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Understanding the midstream environment within a social change systems continuum

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Abstract

Purpose – This paper aims to provide guidance on how midstream social marketing can be used to understand and address wicked problems through adopting a collaborative systems integration approach conceptualised from a macromarketing perspective.

Design/methodology/approach – Rothschild's motivation, opportunity and ability (MOA) framework is applied in this study to understand veterinarians as midstream microactors in the macrosystem of wicked animal welfare issues. Focus group and individual interview data from veterinarians were analysed through the lens of the MOA framework to understand veterinarians' as midstream microactors within a systems continuum.

Findings – The MOA of veterinarians to engage downstream targets – cat owners – in behaviour change are identified. Fresh insights reveal the challenges and barriers to simply focusing on veterinarians as the key microactor required to address the wicked problem of cat overpopulation. Challenges identified include the cost of sterilisation to both owners and veterinary practices, alongside vying beliefs about the capacity of individual veterinarians to persuade owners about the benefits of sterilisation to improve animal welfare. Additionally, insight into veterinarians' perceptions of upstream strategies to address the problem – in terms of marketing, education and law – expose further complications on where regulation and law enforcement can be integrated in future social marketing strategies to address the cat overpopulation problem.

Practical implications – The application of the MOA framework improves understanding of the concept and practice of midstream social marketing. It provides a practical and strategic tool that social marketers can apply when approaching behaviour change that leverages midstream actors as part of the social change solution.

Originality/value – Research and theorisation in this paper demonstrates an alternative pathway to address wicked problems via a collaborative systems integration approach conceptualised from a macromarketing perspective. Effective long-term change relies on understanding and coordinating a broad macrosystem of interconnected actors along a downstream, midstream and upstream continuum. This starts by understanding the microactions of individual actors within the macrosystem.

Keywords Animal welfare, Macromarketing, Collaborative systems integration, Meso, Midstream, MOA

Paper type Research paper



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Introduction

This paper responds to the academy's growing interest in broadening and deepening social marketing scholarship and its application to address complex social problems (Dibb, 2014). Our motivation is to demonstrate how broadening social marketing thinking can inform how wicked social problems are defined and addressed. Social problems are described as wicked when their complexity makes the problem difficult to define and the complicated, fluid network of interdependent factors causing effects makes them difficult to address (Kennedy and Parsons, 2012; Roberts, 2000). The socially complex nature of wicked problems means that responsibility and power lies within an elaborate stakeholder network, so long-term change relies on understanding and coordinating a broad system of influence (Kennedy and Parsons, 2012; Roberts, 2000).

Our interest in examining wicked problems is to explore how a social marketing approach can be applied to address the realm of animal welfare and the specific problem of cat overpopulation. Each year thousands of healthy cats are being euthanised in Australian shelters because they are unwanted and homeless (Alberthsen *et al.*, 2013, RSPCA, 2012). This animal welfare concern represents an economic, environmental, health and social burden to the Australian community (Australian Companion Animal Council, 2006; Rohlf and Bennett, 2005). It is estimated that around AU\$82m is spent each year by Australian local councils on companion animal population management (Australian Companion Animal Council, 2006). Unwanted roaming cats cause welfare concerns to Australian wildlife through predation, nuisance issues in the community and injury and disease transmission to both people and pets. Over the past decade, very little progress has been made in reducing the number of unwanted cats entering and being euthanised in Australian shelters (Marston and Bennett, 2009; RSPCA, 2012). Euthanasia as a key strategy for the control of unwanted cats has not been effective in reducing euthanasia rates in subsequent years (Alberthsen *et al.*, 2013; RSPCA, 2012). There is an increasing demand for more effective, animal-friendly solutions to the management of unwanted cats.

