaching pet owners to "be accountable and chargeable for the ongoing care, actions and welfare of any animal under [their] management and control" (Hindle, 1992, p.3). It also means that pet owners who are responsible, provide their pet with sufficient and suitable food, water, shelter and healthcare as well as appropriate exercise and space to keep the pet content and always ensure that the pet receives appropriate medical treatment in due time when sick or injured (Hindle, 1992). Additionally, a pet owner should not abandon their pet nor fail to provide their pet with proper care in their absence (Hindle, 1992).

Research proves that responsible pet ownership has beneficial effects on improving pets' wellbeing and quality of life (i.e. animal welfare) (Hindle, 1992; Marinelli, Adamelli, Normando, & Bono, 2006; Gunaseelan et al., 2013; Sturgess & Hurley, 2007) and that these effects extend to the wider community's wellbeing as well. This carry-on effect to the broader community is observed because the implications of irresponsible pet ownership affect more than just the pet itself as is demonstrated below.

Effects of irresponsible pet ownership include pets being allowed to roam freely and breed uncontrollably. This leads to unwanted litters, an increase in pet abandonment and can cause overpopulation (Gunaseelan et al., 2013; Hindle, 1992). Animal overpopulation creates the perfect breeding grounds for diseases spreading between animals and also between animals and humans (Seymour, 2018). The diseases that spread from animals to humans are called zoonoses and represent a serious public health burden (Bingham, Budke, & Slater, 2010; Stull, Peregrine, Sargeant, & Weese, 2012). Other negative effects tied to irresponsible pet ownership are that sometimes, large groups of roaming dogs can form packs and become dangerous, especially for young children who are frequent victims of dog bites (Chapman et al., 2000; Ozanne-Smith, Ashby, & Stathakis, 2001).

Thus, by changing an individual's pet care practices it minimises pet behaviours which affect the wider community such as pet roaming and unsupervised mating (Hopkins, Schubert, & Hart, 1976 as cited in Love & Overall, 2001), which in turn also contributes to the decrease of disease spread between animals, zoonoses, property and wildlife damage, and even attacks on people (Rohlf, Bennett, Toukhsati, & Coleman, 2010; Van der Kuyt, 2004). As such, becoming a more responsible pet owner has an individual and collective positive effect which benefits the individual pet but also the other pets of the community as well as community members and the surrounding environment (Headey, 1999; L'Abate, 2007; Rohlf et al., 2010). These are the premises underpinning why educating pet owners and increasing their knowledge on responsible pet ownership has become an increasing focus for animal welfare organisations.

The linkages in the educational component of the Mending Mamre programme which detail this causation between responsible pet ownership and the envisioned outcomes can, therefore, be deemed plausible as these results are found in the literature. However, this leads to a larger debate on whether knowledge leads to behaviour change. In other words, while the practice of responsible pet ownership can have these effects, providing the knowledge of responsible pet ownership alone does not guarantee that the community will practice what they are taught.

*Does an increase in knowledge lead to behavioural change?* Research has shown that knowledge is not enough to lead to behavioural change (McCluskey & Lovarini, 2005). This has notably been demonstrated in the field of health sciences where medical practitioners are faced with the challenge of patients being made aware of the benefits engaging in behaviours yet refusing to despite their knowledge; or vice versa when patients are aware of the detrimental effects of behaviours they are practising but choose to persist nonetheless (McMaster & Lee, 1991). This points towards knowledge's lack of ability to provoke any change in individuals by itself.

A challenge for animal welfare programmes, is that participants are asked to change their behaviours for a third party (i.e. their pet) which may be even less of an incentive to change, since the behaviour does not affect them directly (Hemsworth, Coleman, & Barnett, 1994; Whay, 2007), unlike in health interventions where educational programmes are directly aimed towards improving participants' knowledge with the hope that it will trigger/make them want to engage in or consider behaviours that benefit them directly (e.g. healthier diets or weight loss) (Whay, 2007).

The evaluator used the framework of the Theory of Planned Behaviour (TPB) (Ajzen, 1985) to assess the plausibility of the causal pathway between knowledge and action. The TPB was a theory proposed by Ajzen (1985) to expand on the Theory of Reasoned Action's capacity for predictive validity in terms of explaining human behaviour (Fishbein & Ajzen, 1980). According to the TPB, human behaviour is predicted by three elements: an individual's attitude towards the behaviour, the subjective norm and an individual's perceived behavioural control (Ajzen, 1985).

Briefly, attitude towards the behaviour refers to an individual's personal attitudes or perception towards the favourability of an act. These are influenced by behavioural beliefs which are beliefs about the consequences of a behaviour (Ajzen, 1985). Subjective norm essentially refers to peer pressure, in the sense that if society demonstrates high favourability towards an act, it is more likely that the individual will feel the same. Subjective norm is influenced by normative beliefs which are beliefs about the normative expectations of others (Ajzen, 1985). Furthermore, perceived behavioural control refers to an individual's believed level of ability to actually perform/engage in the said behaviour. This is influenced by control beliefs which are beliefs about the presence of features that may facilitate or hinder the individual's performance of the behaviour (Ajzen, 1985). Finally, behavioural intention refers to the factors that influence a behaviour, where the stronger the intention is to perform, the higher the likelihood that the behaviour will, in fact, be performed (Ajzen, 1985). Figure 7 is a visual representation of all the constructs presented in the TPB model.

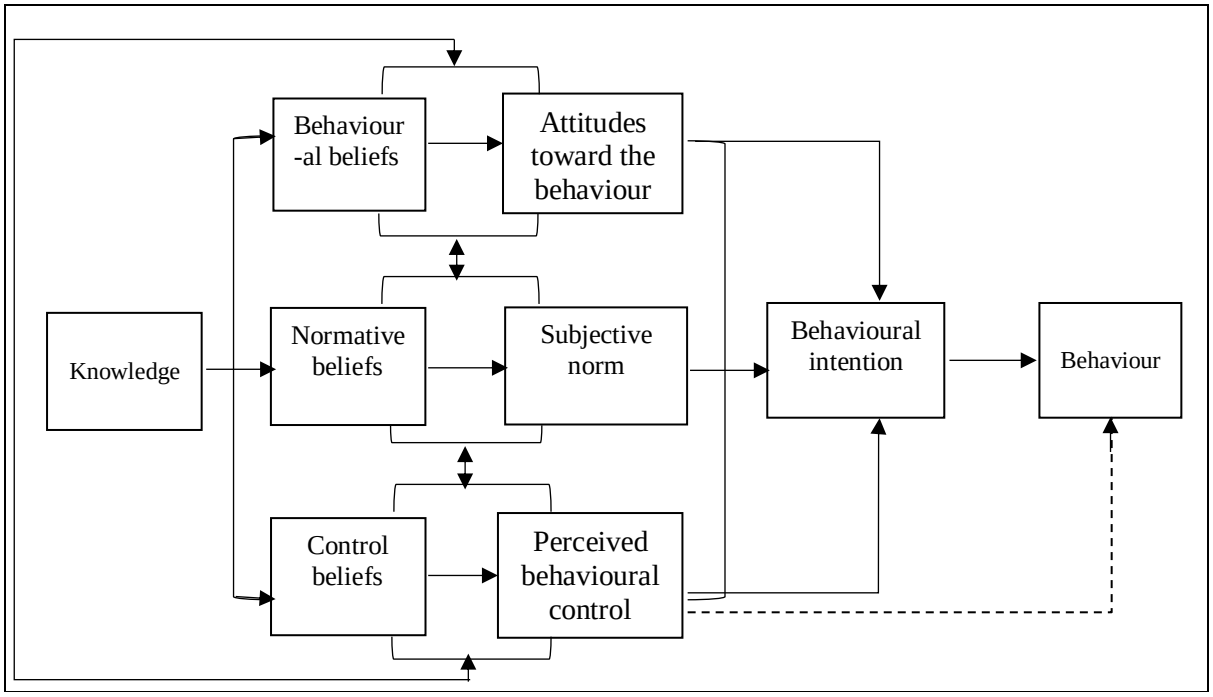


*Figure 7*. Theory of Planned Behaviour (Ajzen, 2005)

Ajzen defines knowledge in his model of TPB as an informational background factor that precedes the combination of factors responsible for bringing about behavioural change in individuals (Ajzen, Joyce, Sheikh, & Cote, 2011). Indeed, it is the combination of personal attitudes towards a behaviour (as opposed to knowledge), subjective norms and the perceived behavioural control that influence an individual's intention (i.e. motivation) to perform a behaviour (Ajzen, 1985). As such, knowledge is not sufficient in itself to influence behavioural intention.

When looking at the model, knowledge could, for example, influence behavioural beliefs (make people aware of consequences of the behaviour and in turn affect their attitude towards the behaviour), or knowledge may fuel individuals' control beliefs about their capacity to perform the behaviour, however, knowledge alone cannot be linked directly to the behaviour change.

*Conclusion with regards to the plausibility of the first causal pathway.* As such, based on evidence from psychological literature and frameworks explaining human behaviour, increasing people's knowledge has been argued to be insufficient to bring about behavioural change. Thus, while the practice of responsible pet ownership can result in the intended outcomes of the programme, the link between increasing knowledge and the enactment of this knowledge has not been proven. As such, the stakeholders' stipulation that teaching responsible pet ownership to community members (i.e. increasing their knowledge) will lead them to engaging in long-term behavioural change that will alleviate animal welfare in Mamre is implausible.

The pet owners' culture should be considered as an additional background factor impeding the plausibility. Companion animals are not seen as just companion animals in Mamre. They often serve an additional purpose like guard dogs or breeding dogs to make money. This is cultural to the community: companion animals' position, role and status in their society and therefore the corresponding value they are given. Only a few pet owners see their pets as a member of the family and as such, it would take more than simply informing them about their animal's wellbeing to convince them to improve their pet care practices.

To improve the likelihood of this link, the intervention would have to be culturally sensitive in addition to trying to increase animal welfare (Gunaseelan et al., 2013). Perhaps if pet owners could see the advantages they could gain from treating their pets better they would consider it. Often individuals are more motivated or inclined to change if they can reap the benefits of change for themselves rather than just for a third party (Hemsworth et al.,

1994). In this case, how they could save money on veterinary care is an example of advocating for providing better pet care, or if they have a good guard dog, better pet care would increase its life span.

Supporting this recommendation, a study conducted by Gunaseelan et al. (2013) specifically used the TPB to understand cat owners' engagement in responsible cat ownership practices. Their findings concluded that future research should continue to use the TPB to investigate moderating variables like pet owners' level of attachment to their cat or the perceived benefits of owning a cat. Indeed, considering these were perceived by researchers as improving the efficacy of animal welfare programmes aiming to promote responsible cat ownership practices. I believe that the level of attachment to a pet and the perceived benefits of owning a pet are cultural factors and therefore culture is an important moderating variable to consider in order to increase the efficacy of an animal welfare programme that aims to increase animal welfare by teaching responsible pet care and ownership practices at a community level.

***Second Causal Pathway: Animal directed-empathy will transfer to human-directed empathy and create a more cohesive community.*** Briefly, empathy is an attribute that predicts prosocial behaviour (Eisenberg & Fabes, 1990; Eisenberg & Strayer, 1987; Spiro, 1992; Thompson & Gullone, 2003). Prosocial behaviour is moral and voluntary and is intended to benefit others rather than the self (Eisenberg & Fabes, 1990 as cited in Thompson & Gullone, 2003).

Empathy is the "innate, hardwired response connecting us as social beings to the emotional plights of others" (Zahn-Waxler & Radke-Yarrow, 1990, p. 111) and when an individual feels empathy for another, he/she experiences the feelings that are similar to those felt by the other (Eisenberg & Fabes, 1990).

Empathy should develop naturally in humans as we are biologically predisposed to experience it (Zahn-Waxler & Radke-Yarrow, 1990 as cited in Thomson & Gullone, 2003). Even though it is something that develops as part of our natural development, it can be taught as well (Ascione, 1997; Spiro, 1992).

Since individuals with high empathy are more inclined to behave pro-socially (Eisenberg & Fabes, 1990), this attribute is regarded to reduce interpersonal violence and promote social cohesiveness amongst humans (Flynn, 1999).