We situate cat overpopulation as a wicked and complex problem because finding a long-term solution will require participation from multiple stakeholders who currently hold competing approaches to addressing animal welfare issues. Finding a solution is further complicated by the interests and backgrounds of professionals involved – including veterinarians and policy makers – who take up vying strategies when implementing interventions to address the problem of free roaming cats. Based on this reasoning, we argue that social marketers can be employed to develop strategies that move beyond influencing the individual behaviours of vets or citizens concerned about animal welfare to adopt a broader purview of social change, which involves conceptualising behaviour existing within an ecosystem that is constantly evolving (Fry, 2014). Adopting a view of behaviour and behaviour change within a broader market system facilitates the creation of upstream (macro), midstream (meso) and downstream (micro) social marketing activities in the quest for solutions that involve research and engagement with actors across the social change continuum. However, despite growing interest in a market systems approach to social marketing, there remain gaps in the knowledge base (Russell-Bennett *et al.*, 2013). Social marketers have identified the need for a social

marketing approach focused upstream from the target audience, but few have detailed and demonstrated how this approach would be achieved (Hoek and Jones, 2011). As an example, there has been a call to adopt a market systems approach that directs attention to midstream thinking (Fry and Brennan, 2014), but there exists a clear lack of guidance on how midstream social marketing can be used (Russell-Bennett *et al.*, 2013).

In the following discussion, we investigate the role of veterinarians as midstream service providers in animal welfare issues, specifically cat overpopulation. The findings presented illustrate how midstream social marketing can be used to understand and address wicked social issues. As such, our discussion in this paper positions complex social problems on a systems continuum from upstream, to midstream and downstream. While it is acknowledged that this nomenclature facilitates shared understanding of concepts, it is proposed that further delineation of the ecosystem is unnecessary – as is exact delineation of membership within a level of the ecosystem – given the complex, intricate, fluid and interconnected nature of the macrosystem network. It is proposed that this less-restrictive view promotes the idea that rather than competing with each other, the various ecological models available all represent useful resources on which practitioners can draw. In taking this position, we provide evidence in the following discussion that demonstrates how midstream social marketing plays a key role in moving between the upstream and the downstream.

Moving towards a systems view for social change

Traditional definitions of social marketing tends to be ridged and reductionist in nature (Lefebvre, 2012; McHugh and Domegan, 2013). They focus on behaviour change in the target audience and adopt a linear system of command and control (Dibb, 2014; Lefebvre, 2012). Targets are seen as existing in an hierarchical system where upstream stakeholders, such as policy makers, “know what is best” (McHugh and Domegan, 2013). For example, in the case of anti-smoking interventions, health authorities and doctors are seen to be the knowledge leaders. In the case of animal welfare issues, such as cat overpopulation, veterinarians are placed in a similar position of authority. These reductionist models focus on the behaviour of individual targets and do not acknowledge the target’s interaction and engagement with the system (Brennan *et al.*, 2014; Saunders *et al.*, 2015). As such, they have come under scrutiny for placing unfair blame and responsibility on individuals (McHugh and Domegan, 2013; Wymer, 2011). There is a call for social marketers to move beyond the focus on reductionist approaches to adopt a broader view of social change, which involves conceptualising behaviour existing within a broader system that is constantly evolving (Fry, 2014; Tapp and Spotswood, 2013).

Early calls to adopt a more holistic approach to social marketing highlighted that commercial marketing had shifted from a short-term, single transaction’s focus to emphasise longer-term relationship building with customers and other stakeholders (Hastings, 2003). Inspired by this, a holistic approach to social marketing acknowledges that stakeholders across the full ecosystem of society must be coordinated and integrated in the societal change process, including legislators, businesses, media, other organisations and the community as an entity itself (Andreasen, 2006). A holistic approach captures the idea that the structures and

process within a target's environment influences their behaviour and that there is a dynamic exchange between the system and individual targets (Dresker-Hawke and Veer, 2006; Hoek and Jones, 2011).

At its simplest level, the holistic social ecosystem has been conceptualised as a continuum from the upstream to the midstream and the downstream. Upstream targets are those structures and processes that exist within the broader social context and perpetuate the social problem (Hoek and Jones, 2011). These can include legislation, enforcement, public policy, built environment, business practices and media (Hastings *et al.*, 2011). Midstream targets are influential others that are closer to the target audience and include friends, family and professionals, such as animal health-care providers (Hastings *et al.*, 2011). Downstream refers to the primary target audience (Hastings *et al.*, 2011).

The move towards a more holistic view of social marketing and the trend towards looking upstream has led to the development of more detailed representational frameworks, such as the ecological systems theory, which identifies four levels of environmental systems that can influence a target's behaviour (Dresler-Hawke and Veer, 2006). In addition to this exists an array of socio-cultural models, which all serve to consider the social and cultural environment influencing a social issue beyond the individual as the decision-maker (Brennan *et al.*, 2014). While once being viewed as competing with each other, there are now calls for these different socio-cultural models to be seen as complementary resources from which practitioners can draw (Brennan *et al.*, 2014; Dibb, 2014). Regardless of the specific models social marketing practitioners utilise, it is evident that wicked problems involve multiple environments, multiple levels and stakeholders, making them difficult to address (McHugh and Domegan, 2013; Roberts, 2000). Although adopting an ecosystems approach to social marketing has general support, the challenge and criticism of this holistic approach is that it promotes the concept that all conceivable stakeholders and solutions upstream need to be considered ahead of time to create an environment that supports change downstream (Brennan *et al.*, 2014; McHugh and Domegan, 2013; Saunders *et al.*, 2015).

Beyond this divide of reductionist versus holistic approaches is the concept of collaborative systems integration in social marketing, which proposes that wicked problems require a balance between reductionism and holism (McHugh and Domegan, 2013). For long-term social change to occur, there is a need to view the ecosystem in which individuals exist as a complex network of exchange systems, where the network of exchanges is intricate, interconnected and iterative and facilitates the co-creation of knowledge and resources (Brennan *et al.*, 2014; Domegan *et al.*, 2013). Action is non-linear moving within and between every level of the system (McHugh and Domegan, 2013). Social change for wicked problems requires a multi-level, multi-directional, coordinated approach, moving from simple transactions to meaningful exchanges across the spectrum of the downstream, midstream and upstream continuum (McHugh and Domegan, 2013). This collaborative systems integration acknowledges that social change can be a decades-long process, and every intervention to address a wicked problem contributes to the overall progress of change.

Consistent with this network view embraced by a collaborative systems integration perspective in social marketing, this paper proposes that

conceptualising the cat overpopulation issue from a macromarketing perspective provides value. This perspective suggests that in a community, division of labour and increased individual specialisation (microactions) means each microactor becomes more dependent on each other and, therefore, more interconnected in a network of exchanges (Lusch, 2006). This is the foundation of a complex system – a macrosystem – that is ever evolving because of each member’s quest for improved conditions from their engagement in complex simultaneous exchanges (Lusch, 2006). Effective social change starts by understanding the microactions of individual actors (or targets), such as citizens, organisations and governments (Brennan *et al.*, 2014; Dholakia, 1984; Lusch, 2006). It is these microactions that result in the emergence of macrosystems – which take a long time to evolve (Lusch, 2006).

What is apparent from the collaborative systems integration approach to social marketing is that no one stakeholder group can be seen as the knowledge leader and “knows what is best”. In the context of animal welfare, this collaborative approach suggests it is not effective to look towards veterinarians as trailblazers of social change. There exists an array of stakeholders all wielding power and influence across the entire ecosystem continuum that must be engaged and coordinated to achieve long-term social change (Gordon, 2013; Lefebvre, 2012). Social marketing must seek not only to explore the needs of each stakeholder within the context of the networked ecosystem but also the nature of competitive influences faced (Domegan, 2008). Understanding the exchange context and the competition within the complex, simultaneous exchanges of the network that makes up the macrosystem is pivotal to an integrated approach to social marketing practice (Domegan, 2008; Domegan *et al.*, 2013).