*The link between animal- and human-directed empathy.* The link between attitudes towards the treatment of animals and human-directed empathy has been studied extensively. Indeed, there are strong links between cruelty inflicted towards animals during childhood and violent attitudes and behaviours towards humans perpetuated later in adulthood (Arluke, Levin, Luke, & Ascione, 1999; Flynn, 1999) based on research conducted with violent criminals or perpetrators of violent domestic abuse (Merz-Perez, Heide, & Silverman, 2001).

This link suggests that individuals who are less empathetic towards animals are also less empathetic towards humans and thus, the reverse: that individuals who are more empathic towards animals would be more empathic towards humans.

If there is indeed such a potent link, then it is worthwhile to promote empathy for either species (human or non-human) in the hope that it would generalise to the other species since they are connected. Saunders (1920) stated that "children who are taught to love and protect [animals] will be kind to their fellow men when they grow up" (as cited in Ascione, 1997 p. 2).

A way to promote and teach empathy is through humane education. One of the assumptions of humane education programmes that focus on inter-species relations is the theory of transference (Finch, 1989), also referred to as empathy generalisation. It suggests that teaching children to be attentive to animals' needs and to treat them with kindness and compassion will, ultimately, affect the way children treat their peers (Finch, 1989). This addresses the strong link between human and non-human empathy aforementioned.

Indeed, animals' roles in the social and moral development of children have been recognised. Most notably, animal-assisted intervention research has shed light on positive outcomes for children with autism spectrum disorder and conduct disorders (Esposito, McCune, Griffin, & Maholmes, 2011; Thompson & Gullone, 2003). Additionally, other research suggests that children benefit emotionally and socially from bonding with animals (Shepard, 1997). Finally, it has been recognised that it is easier for children to form bonds with animals because they are non-judgmental creatures compared to human peers (Wells, 2004); and so, any emotional investment in animals is free of negative evaluation unlike that with humans (Thomson & Gullone, 2003). Additionally, by caring for and interacting with animals, children also learn to interpret non-verbal cues like behaviours and contexts which can serve as the foundations to build their aptitude at reading people's feelings which can be non-verbal (Maruyama, 2005).

*Transference effects of empathy in famous humane education interventions.* The longest humane education intervention was a year-long programme conducted by Ascione (1992 as cited in Ascione, 1997) with 32 classes of Grade 1, 2, 4 and 5 children, where experimental classes were taught using a humane education curriculum. This curriculum consisted of 40 hours of humane education. Control group classes continued to be taught using the standard curriculum. Children were administered a pre- and post-test measure assessing their knowledge and attitudes towards animals prior to- and after the programme's implementation. The findings of this study indicated that there were significant differences between the control and experimental groups in 4$^{th}$ and 5$^{th}$ graders only indicating transference. Additionally, this was maintained at 1-year-follow-up (Ascione, 1997). These findings suggest that a relatively long-term link between animal- and human-directed empathy is possible (Ascione, 1997).

Cameron (1983) conducted a similar but significantly shorter study investigating the effects of a three week (14 hours) humane education intervention delivered to eighth-graders. He investigated two forms of humane education and their effects on animal-related attitudes. Two classrooms were given reading material and media presentations, another two classrooms were given presentations with lectures delivered by a humane instructor and three classrooms received no education and served as the controls. All children received a pre- and post-test measuring animal-related attitudes. The post-test scores highlighted that the experimental groups had higher post-test scores of animal- and human-directed empathy than that of the control groups (Cameron, 1983, as cited by Ascione, 1997).

This study demonstrated that a humane education intervention can have a positive impact on children's attitudes toward animals and support the hypothesis that animal- and human-empathy are linked as an increase in the former and the latter occurred concurrently. However, no additional follow-up was conducted to investigate that the effect was maintained, therefore it cannot be said that the treatment group maintained their heightened empathy scores.

Another intervention, referred to as the "one-shot" humane education programme by Ascione (1997) consisted of a single visit by a trained humane educator to third- through to sixth-grade classes. This individual visited classrooms and presented lessons designed to engage children in discussions on animal life and care (Vockell & Hodal, 1980). This was delivered combined with the provision of printed material and classroom material (i.e. posters). There were three groups in this intervention: the intensive treatment that received the visit and printed material, the light treatment that received only the printed material and

the control that received neither. The children in the study were not pre-tested but were post-tested on two forms of the Fireman test which assesses the degree of children's favourable attitude towards animal life (children must choose between saving inanimate objects or pets from a burning home). The results of this study found that these sessions were not sufficient as they did not even yield significant differences in animal-directed attitudes in children (Vockell & Hodal, 1980). It was speculated that this is because they were too short in duration. Additionally, without pre-test data, it was difficult to make comparative analyses with regards to humane attitudes prior to the programme's implementation. As such, the authors simply concluded that their humane education intervention failed.

An even shorter intervention was a study conducted by Malcarne (1981) on 3rd and 4th graders. The researcher asked children to either role-play humans in distress, animals in distress, or read a story on animals. A third of the sample was allocated to each condition to assess the effects of role-play and drama on children's empathy and pro-social behaviours toward animals and humans. The story reading group was the control group. Each condition lasted one hour. All groups received three post-test measures of human- and animal-directed empathy. Namely, (a) story resolution where a victim in distress is either animal or human, (b) the Fireman test (the child must decide whether to rescue inanimate possession or a pet from a burning house), (c) children's willingness to volunteer their time at a children's hospital or an animal shelter (number of hours indicated by the child was the dependent variable).

The study concluded that children who were asked to role-play animals in distress were more willing to help animals in distress than the two other groups. Indeed, they scored higher on the Fireman test than children in the other groups and willingness to volunteer at shelters was higher than the two other groups. Similarly, children who role-played humans in distress were more willing to assist children in trouble. As such, Malcarne's study suggests that animal-directed empathy does not generalise to human-directed empathy or vice versa. It is important that the results of this study, however, be interpreted with caution due to the absence of pre-testing.

*Conclusion with regards to the plausibility of the second causal pathway.* Returning to the Mending Mamre pathway, are we, therefore, able to conclude that this second pathway is plausible? Realistically, no, the causal pathway is implausible for the following two reasons. Firstly, evidence in literature concerning the transference theory does not yield consistent findings to confirm that empathy does, in fact, generalise from animal-directed empathy to human-directed empathy. It can reasonably be concluded that as a consequence of the lack of consistency/significance and due to some methodological shortcomings (e.g. not pre-testing) in the findings of the humane education intervention studies, the theory of transference still has not yet been proven and remains an assumption.

Secondly, as aforementioned, the programmes that were used to investigate the theory of transference were all humane education programmes and not animal welfare education programmes. The depth at which humane education programmes go to teach empathy to their participants is much more extensive than animal welfare education programmes. Therefore, only a humane education programme could produce strong enough empathy in participants for it to generalise to humans. The Mending Mamre's educational component does not provide intensive humane education content and thus stakeholders cannot hope that by just focusing on forming bonds with animals this will generalise to helping participants form bonds with their peers.

**Recommendations To Stakeholders**

To recap, the educational component's activities are consistent with other animal welfare education programmes and overall, the majority of intended outcomes expected from the educational component are realistic. However, it is unlikely that children will develop empathy towards all animals from only the booklet activities provided in the educational sessions. If stakeholders wish to increase the likelihood of achieving empathy, the design of the educational sessions should follow a humane education curriculum.

As such, to reach an outcome like this one, the Mending Mamre stakeholders would need to restructure their activities and/or integrate additional ones. Here are some recommendations namely: (1) the focus given on empathy in the sessions may need to be increased, (2) the content would need to be changed in terms of what is covered in sessions and (3) children should be exposed to animals directly, (4) the structured education sessions currently designed/targeted exclusively towards youth would need to target adults in the same systematic manner, and finally (5) reward and punishment could be options to instigate behavioural change or lack thereof in Mamre.

**Dosage.** To successfully teach empathy, "dosage" or focus given to teaching empathy must be reconsidered in the educational component (Whay, 2007). Indeed, when comparing humane education interventions that almost exclusively focus on teaching empathy and animal welfare educations that focus on animal welfare improvement more generally, it is clear that the focus of each kind of intervention is placed on different goals. As such, Mending Mamre cannot hope to realistically achieve a humane education level goal while making it a minimal focus of the educational intervention. Dosage is critical in this case, especially when it comes to teaching an attribute as complex as empathy. As such, education sessions would need to be redesigned specifically to teach empathy.

**Content.** If the educational component aims to go beyond teaching animal empathy to create social cohesiveness, there is a need to teach empathy directed towards peers in children. However, although there is an undeniable link between both kinds of empathy, whether it transfers remains questionable due to the lack of consistent enough results, as such the educational component should endorse activities of humane education which teach the principles of social justice to children. This means new activities should cover content such as privilege, equality, disability, and concepts concerning demographic factors like gender and race (Harvey, 2010).

Additionally, activities should focus on team building, problem-solving in groups, perspective taking (this time from my peer's point of view and the pet's) in order to force children to be less egoistic (unable to see only from their perspective) and be able to start feeling how their peers can feel. This is more likely to boost their ability to empathise with their peers, and mentalise and so, create a more cohesive community.

**Exposing children directly to animals.** Evidence in animal welfare literature has indicated that exposing children directly to animals has beneficial effects like empathy boosting properties (Ascione, 1997; Thompson & Gullone, 2003) because children are innately fascinated by other species and curious to learn about them (Wilson, 2017). This would even retain children's attention longer and increase their motivation during animal behaviour lessons, which may facilitate the learning process (Thompson & Gullone, 2003). Another advantage to including animals in the sessions would be that children would then be able to apply the knowledge they have learned immediately in activities and stakeholders would be able to assess whether they are applying it correctly (Sprinkle, 2008).

Additionally, through the physical handling of animals, children can also learn to respect living beings' boundaries which can promote their understanding of limits and mutual

respect, two important factors for building healthy relationships with their peers (George, 1999 as cited in Thompson & Gullone, 2003; Melson, 2002).

**Adjusting the target population.** The educational sessions are designed and delivered exclusively for and to the youth in Mamre yet, these are the agents with the smallest control and power over the lives of their pets' lives. Even if it is beneficial to teach them with the hope that they will become future responsible and caring pet owners, they might have little influence in their current pets' lives and as such, it might make more sense to also include adults in the more intense education sessions rather than just give adults one-on-one education when households are visited.

Additionally, the current adult education is only delivered if problems are noted with the pet. No education is delivered to residents who have no pets or those who are seemingly practising responsible pet ownership. As such, ideally adults should be taught like children, that is: in a systematic and more intensive way. However, it is not feasible that they have the time to attend the sessions because of their working schedules. A recommendation would be to host intensive workshops on public holidays and weekends. Additionally, educational material and magazines should be handed out to all households to perpetuate the education on ethical pet treatment and educate pet owners from afar.

This is all in the hope that if adult pet owners become more empathetic towards animals through a more intensive education, then positive feelings together with their knowledge might have a better chance of influencing their beliefs which could in turn influence their attitude towards the behaviour and they may sustainably engage in responsible pet ownership (Ajzen et al., 2011).

**Reward and punishment.** Finally, as aforementioned, it is implausible that pet owners will all change their behaviour based on awareness of animal welfare concepts such as their pets' basic needs and freedoms (Ajzen et al., 2011). Therefore, if stakeholders want more sustainable change in the community, there would be a need to stay present in the community and possibly reward changes for the change to become habitual and therefore more engrained (Galla & Duckworth, 2015). Otherwise, they would need to resort to prosecution or removing animals that are not being treated well despite having educated owners (Hindle, 1992).

However, it is important for the stakeholders to remember that knowledge is not explicitly responsible for a behavioural change although it can be the first step towards an individual changing. Therefore, reward and punishment may serve as motivating factors which affect the behaviour and whether it is performed by pet owners. As such, collaboration with other

organisations may also be beneficial (e.g. the SPCA that has the authority to punish), or funders could donate rewards. Eventually, responsible pet care and ownership may become a habit and be performed without needing reinforcement (Galla & Duckworth, 2015). Importantly, however, punishing community members without getting them involved in the act of deciding of the punishment is similar to excluding them from being part of the planning of the programme, and as such, it would be best if community members were involved in designing solutions. Like the other Mending Mamre programme stakeholders, the community is also a stakeholder. Their engagement and involvement could be achieved through focus groups held on public holidays or weekend mornings when most community members would be available.

## Chapter Four: Process Evaluation Results & Discussion

This chapter outlines the results and a discussion of the thematic analysis conducted for the reasons why some households refused to have their pets sterilised. All 105 respondents who needed to be reached for sample size purposes were successfully reached. The following evaluation questions guided the responses obtained from respondents:

*Evaluation question 5: Why did some pet owners in Mamre refuse the intervention?*

*Evaluation question 5.1: Would they consider future sterilisation for their pets?*

The responses to the questions are reported and discussed together as often they were logically related thus, no independent analysis was conducted for the responses to evaluation question 5.1.

For sterilisation refusal, five themes were identified with a total of nine subthemes and seven sub-subthemes. Figure 8 was created by the evaluator to visually represent an overview of the themes and subthemes found in the data.

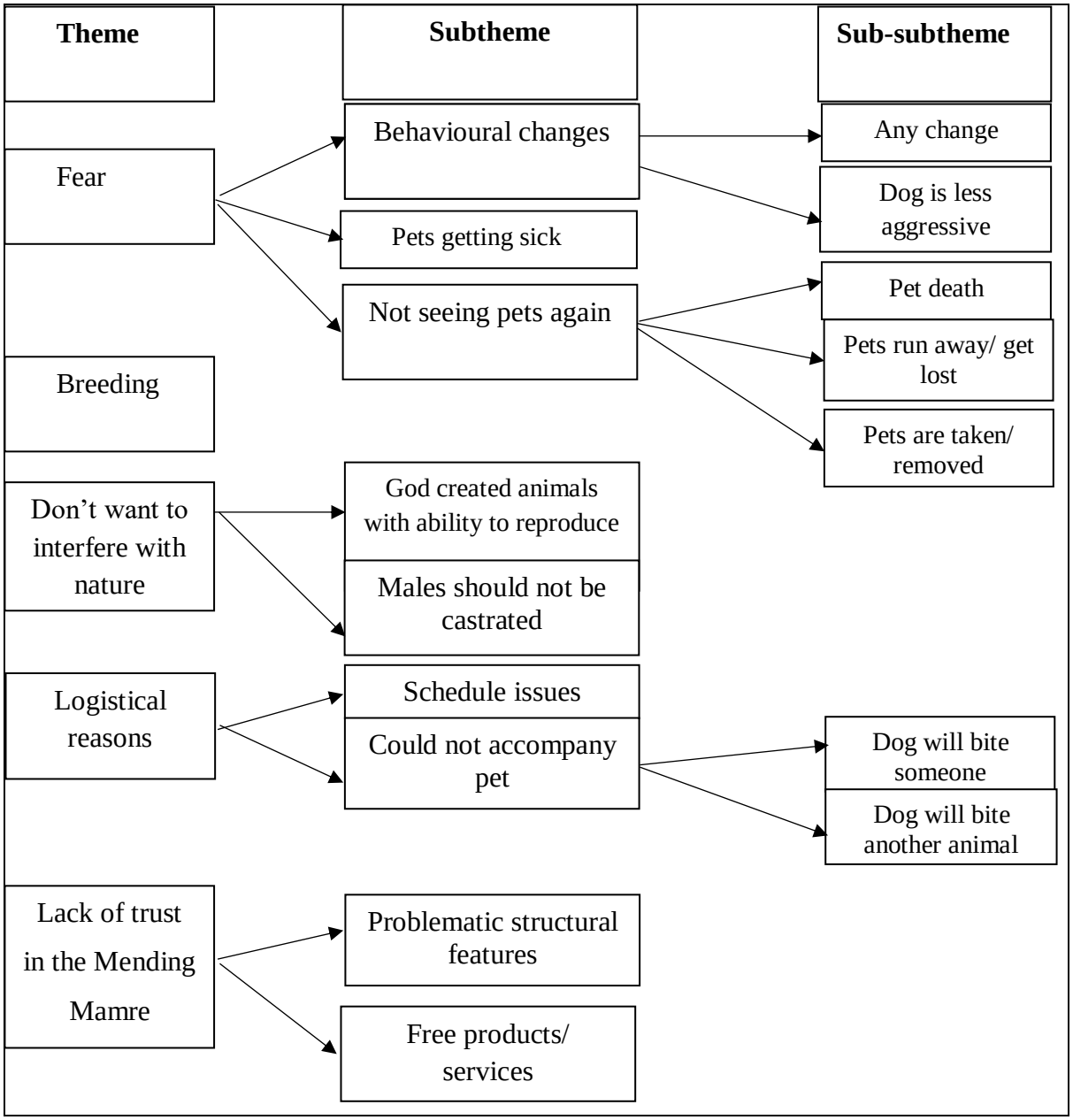


*Figure 8.* Themes and subthemes emerging from the data

For the reporting and discussion of each theme, quotations are used from the data collected. These quotations are presented in two formats: 1) in first person with quotation marks which represents what the respondent said or 2) in third person without quotation marks when the response was captured/translated by the data collector. Brackets in the answers represent modifications made by the evaluator to facilitate flow and comprehension, or in some cases translate words from Afrikaans to English.

**Theme 1: Fear**

The biggest theme that emanated from the data was respondents' fear of what could happen after they had their pets sterilised. Thirty-nine of the respondents (37 % of the sample) differentiated between three kinds of fears which represented the subthemes of this first theme. There was a fear of a change in their pets' behaviour after sterilisation, a fear of their pets getting sick after the procedure and finally, pet owners' fear of not seeing their pets again after the procedure, either because of death, their pet getting lost or because the sterilisation intervention was a subterfuge for the programme staff to remove the pet. These are presented below and illustrated with respondent quotations.

**Subtheme 1: Behavioural change [n=18].** This subtheme encompasses eighteen pet owners who were afraid that if they had their pets sterilised, the animal would exhibit behavioural changes after the sterilisation. The two main changes they made allusion to were either fear that the dogs would be less aggressive or that there would simply be a change in behaviour that they were uncomfortable with. These two differentiations formed the two sub-subthemes discussed below.

***Sub-subtheme 1: Fear dogs will become less aggressive [n = 10].*** This subtheme illustrated ten respondents' fear that their dogs would become more docile and less aggressive after they had been sterilised. This fear was voiced in terms of the dogs becoming less effective guard dogs. This is illustrated in the answers provided below.

*Pet owner is afraid that the dog's behaviour will change, and the dog will become too friendly.*

Data capturer 1

*Pet owner is worried about a hormonal change in his male dog and is afraid that the dog will no longer be as aggressive.*

Data capturer 3

*The dog is a guard dog so the pet owner is worried it will be less aggressive once it is sterilised.*

Data capturer 4

*"[I] want my dog to stay aggressive like she is, [I] don't want her to change".*

Community Member

*"I want my dog[s] to stay aggressive, they guard my stuff".*

Community Member

***Sub-subtheme 2: Unspecified change in pets [n= 8].*** This subtheme included eight respondents who were concerned that their pets would not be the same after the procedure. They could not pinpoint a specific behavioural change that worried them but rather indicated that they were concerned about a general change in their pet after the procedure. This subtheme also included cat owners.

*Pet owner does not want to experience any changes in his animals' behaviours.*

Data Capturer 1

*Pet owner does not want his pets to change after the procedure.*

Data Capturer 2

*"I don't want my pets to change".*

Community Member

**Subtheme 2: Pets getting sick [n=4].** This subtheme included four respondents who were concerned that their pets would be returned sick after the procedure. This reasoning was grounded in the fact that the sterilisation was done in the community thus the animals were kept them in close proximity to each other during sterilisation days.

In pet owners' minds, this increased the chances for disease contraction/contamination from other possibly ill animals. The answers below illustrate this concern:

*Pet owner was worried the pet would be sicker after the procedure.*

Data capturer 1

*"I don't want my dog to be kept with other dogs, because he's gonna get sick from them".*

Community Member

*"I don't know how these people work, [...] they keep my dog and what if he gets sick because of others".*

Community Member

**Subtheme 3: Not seeing pets again [n=17].** This subtheme illustrates seventeen respondents' concern of not seeing their pets again if they agreed to sign them up for sterilisation. There were three reasons underlying this belief.

Firstly, some respondents feared that their pets would die during the surgery, secondly, some respondents feared that their pets would get lost, and thirdly some respondents believed that the sterilisation intervention was only a pretext and that the programme actually wanted to seize their pets. The answers provided below illustrate the respondents' concerns regarding these three sub-subthemes:

***Sub-subtheme 1: Pet death [n=12].***

*Pet owner is afraid that his dogs will die during the sterilisation procedure.*

Data capturer 2

*Pet owner says he does not want to have his dogs sterilised because he knows that his neighbours' dogs died (3 in total) from the sterilisation procedure.*

Data capturer 3

*"Too many dogs have died from this programme, I don't want my dog to die from this [...] I know households that lost dogs [they died]"*

*Community Member*

*"What if he dies during surgery? No!"*

Community Member

***Sub-subtheme 2: Pet getting lost [n=2].***

*"[...] I don't want my dogs to get lost [...]".*

Community Member

*"I want to see how it's set up, I don't want them to [...] lose [my dogs] or something".*

Community Member

***Sub-subtheme 3: Pets are taken away/are removed [n=3].***

*The pet owner thought he would not get his dogs back..*

Data capturer 1

*The pet owner did not want his dog to be removed [permanently].*

Data capturer 7[2]

*"I was afraid I wasn't going to see my dogs again".*

Community Member

**Theme 2: Breeding**

The second biggest theme that emerged from the data analysis was animal breeding, particularly in the case of dog sterilisation. Twenty-eight respondents (more than 25% of the sample) refused sterilisation on these grounds. Interestingly, however, all of the respondents who refused sterilisation on the grounds of breeding were interested in future sterilisation but not before their pet had their first litter or another litter. It is important to note for this particular theme, although never explicitely stated by respondents, that a reason for why dog owners may wish to breed, is dog fighting. Indeed, according to African Tails' General Manager, Mamre is known for dog-fighting which could also explain the initial high reluctance to sterilise (African Tails General Manager, personal communication, September 19, 2019).

Answers from the self-report questionnaires are provided below to illustrate examples of this theme:

*She isn't spayed because the pet owners want her to have a third litter. They are waiting for her to be on heat and to be covered and have puppies. Then they will consider sterilisation [...]. Owner will sterilise after this litter.*

Data capturer 3

[2] There were only 6 data capturers therefore "Data capturer 7" was used when the handwriting of the data capturer could not be made out.

*She isn't spayed yet because she is of the age to have her first litter, so the owner's son is going to get another Husky to cover her for puppies [...] The owner is, however, interested in sterilising after this litter or the next one.*

Data capturer 2

*"I don't want to fix him because he must still have pups.. he's a strong dog that I trained well so he'll have good pups and I'll sell them well because people know me for training them well. They know me as the Pitbull guy! [...] I won't fix him."*

Data capturer 1

**Theme 3: Do Not Want To Interfere With Nature**

The third theme emerged as a follow-on theme to the second theme, especially with regards to pet owners of male pets refusing sterilisation on the grounds of their pets' sex. This was the third biggest theme in the data with 27 respondents. Theme three had two sub-themes which are discussed below and illustrated with responses taken from the self-report questionnaires.

**Subtheme 1: Males should not be castrated [= 20].** Twenty respondents believed that no male pets should be sterilised. Responses to illustrate this sub-theme are provided below:

*Male animals, so they are not done.*

Data capturer 1

*Pet owner believes that males are beautiful, and he does not want to touch how his pet naturally is.*

Data capturer 3

*Pet owner thinks it is natural to keep a male pet whole.*

Data capturer 7

*"Because he is a male".*

Community Member

*"I don't sterilise males".*

Community Member

*"Males must stay whole".*

Community Member

Of the twenty respondents who refused sterilisation, only one pet owner would consider future pet sterilisation for medical reasons as he was made aware of the health benefits of the procedure as quoted below:.

*"It's not the best for me to fix my [male] dog but they [the clinic] told me about what it does to the animals [to sterilise them] ... so if the clinic says it's time then I'll do it, but it'll hurt".*

Community Member

**Subtheme 2: God gave animals the capacity to procreate [= 7].** This subtheme included respondents that believed that they should not tamper with their pets' natural God-given body because they believed He had created animals with the ability to procreate and therefore humans should not attempt to remove this capacity for any reason.

Consistently, the religious belief with regards to animal creation was indeed inflexible as owners who considered themselves as not having the right to remove animals' capacity to procreate stated that they would not consider future sterilisation. Answers from the questionnaires are provided below.

*"God made my pets like this why should I change them?".*

Community Member

*"God created my dog like this, it's for a reason".*

Community Member

*"I'll never fix my pets, God made them like that .. like us.. they meant to have kids, why d'you wanna take it away?"*

Community Member

*"My dog has the right to have babies".*

Community Member

**Theme 4: Logistical Reasons**

The fourth theme that emerged from the data summarises logistical barriers encountered which deterred respondents from having their pets sterilised through the intervention. Thirteen respondents described two kinds of logistical barriers which formed the subthemes of theme four. The first logistical barrier was pet owners' working schedules which were too busy to accommodate for pet sterilisation at the time of the intervention. The second barrier pertained to some pet owners being unable to accompany their pets to the facility and unwilling to be absent since they did not trust their pets to be safe around other humans or animals; this was particularly prominent for owners of aggressive dogs. Both subthemes are described below and illustrated with answers extracted from questionnaires.

**Subtheme 1: Schedule issues [n=4].** Four respondents indicated that they did have their pets sterilised because they could not schedule the procedure and commit to its time requirements. Indeed, the procedure required setting up a date for pet collection and drop-off as well as being available for the pets' post-surgical rehabilitation and these pet owners were unable to commit to this due to their demanding schedules. This is illustrated in the answers provided below:

*Pet owner is unaware of when she will get time off from work to get her pet sterilised, but she plans on getting her pet sterilised as soon as she has the time.*

Data capturer 6

*Pet owner says she is too busy with work to think about the sterilisation, however she will when her schedule is not as busy.*

Data capturer 7

*"I couldn't do it because of my work, I'm too busy".*

Community Member

*"I will take him to get done when I get some time off work".*

Community Member

**Subtheme 2: Could not accompany their pet [n=8].** Eight respondents indicated that the fact that they were unable to accompany their dog to the facility where the sterilisation procedure would take place was the reason they refused to have their pet sterilised. This was particularly the case for owners of aggressive dogs who were concerned that their absence would make their dog dangerous towards other animals and humans. This is illustrated in the answers provided below:

***Sub-subtheme 1: The dog will bite someone [n = 5].***

*The pet owner indicated that if he does not give someone permission to touch the dog, the dog will bite, therefore, they cannot schedule the procedure without the owner present*.

Data capturer 4

*The owner insists that his dog cannot go alone because he is too aggressive and will not let anyone else but his owner touch him. The owner added that the dog was even likely to bite.*

Data capturer 2

"*I don't want my dog to go without me because no one can touch him without me"*.

Community Member

***Sub-subtheme 2: The dog will bite another animal [n = 3].***

*The pet owner is afraid that his dog will attack another pet if he is not present to supervise the dog or if the dog is not supervised properly*.

Data capturer 4

*"I don't trust my dog around other dogs, he's aggressive, I don't know what'll happen and I don't want to be responsible"*.

Community Member

**Theme 5: Lack Of Trust In The Mending Mamre Programme**

As a fifth theme: a lack of trust in the Mending Mamre Programme emerged when the responses were reviewed. A total of seven respondents differentiated between a lack of trust in the free services and products that they were provided with and other organisational features of how the programme that pertained mostly to how their pets were kept when they were being sterilised, which they did not find reassuring. These two differentiations formed the two sub-themes which are presented below.

**Subtheme 1: Lack of trust in free products and services [ n = 2].**This subtheme can be summarised as the respondents' distrust of the free services and products that they are being offered by the programme. This is illustrated in the answers provided below:

*"If it's free then it's probably not good stuff... it's the old medicine that's gonna kill our pets".*

Community Member

*"They doing a cheap job if it's for free, they sny [cut] quick quick and then saai [sow]" quick".*

Community Member

**Subtheme 2: Lack of trust in organisational features of the programme [n=5].** This subtheme can be summarised by five respondents' dislike of how the programme grouped their pets with larger groups of other pets whose medical history they did not know. They did not find that placing their pets in a larger group with others' pets was a favourable condition for their pet and this can be illustrated in their answers provided below.

*Pet owner indicated that he did not want to mix his husky with dogs that belonged to other people.*

Data capturer 2

*The pet owner indicated that he did not trust the project and he did not want his dog to be mixed with others' dogs. He also indicated that he was unsure of how the sterilisation procedure would work [how it was organised].*

Data capturer 1

*"Don't want to mix my dog up with other dogs".*

Community Member

*"I don't really understand how this works and don't want to leave my dogs with other dogs for too long".*

Community Member

## Overall Summary Of Themes

In the discussion of the themes, the sixth evaluation question concerning whether pet owners would consider future sterilisation of their pets will be discussed in more detail. Here, themes are discussed in the same order as in the results section and literature is included where applicable. Additionally, recommendations are also included for the Mending Mamre programme stakeholders in order for them to increase the programme's take-up in future implementations of the intervention in other communities.

### Theme 1: Fears

The most prominent reason for refusing pet sterilisation was pet owners' fears of different phenomena that would ensue after the procedure. The first was that their pets would exhibit behavioural changes (either become less aggressive or simply exhibit any behavioural changes), the second fear was that their pets would get sick from the procedure and the third fear was that they would not see their pets again if they agreed to have their pets sterilised by the programme (the pets would die in surgery, or the sterilisation was a subterfuge for removing their pets, or their pets would run away and get lost). No pet owners from this group indicated that they were interested in future sterilisation.

**Behavioural changes from the surgery.** Pet owners were mostly concerned about the aggression levels in pet dogs rather than cats because their dogs take on the role of guard dogs rather than companion dogs and as such, aggression is a desirable trait that pet owners would like them to keep.

Surgical sterilisation removes the main source of testosterone in male dogs (De Cramer & May, 2015), therefore it has been debated that it is effective in reducing aggressivity. Indeed, Cocia and Rusu (2010) found that after male dog sterilisation, aggression and activity levels were usually lowered. However, De Cramer and May (2015) argue that it is a common misconception that sterilisation is highly effective in doing so in male dogs and that rather, it is other methods, like behavioural training that have been judged more efficient in reducing aggression (De Cramer & May, 2015).

Reisner, Houpt, and Shofer (2005) demonstrated mixed results in female dogs when they found that some breeds can even become more aggressive after the sterilisation surgery such as the English Springer Spaniel. As such, there is an ongoing debate within animal behavioural sciences with regards to whether or not sterilisation does, in fact, make dogs less aggressive or not. As such, stakeholders are not able to guarantee any outcomes in order to convince pet owners to take-up the intervention and there is no recommendation on how to counter this rationale.

**Death and/or any complications from the surgery.** Unfortunately, pets dying during, or subsequent to, the procedure are legitimate fears and although programme stakeholders can attempt to reassure the pet owners that it is unlikely, this risk remains relatively out of their hands. Indeed, anaesthesia is a risk for any pet (De Cramer & May, 2015) and additionally, it is the veterinarian (rather than the programme stakeholder) who decides to euthanise a pet that is abused, malnourished or has a terminal illness.

Additionally, during the surgery itself, complications can occur. These are higher for females than for males because the surgical procedure is more complex and invasive (Pollari, Bonnett, Bamsey, Meek, & Allen, 1996). Indeed, accidental ureteral ligation can occur (Concannon & Meyers-Wallen, 1991) and dying as a consequence of haemorrhage is therefore also a possibility (De Cramer & May, 2015).

Finally, in terms of post-procedural sicknesses, there is a risk of developing cancers (bladder and prostate) post-surgery for male dogs but it is small, and it seems that breeds influence this, indicating that genetic makeup has a role to play in the development of these cancers more than the procedure (Knapp et al., 2000). In cats, most complications are mild

and self-resolving (Pollari et al., 1996), especially if early routine sterilisation is undertaken (Spain, Scarlett, & Houpt, 2004a, 2004b).

Additionally, conditions in which the pets are kept while waiting to receive the procedure can also contribute to making them sick or not. Indeed, it seems that they are kept in large spaces and also together and if one animal has a contagious disease, it can be passed on to other animal on the premises.

Like the fear above, this is again a legitimate reason to refuse the intervention, and no recommendations can be made to counter this.

**Pets being removed by the intervention.** This fear seems to be based on pet owners' anecdotal evidence of other pets being removed by the programme. This did occur, but due to these pets being abused by their owners. As such, programme stakeholders should try to communicate that the sterilisation is not a subterfuge to remove pets from their owners and that pet owners who take good care of their pets need not fear that their pets will be removed.

Stakeholders should try, however, to be transparent about the times where they requested the SPCA's assistance for abuse cases as evidence that only pet owners who abuse animals would be at risk of losing their pets. Indeed, transparency with all pet owners could increase trust and they could consider taking up the intervention when they know all the information and some of their fears are disconfirmed (Lavallee, Williams, Tambor, & Deverka, 2012).

**Pets running away.** Likewise, stakeholders need to reassure pet owners that their pets are kept in conditions that make it difficult, nearing impossible for pets to escape and get lost and that pets are being supervised at all times. None of the pet owners from this theme were interested in future sterilisation. However, stakeholders could be able to reason with pet owners who believe the intervention is trying to remove their pets and those who are afraid their pets will run away.

### Theme 2: Breeding

Breeding was another predominant reason for why pet owners in Mamre refused to have their pets (mostly dogs) sterilised. This result is not surprising given that in poorer communities, breeding of dogs can lead to an income source (by selling puppies) as well as the fact that in these communities, most properties are not fenced and individuals want to feel a sense of safety, and dogs are trained to be guard dogs to provide this for them.

Additionally, tied into both the lucrative benefits of breeding and the sense of safety that having a good guard dog entails, lie two further pretexts for refusing sterilisation that are

backed up by literature: if pet owners have a good guard dog they will want to maintain this key trait in future litters which is why they breed their dogs, and some dog owners may want to replace their dog by breeding another one themselves from the original pet, especially if that pet has desirable traits, rather than buying another one (De Cramer & May, 2015).

This illustrates that the value that a dog holds and the role that the dog fulfils in a community can act as real obstacles to convincing pet owners to choose sterilisation (De Cramer & May, 2015).

Nonetheless, among the 28 who refused sterilisation on the grounds of breeding, there were 24 (86%) who said that once they were done with the upcoming litters they would consider sterilisation, indicating that pet owners are somewhat either largely aware of the limits of breeding (i.e. they cannot breed their pets forever) or are aware of the benefits of sterilisation. This means that stakeholders must just get a clear indication of when breeders would be interested in sterilisation and come back for these particular households as it seems like pet owners are genuinely interested.

**Theme 3: Interference With Nature**

Pet owners' reluctance to interfere with nature was another prominent theme with 27 respondents, and the two subthemes that emerged from their answers highlighted the rather inflexible world views they held. Indeed, the first is that the majority of these pet owners were adamant that males should not be sterilised, while the second is that humans should not interfere with God's creations and so, let animals retain their capacity to procreate.

In Mamre, not sterilising male pets, and particularly male dogs is consistent with research. A study in the Bahamas by Fielding, Samuels, and Mather (2002) found pet owners refused sterilising male dogs because they believed it would lead to male dogs losing their maleness and altering their personality. This was corroborated by Blackshaw and Day (1994) who stated that male pet owners identified with their male pet dogs (as cited in Cocia & Rusu, 2010). Furthermore, Kennedy (1992) highlighted that it was not uncommon for pet owners to identify to the gender of their pet and because most pet owners of male dogs are males themselves, this could also explain the reluctance to sterilise male pets in Mamre based on this theory.

In terms of religious beliefs, although respondents' religious ideology was not clearly stated, given the history of the town of Mamre as a mission station being set up by Moravian missionaries in 1808 ("Dictionary of Southern African Place Names", n.d.) and the population distribution with Afrikaans-speaking Coloured residents making up nearly 95% of

the town it is highly likely that the town adheres to Christian religious principles. Nonetheless, it is a frequent finding among all three biggest monotheist religions that there is a need to respect a (human or animal) creature's ability to create life. Indeed, in Islamic religious teaching, de-sexing is often "discouraged as going against a natural process created by Allah" (Rahman, 2017 as cited in Gunaseelan et al., 2013, p.208). Likewise, in Judaism (the only religion which has consistently forbidden castration on humans and animals (Brody, 2009), a passage in the Torah clearly stipulates that sexual organs should never be offered to Jehovah : "You shall not offer these to God, and in your land you shall not do so" (Leviticus 24:22) (Brody, 2009). Finally, with regards to Christianity, God has "blessed all living beings, to be fruitful and multiply" and as such, deliberately committing any act which annuls one's ability to procreate could be seen as interfering with and destroying His plan and could even be seen as attempting to take on His role as the Creator or play God (Webb, 1998).

Unfortunately for stakeholders, religious beliefs with regards to refusing animal sterilisation are, as aforementioned, rather inflexible, as no pet owners who considered themselves as not having the right to remove animals' capacity to procreate considered future pet sterilisation. Consequently, stakeholders may not be able to convince this group of individuals.

**Theme 4: Logistical Reasons**

Some pet owners indicated that they refused the procedure because they could not make it fit in their schedules. This is understandable because Mamre is a rural community where individuals who work either on their farms starting very early in the morning and come back in the late afternoon or work outside of the community and have to use public transportation. This means that they do not conform to the schedules of the animal welfare organisation that are scheduled to pick up and drop off dogs during normal working hours.

Additionally, for pet owners of aggressive dogs, they could not consider the sterilisation procedure because their dog would be too dangerous in their absence (i.e. if they did not accompany the pet to the procedure) and therefore, arranging for the dog to be picked up was not the obstacle here, but rather that the dog in question would not let any programme staff or the veterinarian come near, and could even endanger other pets scheduled for sterilisation on the premises.

In fact, all pet owners who had refused on grounds of logistical reasons indicated that they were interested in future sterilisation which demonstrated that it was merely the scheduling of

the procedure or the fact that they could not accompany their pets that were the reason for no uptake.

As such, here are a few recommendations for stakeholders to increase the intervention take-up for individuals who cannot make the traditional working hours. Scheduling a time and date for each sterilisation day is difficult because it must be as worthwhile as possible (i.e. include as many animals as possible) and the programme essentially depends on veterinarians' availability and schedules, therefore, programme stakeholders might not necessarily be the ones to dictate the final dates. However, stakeholders could organise an out of the norm sterilisation day schedule before or after working hours or even on public holidays if they want to expand the programme in other communities that will likely face similar problems.

**Theme 5: Lack Of Trust In The Programme**

Finally, a lack of trust amongst community members was described. This lack of trust concerned the fact that pets would be receiving free services and products which alarmed pet owners because they were convinced it meant the products provided were perished and that the services provided were of low quality otherwise neither would be provided for free. The other trust issue raised was that pet owners were doubtful about how well the programme was set out and organised to keep their pets while they were waiting to receive the sterilisation procedure.

It is not surprising to find that poorer communities could be suspicious and sceptical of receiving free services because of South Africa' past. Indeed, free assistance and services may not connote well with poorer communities due to what apartheid has done to trust and relationships in the country (Burns, 2004). Declining trust in government and all sorts of institutions poses serious challenges to those that seek to assist communities for free (Covey & Merrill, 2006). Indeed, pet owners may feel that because they are not paying, no one is and so, that they are receiving (in this case their pets) downgraded services or products rather than these products and services actually being subsidised by volunteers, donors, sponsors or even the animal welfare organisations.

As such, the fact that there is a lack of trust in the programme resulted in fewer pet owners taking up the intervention; and while programme stakeholders might not be able to convince pet owners with inflexible mind views or a desire to breed their pets, to have their pets sterilised, they may be able to address this lack of trust and promote buy-in within the community and future communities wherein they will be expanding their programme. This

could be achieved by adopting strategies to instil trust within the community (Bryson & Patton, 2010). Here are some recommendations suggested based on the quotations from respondents:

**Effective communication.** This should be done before, during and after the engagement efforts. If pursued effectively, the more community members understand the goals of the programme and the intended outcomes, as well as the facts they require to make an informed decision, the more trust programme stakeholders' engagement efforts will create (Wheeler & Silanpa, 1998). In addition, however, the community, as a key stakeholder, should be included in the planning of the programme from its inception and not just be informed of the end goals. Consulting community members like this is likely to make them feel more involved and in turn can be expected to boost their acceptance of the programme.

Additionally, communicating technical information should be done in an understandable manner (Wheeler & Silanpa, 1998) so that participants are aware of concepts like sterilisation, how the procedure is undertaken and the benefits and risks. They can therefore, make informed decisions rather than base their decisions on anecdotal evidence or unexplained fears.

**Transparency of processes.** The engagement efforts should be well-understood by the community and void of hidden agendas in the participants' eyes (which is currently not the case) (Lasker & Weiss, 2003).

As such, programme stakeholders should, as aforementioned be honest about the times where for example they removed pets from pet owners for diverse reasons, they should also disclose the number of pets that did die from the surgery or complications and should explain where the free medical care and products come from and that they are not expired. True transparency means that they respect community members enough to have all the facts before they make their decision (Lasker & Weiss, 2003).

These two recommendations could potentially increase programme buy-in because community members would feel more included in the process (i.e. more consulted) and would also trust the programme staff more if numbers (deaths during surgery) and events (removing pets) that are not favourable to the programme's success are nonetheless being publicly disclosed to the community members.

## Chapter Five: Outcome Evaluation Results & Discussion

This chapter presents the results and discussion of the outcome evaluation. The outcome evaluation aimed to establish whether there were observed changes in the pets' living conditions and body scores after the intervention.

### Pets' Living Conditions

This section of the evaluative research was dedicated to analysing whether the pets had enough resources to successfully cope with their environment (i.e. if they had enough food and water and if they had appropriate shelter), as well as whether the dogs were chained and if so, if the chaining was humane (1.5 metres in length with a non-choking collar).

*Evaluation question 6.1: Do the pets have daily access to water?*

To remind the reader, data collectors entered pet owners' property with an observation checklist and rated the property on four distinct elements, one of which was whether or not the pet had daily access to fresh water. Fresh need not require that the water be limpid but rather that it be clear enough and poured fresh every day for the pet. Additionally, ideally the water container should be big enough for the water not to evaporate, it should be within reach of the animal (if the dog is chained) and the water container should be placed in the shade. Table 4 illustrates the pre- and post-intervention data collected on water access for a sub-set of dogs. This subset consists of the pets that did not have access to daily water during the pre-intervention data collection.

Table 4

*Daily Access to Fresh Water at Pre- and Post-Intervention*

| Pets | Pre-intervention | Post-intervention |
|---|---|---|
| Dog 1 | No | Yes |
| Dog 2 | No | Yes |
| Dog 3 | No | Yes |
| Dog 4 | No | Yes |

As shown in Table 4, change was observed for the four dogs who went from having no daily access to water before the intervention to having daily access to water after the intervention; seemingly indicating that this outcome was successfully achieved.

When analysing the pre- and post-intervention data for the rest of the sample, however, nine dogs that previously had access to water on a daily basis (during the pre-test data collection) no longer had daily access to water at the time of post-intervention data collection. It was decided that a second post-intervention observation be undertaken for these nine dogs, data from the second data collection, showed that seven of the dogs still had no access to daily water.

Overall, while the access to daily water changed for four dogs, at a community level, more dogs were without access to daily water during the post-intervention data collection. The comparison of the pre-intervention data (98.8% of dogs having access to daily water) and post-intervention data (97.9% of dogs having access to daily water) indicates that overall majority of the pet dogs have access to water, but the intervention's outcome for all pets to have daily access to water was not achieved. It is important to note that 100 percent of the community's cats who had access to water pre-intervention, still had access after the intervention indicating that cats' access to water was never compromised.

*Evaluation question 6.2: Are the pets provided with daily access to food?*

Another living condition assessment was whether pets were provided with food every day. Like the water, the food container in which pets were fed should be within reach of the animal (i.e. within chain length). Table 5 illustrates the pre- and post-intervention data collected on food access for a sub-set of dogs. These pets did not have daily access to food at pre-intervention data collection.

Table 5

*Daily Access to Food at Pre- and Post-Intervention*

| Pets | Pre-intervention | Post-intervention |
|---|---|---|
| Dog 5 | No | Yes |
| Dog 6 | No | Yes |
| Dog 7 | No | Yes |
| Dog 8 | No | Yes |

As shown in Table 5, change was observed for the four dogs that went from not being provided food daily before the intervention to being provided food daily after the intervention; this seems to indicate that this outcome was successfully achieved for this subset.

However, like the previous section, when looking at the pre- and post-intervention data for the rest of the sample, four dogs and one cat that were previously fed daily before the intervention (pre-intervention data) were no longer fed daily at the time of post-intervention data collection. A second post-intervention observation for these five pets was done and data from the second data collection showed that three dogs and 1 cat were still not provided with food on a daily basis.

Overall, while the daily provision of food positively changed for four dogs, at the community level, three dogs and one cat were without daily provision of food at the post-intervention data collection. The comparison of pre-intervention data (98.8% of dogs and 100% of cats have daily access to food) and post-intervention data (99.1% of dogs and 98.95% of cats have daily access to food) indicates that majority of the pets are fed daily, but overall, daily provision of food decreased at post-intervention.

*Evaluation question 6.3: Do the pets have daily access to (appropriate) shelter?*

For this living condition, data collectors asked pet owners to show them where each pet slept. When data collectors were showed the respective shelters, they judged whether the shelter was suitable for the animal and for the animals' needs (i.e. if they were protected from the elements). Kennels that were deemed inappropriate (meaning they were not protecting animals from wind, rain or cold) were marked as unsheltered. Dogs that were chained and could not reach their shelter because of the shortness of their chain were marked as unsheltered as well. Dogs that slept under cars, containers, or had other inappropriate shelter were also considered unsheltered. Pet owners who did not have appropriate shelter for their dogs qualified to receive free kennels. This data was recorded at pre-intervention by Mending Mamre programme stakeholders and was made available to the evaluator. It further indicated which households had already received kennels and which ones were still waiting to receive kennels. Table 6 illustrates the pre- and post-intervention data collected on access to quality shelter for a sub-set of pets. These pets did not have daily access to shelter during the pre-intervention data collection.

Table 6

*Daily Access to Shelter at Pre- and Post-Intervention*

| Pets | Pre-intervention | Post-intervention |
|---|---|---|
| Dog 9 | No | Yes |
| Dog 10 | No | Yes |
| Dog 11 | No | Yes |
| Dog 12 | No | Yes |
| Dog 13 | No | Yes |
| Dog 14 | No | Yes |
| Dog 15 | No | Yes |
| Dog 16 | No | Yes |
| Dog 17 | No | Yes |
| Dog 18 | No | Yes |
| Dog 19 | No | Yes |
| Dog 20 | No | Yes |
| Dog 21 | No | Yes |
| Dog 22 | No | Yes |
| Dog 23 | No | Yes |
| Dog 15 | No | Yes |
| Dog 16 | No | Yes |
| Dog 17 | No | Yes |
| Dog 18 | No | Yes |
| Dog 19 | No | Yes |
| Dog 20 | No | Yes |
| Dog 21 | No | Yes |
| Dog 22 | No | Yes |
| Dog 23 | No | Yes |
| Cat 2 | No | Yes |
| Cat 3 | No | Yes |
| Cat 4 | No | Yes |

As shown in Table 6, change was observed for the 24 dogs and three cats that had no daily access to shelter before the intervention to having daily access to shelter after the intervention; supposedly indicating that this outcome was achieved.

However, when analysing the pre- and post-intervention data for the rest of the sample, 26 dogs and three cats (32 pets) that previously had daily access to shelter (pre-intervention data) no longer had access to it by the time of post-intervention data collection.

Overall, while the access to daily shelter improved for 27 pets, at a community level, more pets were without access to daily shelter at post-intervention data collection. pre-intervention data showed 93% of dogs having access to daily shelter and 96.85% of cats having access to daily shelter. The post-intervention data showed 92.4% of dogs having access to daily shelter and 96.85% of cats having access to daily shelter. Indicating a decrease for canines, but a consistent result for the feline population.

It is important to note here therefore, that although the programme stakeholders donated kennels to households in need (and that therefore an increase in sheltered dogs would be expected at post-intervention level), at post-intervention household visitations, it was noted both that households which had been marked as having received kennels did not have them but also denied ever having received them. As such, when the evaluator consulted with the programme stakeholders about this, they explained that this was a frequent occurrence because donated kennels were often sold; either on the side of the road or to pet owners who did not qualify for free kennels because they had not signed up their pets for sterilisation.

As such, even though programme stakeholders donated the appropriate resources to improve the dogs' quality of life, it was frequent that pet owners rather chose to profit off the kennels rather than actively improve their dogs' living conditions.

*Evaluation question 6.4: Are dogs humanely chained?*

The final living condition observed was chaining/tethering of the canine population. For this aspect of data collection, data collectors entered pet owners' property and firstly observed whether dogs were chained or not and secondly whether the chain/rope was longer than 1.5 meters (as per the SPCA specifications for humane chaining). Table 7 illustrates the pre-and post-intervention data collected on chaining conditions for a sub-set of dogs. They were all inhumanely chained at pre-intervention data collection.

Table 7

*Chaining of Dogs at Pre- and Post-Intervention*

| Pets | Pre-intervention | Post-intervention |
|---|---|---|
| Dog 24 | Inhumane | Humane |
| Dog 25 | Inhumane | Humane |
| Dog 26 | Inhumane | Humane |
| Dog 27 | Inhumane | Humane |
| Dog 28 | Inhumane | Inhumane |
| Dog 29 | Inhumane | Inhumane |
| Dog 30 | Inhumane | Inhumane |
| Dog 31 | Inhumane | Inhumane |
| Dog 32 | Inhumane | Inhumane |
| Dog 33 | Inhumane | Inhumane |
| Dog 34 | Inhumane | Inhumane |
| Dog 35 | Inhumane | Inhumane |
| Dog 36 | Inhumane | Inhumane |
| Dog 37 | Inhumane | Inhumane |
| Dog 38 | Inhumane | Inhumane |
| Dog 39 | Inhumane | Inhumane |
| Dog 40 | Inhumane | Inhumane |

As shown in Table 7 change was observed for four dogs that were inhumanely chained before the intervention and became humanely chained after the intervention. However, it is arguable to say whether the outcome was achieved here, considering that 17 dogs remained inhumanely chained after the intervention.

Overall, at a community level, the comparison of pre-intervention data to post-intervention data highlighted that there were more humanely chained dogs before the intervention than after the intervention and that there were also more inhumanely and unchained dogs after the intervention. Indeed, at the time of pre-intervention data collection, the canine population was made up of: 17.6% humanely chained dogs, 5% inhumanely chained dogs and 77.4% unchained dogs but at the time of post-intervention data collection 15.8% of dogs were humanely chained dogs, 6.15% were inhumanely chained dogs and 78% were unchained.

It is arguable that these numbers indicate that outcomes in terms of enforcing more humane dog chaining practices in Mamre were not achieved.

**Discussion of Pets' Living Conditions**

For all the items assessing the pets' living conditions, the same pattern emerged: the pets that had issues with their living conditions at the pre-intervention level (i.e. no water, no food, no shelter and were inhumanely chained), no longer had these living conditions issues at post-intervention level. These results indicate that for the problematic cases, the intervention was successful in achieving its outcomes of better living conditions.

However, the overall community-level trend at post-intervention indicated that more pets had worse living conditions than at pre-intervention. This does not mean that the programme was not a success overall nor that it failed, but one must speculate what caused this trend.

One informed assumption is that the decrease in living conditions may be due to the fact that not all households received the one-on-one education from programme staff. Only households that demonstrated an incapacity to care for their pets properly were exposed to education while the households that had living condition concerns were recorded as such and no further intervention was delivered to these community members.

This highlights a need to possibly engage in more adult-directed education, targeted at the broader community rather than targeted at individual households. Pet owners who may be borderline unable to care for their pets could go unnoticed by programme staff and thus would remain uneducated when the intervention was completed. While door to door visits are essential to detect cases of abuse and neglect they are not sufficient in teaching pet care to adults in the community.

While the programme has designed a strong and systematically distributed education model for Mamre's youth, the adult-directed education model is problematic.

**Pets' Body Scores**

This part of the outcome evaluation consisted of rating the pets' physical appearance using the four-point body scale developed by African Tails.

*Evaluation question 7: Has the welfare of the pets improved when considering their body score index?*

Figure 9 illustrates the frequency of each body score across the entire pet dog population in Mamre at pre-intervention and post-intervention data collection.

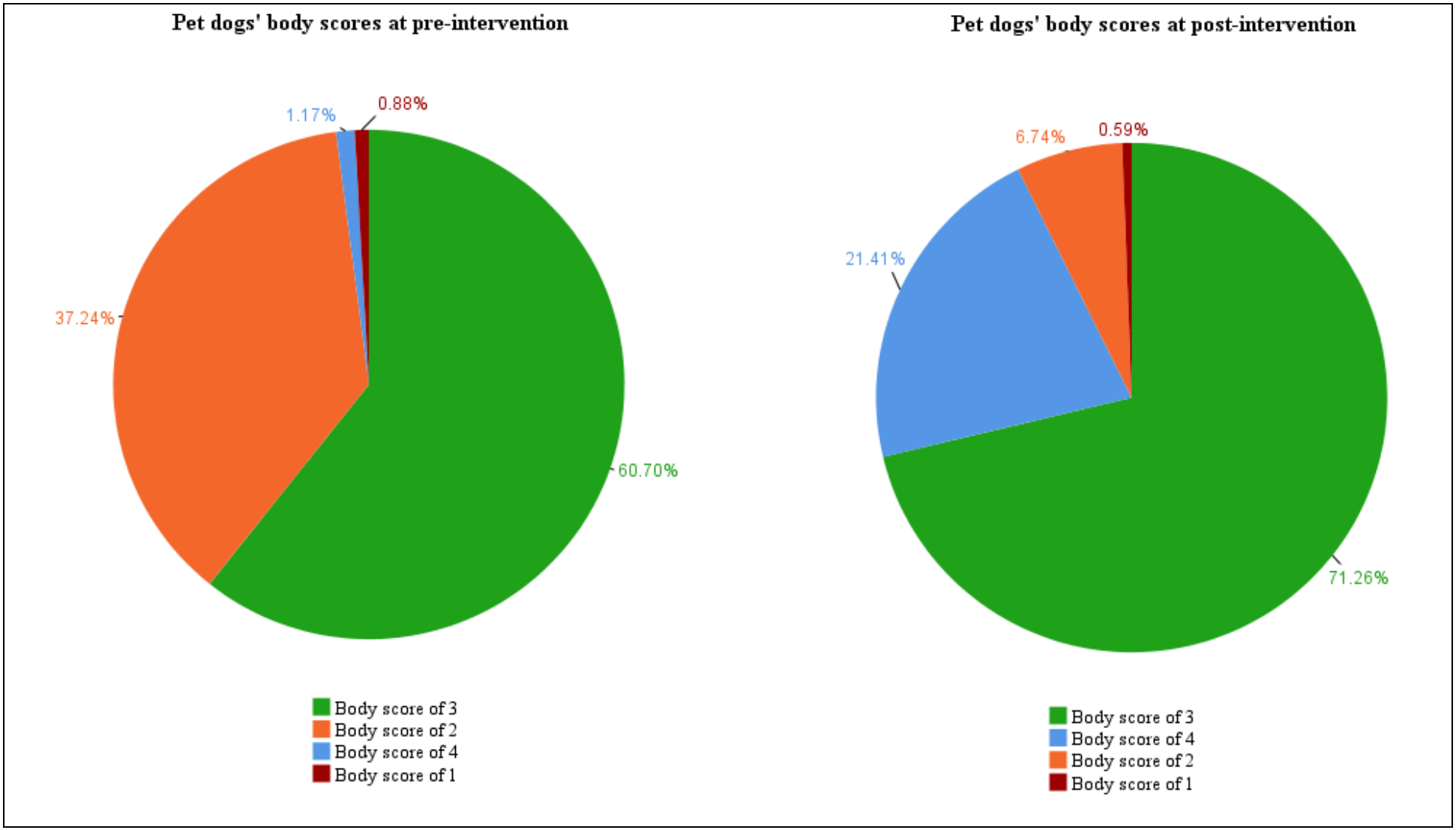


*Figure 9.* Pet dogs' body scores at pre-and post-intervention

As shown in Figure 9 at the time of pre-intervention data collection, most dogs (nearly 61%) had a body score of 3. This is considered an acceptable body score. While 3 is considered acceptable, body scores of 1 and 2 are very poor and poor respectively. At the time of pre-intervention data collection, over a third of the dog population had a body score of 2 (37.24%) and less than 1% had a body score of 1 (0.88%). A body score of 4 is exceptional in a poor community like Mamre. At pre-intervention data collection 1.17% of dogs have a body score of 4.

At post-intervention level, the body score distribution in the dog population shifted positively. The most prominent body score remained 3 (71.26%) indicating that overall nearly three quarters of the dog population had acceptable body scores. Another category of body score which grew exponentially was the exceptional body score of 4, with nearly a quarter of dogs reaching a body score of 4 (21.41%).

The body score category of 2 which previously made up more than a third of the dog population now made up a little more than a sixth (6.74%) indicating that it was most probably dogs from this category that had increased in body score to join other categories. Finally, the body score category of 1 decreased to a more than half of a percent (0.59%), indicating that dogs with previous body scores of 1 also increased to other categories.

In addition, a paired-samples t-test was conducted to compare dogs' mean body scores at pre- and post-intervention. The t-test indicated that there was a significant difference in dogs' body scores between the pre-intervention (M= 2.6217, SD= 0.52636) and post-intervention (M=3.13, SD= 0.536) levels; t (340) =-14.706, p = 0.001.

Body scores of the feline population were also compared pre- and post-intervention. Figure 10 illustrates the frequency of each body score for both data collection periods.

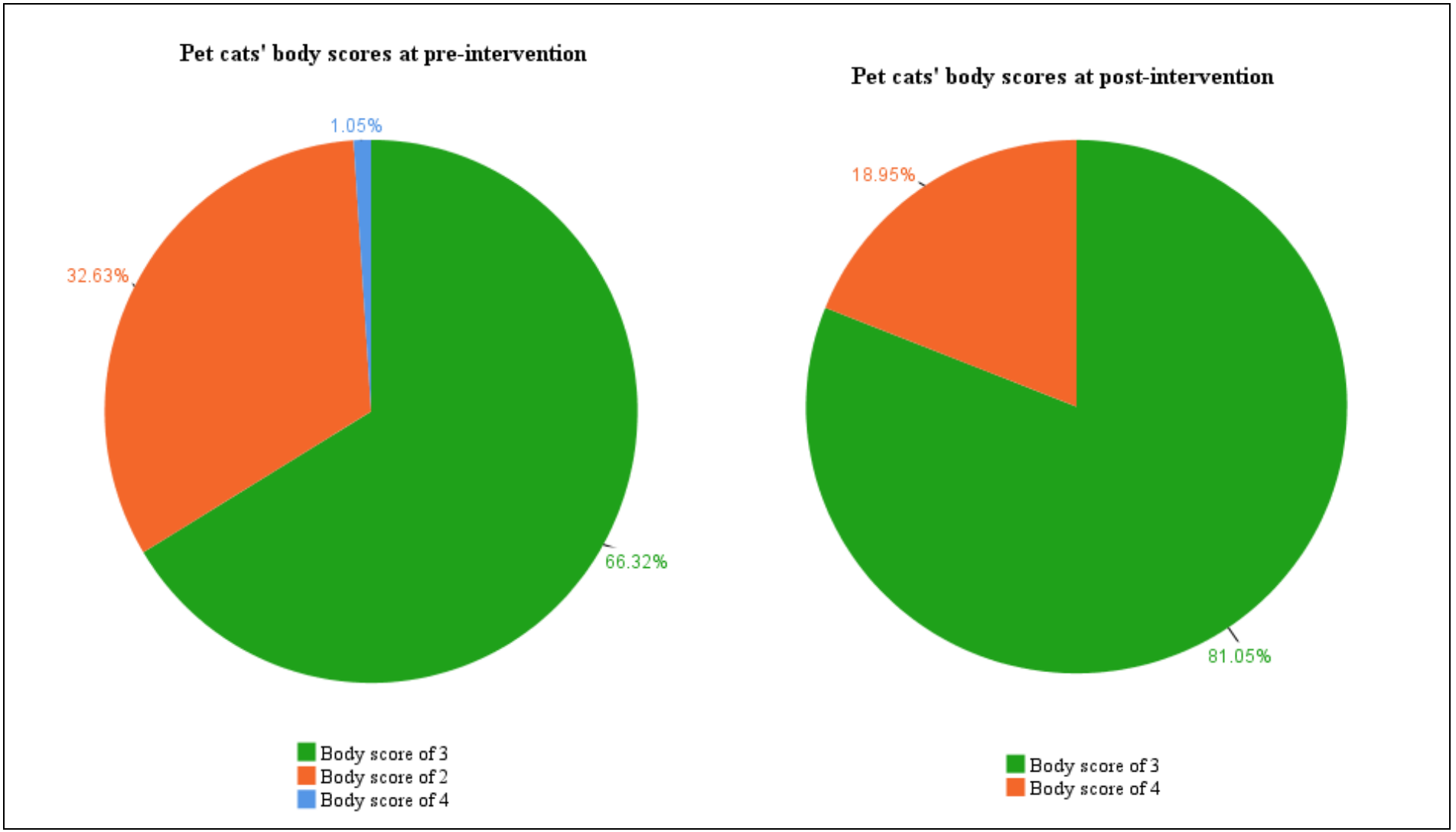


*Figure 10.* Pet cats' body scores at pre-and post-intervention

As shown in Figure 10, at the time of pre-intervention data collection, over two thirds of cats (66.32%) had an acceptable body score of 3, while a little less than a third (32.63%) had a low body score of 2. Finally, a little over 1 percent (1.05%) had an exceptional body score of 4. No cats had a very low body score of 1, unlike for the dog population.

At post-intervention level, the body score distribution in cats shifted substantially with only two body scores making up the population: the acceptable body score of 3 (81.05%) and the exceptional body score of 4 (18.95%). The fact that there were only two categories of body scores indicated the following possibilities: that cats with a body score of 2 had increased in body score, that cats with a body score of 3 had either retained their initial body scores or increased to a body score of 4, and that cats with a body score of 4 had decreased to a 3 or also retained their initial body score.

In addition, a paired-samples t-test was conducted to compare cats' mean body scores at pre-intervention and post-intervention levels. The test indicated a significant difference in cats' body scores between the pre-intervention (M= 2.6842, SD=0.48953) and post-intervention (M=3.19, SD= 0.394) levels; t (94) =-8.474, p = 0.001.

**Discussion Of Pets' Body Scores**

By observing the distribution of body scores in the animal population, it can be suggested that the Mending Mamre programme may have had an effect on pets' physical wellbeing since pets' body scores increased from pre-intervention to post-intervention. Additionally, since there was no other animal welfare intervention running simultaneously in Mamre, these changes may have indeed been due to the intervention. However, it is impossible to establish true causality and conclude that the programme, alone, was responsible for this change.

Referring back to the results of the living conditions of the pets, these were not found to be improved at a community level. This suggests that the programme was not as successful as it hoped to be in terms of improving all measures of animal welfare in Mamre.

It is worth noting, that sterilisation can potentially increase an animal's chance of becoming obese. Indeed, companion animal sterilisation has been associated with the onset of metabolic disorders such as obesity (Root Kustritz, 2012). A study by O'Farrell and Peachey (1990) noted that there was no change in the pet's food intake post-surgery (O'Farrell & Peachey 1990 as cited in Root Kustritz, 2012) which corroborates the fact that despite pets in Mamre not being fed more their body scores still increased. Additionally, a study by Root (1995) noted that sterilised cats have an increased body mass index (Root, 1995 as cited in

Root Kustritz, 2012) which could explain the fact that cats' body scores at post-intervention level were either a 3 or a 4.

As such, the weight gain due to the sterilisation procedure would explain the increase in body scores even though the living conditions did not change. This would then also highlight the fact that the adult education had no effect on the observed results at post-intervention. Indeed, a programme that would have been successful at improving animal welfare in the community would have been successful both at increasing the pets' body scores and improving animals' living conditions. Likewise, a programme that would have been unsuccessful would have failed in both regards and led to a decrease in both body scores and living conditions.

As such, it is most probable that it is solely the sterilisation procedure (and not a combination of education and sterilisation) and the associated weight gain that is responsible for the results observed at post-intervention.

# Chapter Six: Conclusion

The following brief chapter brings together the results and discussion of all three evaluations undertaken in the form of a conclusion. First, the limitations of the research are addressed, and a summary of the recommendations made is presented.

## Limitations Of The Study

There were methodological limitations in this study regarding the measures used during the outcome evaluation and therefore, the corresponding data collection process for this evaluation.

The body score rating process is a rather subjective system because it asks that raters attribute a score to an animal based on what they believe is most representative. However, although some data collectors had worked with the programme before, others had not and therefore, had no prior exposure to the scale and rating system. As such, they could let their personal bias of what an animal *should* look like influence their rating and give a harsh score to pets that looked unhealthy or a very high score to pets that looked healthy in such a poor community. This would undeniably bias the reliability of the results. Likewise, the same could be said for the pre-test data collected. Given that this is the standardised way to record body scores, the evaluator was unable to change the methodology. However, it is possible to control for these issues of rater bias if the data collectors were trained prior to data collection, furthermore, using inter-rater reliability statistics could also be another possibility to control for these issues.

Another limitation is that data collection only looked at the daily access to basic needs (water/food, shelter) and that it occurred in one day. However, living conditions can change. As such, this data collection only gives a snapshot of pets' living conditions and should be interpreted with caution, but this is a standardised way to collect data for these interventions and also, data was collected similarly at pre-intervention level. Ideally, multiple data collections assessing living conditions on a more regular basis should be conducted but this is not viable, especially at this level of research.

## Recommendations

The Mending Mamre programme stakeholders are advised to make some changes to the programme if they would like to increase their chances of successfully reaching their intended outcomes in future implementations of the programme.

Firstly, to create a more cohesive community with less interpersonal violence they will need to teach the youth empathy that is directed towards their peers and not just towards animals. Although there is a link between "liking/disliking" animals and "liking/disliking" humans, hoping to get children to like their peers by making them like animals is rather unrealistic for Mending Mamre to achieve. Especially because they are not incorporating enough empathy-building towards animals in the first place. As such, they might want to restructure their education sessions and include more empathy-building towards animals but also include empathy-building towards humans. For this, they could borrow from the humane education curriculum which includes topics like social and environmental justice.

The education session's goal to teach responsible pet ownership is realistic, however, the way it is hoped to be achieved is not. Behavioural sciences and evidence within the field have shown that knowledge is not enough to trigger behavioural change. This means that even though participants are gaining knowledge, this may not incite them to change their behaviour, especially if this behaviour change is to benefit a third party. As such, I recommend that programme stakeholders take into consideration the presence of cultural factors that define and determine the role and value of companion animals in the community (e.g. dogs as guard dogs, hunting dogs, fighting dogs or breeding dogs rather than *just* pets). Indeed, approaching the education sessions by attempting to change the cultural view of a companion animal rather than simply advocating our methods of responsible pet care on participants may instigate change in how participants *view* their companion animal before instigating change on how they *treat* their companion animal.

Secondly and very importantly, it was uncovered that while the educational component is thorough for youth (barring the inclusion of humane education principles) an equivalent of this is lacking for adults in the community. Adults in the entire community are not educated on responsible pet ownership. As indicated in the results, this may be why the programme was not very successful in reaching its intended outcomes of increasing the pets' living conditions in Mamre. As such, programme stakeholders might want to develop an equivalent educational model for adults rather than household visits. This is not to say that household visits should be removed completely, these are still useful to detect cases of animal neglect and abuse which would otherwise go undetected.

Thirdly, while some pet owners refused to have their pets sterilised for personal reasons or principles that they adhere to, there also exists a strong lack of trust in the programme

amongst community members and that is a reason why some pet owners refused the sterilisation. This means that programme stakeholders need to build trust within the community. Communication and transparency of facts are suggested ways to start building trust. These issues could also lie in the fact that Mending Mamre programme stakeholders did not include the community as a key stakeholder during the planning and roll-out of the programme. The community in which any intervention / programme is rolled-out is an important stakeholder to consider and consult. In fact, more community members than the few who volunteered to assist Mending Mamre programme stakeholders would have been necessary to plan the roll-out of the intervention in the community.

Additionally, a few pet owners refused the sterilisation because they could not make the conventional sterilisation days and times and therefore alternative sterilisation days and times should be scheduled to accommodate them. This gesture would be appreciated and seen as a compromise which I believe would be interpreted as a step towards trust-building.

**Conclusion**

Mending Mamre's education sessions were assessed against other animal welfare education programmes. The activities and outcomes were deemed consistent with comparable international programmes. However, programme stakeholders set out to achieve some impacts that are unrealistic unless changes are implemented. This should be seen as a positive result by the client. The research suggests that they have a good programme design, but that with improvements the likelihood of achieving the intended outcomes is enhanced.

The process evaluation conducted was able to uncover particular reasons for why some Mamre residents refused the intervention. While some of these are unchangeable, one or two of the issues raised can be dealt with by programme staff. This would mean that these issues are countered if the intervention is implemented in similar communities in the future.

Finally, it is impossible to conclude that the programme contributed to the observed results during the post-intervention data collection. The design of the research does not enable the evaluator to comment on causation, but, mixed results were found. Speculations were made as to what could have caused these mixed results, and this provides the client with an opportunity to further investigate the programme's outcomes if it is implemented in a similar community. In addition, the limitations of the methodology used could be assessed to determine whether there are better ways of collecting pre- and post-test data.

Overall, Mending Mamre actively contributed towards pet control in Mamre through the mass sterilisation of 72% pets. Pets who took part in the sterilisation were also made healthier through the provision of basic veterinary care. In addition, the households where pets had poor living conditions were better off after the intervention, including those who received donated food and resources. Both African Tails and FOUR PAWS South Africa must be commended for the work that they do in this regard.

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## Appendix A

## Cover Letter for Questionnaire

Dear Participant,

I am gathering information about why you did not have your dog or cat sterilised by African Tails and FOUR PAWS South Africa during their sterilisation and education programme in Mamre between February 2017 and June 2018.

The information gathered from this research will help them improve their programme, so your feedback is **very valuable.**

Your participation is completely voluntary, so you can refuse to participate. There are no foreseen risks or benefits to the study.

The information you share will remain anonymous. This questionnaire should take you about 5 minutes to complete.

Please feel free to ask any questions if anything seems unclear.

This research has been approved by the Commerce Faculty's Ethics in Research Committee.
If you want to ask any further questions, please contact me or my supervisor. Details below.


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Supervisor:
Carren Duffy
021 650 3428
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## Appendix B

## Questionnaire

1. Why did you refuse to have your pet sterilised? Please be **specific**.

_____

_____

_____

_____

_____

_____

_____

_____

2. Would you sterilise your pet in the future?

**Yes** **No**

If yes, **when**? (time frame); **where** (which facility would you visit) and **how** (would this be sponsored or self-paid)?

_____

_____

_____

_____

_____

_____

_____

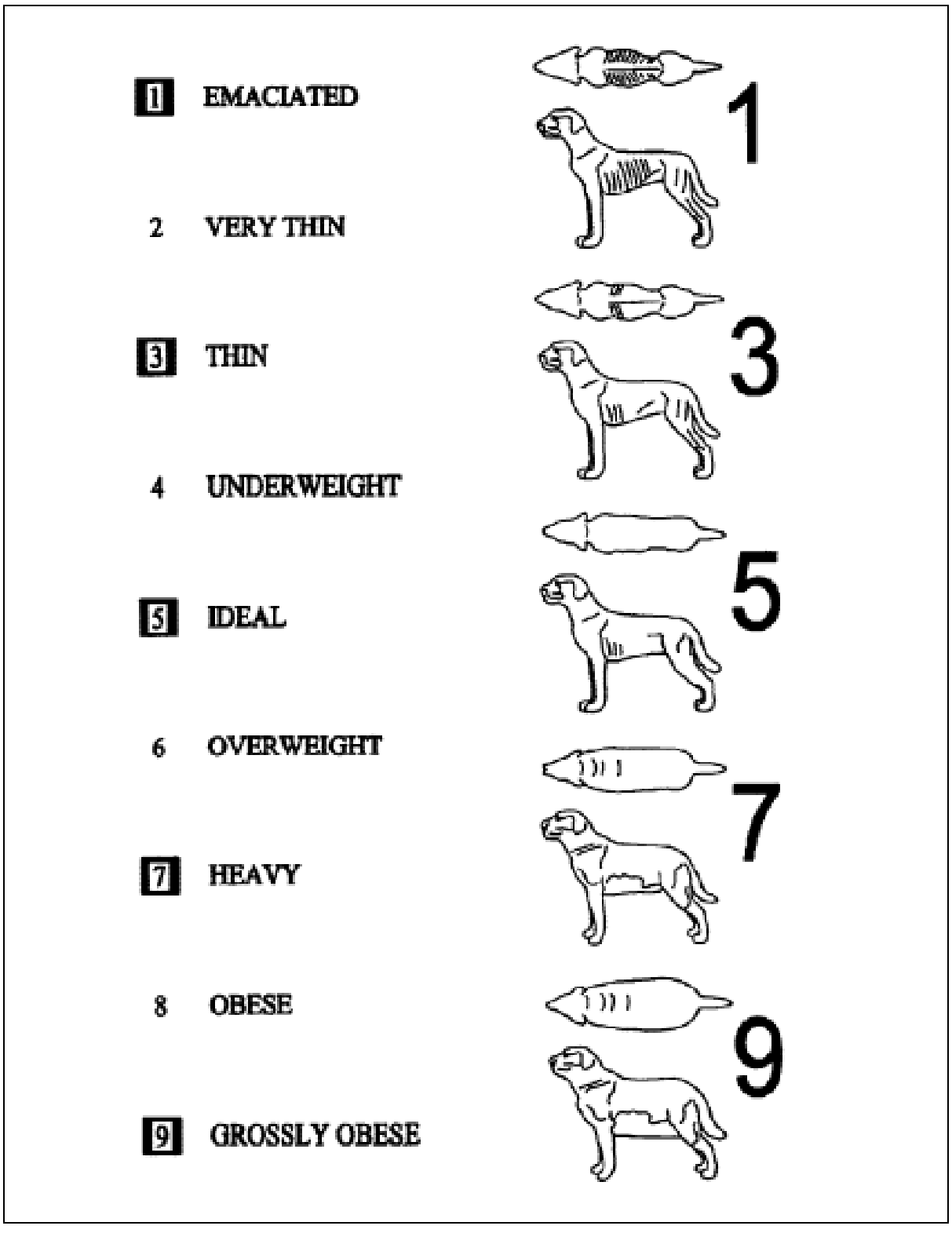
_____

_____

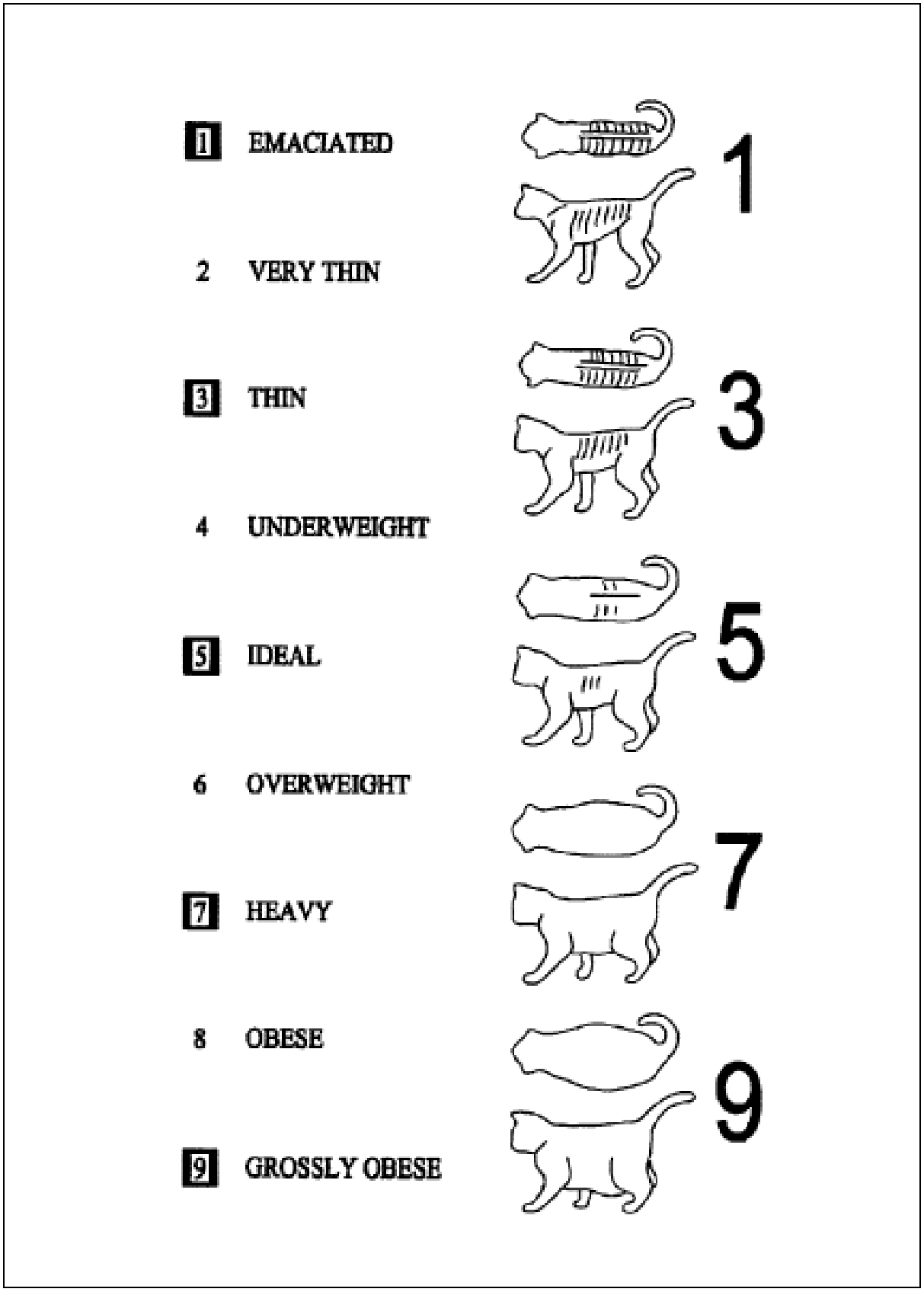
**Appendix C**

**The 9-point body scoring system by Singh, Laflamme, Ballam, Nielsen, and Kalishman's 9-point silhouette system for cats and dogs (2004)**

**For dogs**



**For cats**


1 EMACIATED
2 VERY THIN
3 THIN
4 UNDERWEIGHT
5 IDEAL
6 OVERWEIGHT
7 HEAVY
8 OBESE
9 GROSSLY OBESE
1
3
5
7
9

## Appendix D

## Body Score Scale and Adapted Living Conditions Checklist

| | |
|---|---|
| Household address | |

### Pet's Body Score Index

| Pet's name | Dog / Cat | PET BODY SCORE | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

*1 – completely emaciated, parasite riddled and other ailments*

*2 – underweight and riddled with parasites or other medical issues*

*3 – fairly acceptable body weight and condition with some parasites if at all*

*4 – very good condition, good body weight*

### Does the pet have daily access to the following? (Y/N)

| Pet name | Shelter | Food | Water |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

**Is the dog usually chained? If yes, is the dog humanely chained (i.e. is the chain longer / equal to 2m as per South Africa's SPCA requirements)? (Y/N)**

| Pet's name | Chained (Y/N) | Length |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

**If pet is absent (i.e. not on the property), ask owner why and record this information below**

_____

_____

_____

_____

_____

_____

_____

## Appendix E

## Consent form to enter property for observation checklist

Dear Participant,

I am gathering information about your pets' living conditions to see if they have changed in any way after your dog / cat was sterilised by African Tails and FOUR PAWS South Africa during their programme in Mamre between February 2017 and June 2018.

The information gathered from this research will help them improve their programme, so your participation is **very valuable.**

Your participation is completely voluntary, so you can refuse to participate. There are no foreseen risks or benefits to the study. The information I gather here will remain anonymous.

I request to enter your property, so I can examine your pet's physical appearance and his/her living conditions. This examination should take my research assistant and I about 5 minutes to complete.

Please feel free to ask any questions if anything seems unclear.

This research has been approved by the Commerce Faculty's Ethics in Research Committee.
If you want to ask any further questions, please contact me or my supervisor. Details below.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# Appendix F

## Signed permission letter by programme stakeholders

UNIVERSITY OF CAPE TOWN
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TO WHOM IT MAY CONCERN

Thank you very much for your willingness to enable one of our students to work on the evaluation of a programme from your organisation as part of their 50% Master of Philosophy specializing in Programme Evaluation dissertation. We appreciate your contribution to the education of our students. At the end of the dissertation examination process, you will receive a copy of the dissertation in the form of a useful evaluation report which will enable you to make informed decisions about your programme. We also undertake to assure you that the student will display professional behaviour at all times while working in your organisation or on your programme.

The student will need programme information from you and we request that you or a designated person meet with the regularity to provide access to this information. Your cooperation in this regard will ensure that the student provides you with a high quality evaluation, and will help to ensure the student meets deadlines. In order for us to keep track of the quality of the student's work we request that you copy the student's supervisor(s) in all correspondence, and that you reach out to the student's supervisor(s) directly should you have any concerns regarding the student's work.

Please note that our students are required to work within the ethical framework of the Faculty of Commerce when collecting information from programme documents, programme stakeholders and programme beneficiaries. This framework deals with the anonymity of data sources, sensitivity when requesting information from people and responsibilities when reporting results. Please also be aware that the student's work will fall within the intellectual property specifications of the University of Cape Town. You can familiarize yourself with the terms of UCT's IP Policy here (https://www.uct.ac.za/downloads/uct.ac.za/about/policies/intellect_property.pdf. This policy explains that copyright to any publications stemming directly from the students research dissertation is automatically assigned by UCT to the author (in this case, the student). A student also owns the copyright in their thesis or dissertation.

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In order to comply with the rules of the Faculty of Commerce, we request you sign below to indicate that you are aware of the research / evaluation been undertaken by one of our students in your organisation, and that you will support the student to access programme data, records and recipients if applicable.

Yours sincerely,

Associate Professor Sarah Chapman

COURSE CONVENOR: MPhil Programme Evaluation and PhD in Programme Evaluation

AGREEMENT FOR STUDENT TO UNDERTAKE RESEARCH AND/OR AN EVALUATION IN YOUR ORGANISATION:

..... FOUR PAWS ANIMAL WELFARE 23/10/18
Signature of Authorised Person Organisation Date

MENDING MAMRE: A MASS ANIMAL STERILISATION & EDUCATION PROJECT - PARTNERSHIP BETWEEN FOUR PAWS AND AFRICAN TAILS.
Name of the programme student will evaluate (if applicable)