Improving animal welfare: addressing cat overpopulation

Applying an integrated approach to the wicked problem of cat overpopulation, the intricate web of interconnections between the microactors is conceptualised as existing along a systems continuum from the downstream to the midstream and the upstream. This complex systems continuum, with the intricate interconnections between microactors and involving exchange and competition between and within all levels, forms the ever-evolving macrosystem of the cat overpopulation issue in Australia. For long-term change addressing the wicked problem of cat overpopulation, we must understand the microactions of microactors and their position in the evolution of the macrosystem. In this paper, we explore veterinarians as midstream microactors and their role in the evolution of the cat overpopulation macrosystem.

Competitive forces act at all levels of the macrosystem on each microactor. As such, when understanding veterinarians and their role in addressing cat overpopulation, it is vital to understand the competitive forces that may act against their involvement. Veterinarians often do not perceive a role in cat overpopulation as being part of their traditional role (Mackay, 1993). Veterinarians traditionally receive little formal education or information on the cat overpopulation problem (Smeak, 2008). Even when veterinarians do view addressing cat overpopulation as an important veterinary role, they are placed in a position where they must balance the calls to be agents of social change against the profit-and-loss constraints of clinical practice (Olson *et al.*, 1991). Identifying the practical constraints placed on veterinarians because of the small business priorities of clinical practice is a key

step to ensuring that veterinarians are in a position to be effective actors for social change in the cat overpopulation problem.

Regardless of the role veterinarians perceive they should play in the cat overpopulation issue, a degree of involvement is thrust upon them. The surgical removal of reproductive organs, termed sterilisation or desexing, is widely held to be a key component of any cat population management strategy ([International Companion Animal Management Coalition, 2011](#)), and veterinarians are the sole providers of cat sterilisation services within the community ([Veterinary Surgeons Board of Queensland, 2012](#)). As such, veterinarians are at the service interface with individual members of the community. Situated at the midstream in the systems continuum, services and service employees are seen to influence and support individual behaviour change goals. In the following discussion, we demonstrate why it is important to engage veterinarians as midstream influencers in strategies addressing cat overpopulation. In taking this approach, we note that very little research exists on understanding veterinarians' position as midstream actors in the cat overpopulation macrosystem and how they perceive the cat overpopulation systems continuum.

To understand the position of veterinarians as midstream actors in the cat overpopulation issue, [Rothschild's \(1999\)](#) motivation, opportunity and ability (MOA) framework is applied as a lens to explore how they perceive themselves and other actors – downstream and upstream – in the cat overpopulation systems continuum. In understanding veterinarians as midstream influencers, the MOA allows exploration of the conflicts experienced in delivering services to facilitate behaviour change in the downstream audience and the trade-offs that must be considered to achieve social change goals when engaging these influencers to work collaboratively alongside other stakeholders.

Rothschild's motivation, opportunity and ability framework

[Rothschild \(1999\)](#) presents a framework that explores a target's MOA to perform a defined behaviour. Motivation refers to the target's desire or readiness to perform the target behaviour, and it strongly encompasses the concept of self-interest – where individuals are motivated to behave when they can see clear personal relevance ([Rothschild, 1999](#)).

Opportunity refers to the extent that targets can engage in the goal behaviour without any environmental restrictions. Lack of opportunity exists when people are motivated but unable to engage in the target behaviour because of limits placed by factors in the external environment, such as time, money and outside controls ([Binney *et al.*, 2003](#)). Ability essentially refers to the target's capabilities to perform the target behaviour, including the skills, knowledge and problem-solving proficiency of the target audience, which allows them to engage in the target behaviour ([Rothschild, 1999](#)).

The application of the MOA framework involves profiling targets based on the presence (or absence) of each of the three factors – motivation, opportunity and ability – to engage in behaviour change. [Rothschild \(1999\)](#) proposes the relative appropriateness of various combinations of three classes of strategic tools – education, marketing and law – depending on the MOA profile of the targets.

As a tool for behaviour change, he notes that education informs and, at times, persuades a target to behave voluntarily, but it does not offer any direct reinforcement or punishment. The role of marketing, on the other hand, influences behaviour by

offering reinforcements in an environment that facilitates voluntary behaviour change, whereas law involves the use of coercion to achieve non-voluntary behaviour change. In keeping with the notion of social change existing on a systems continuum, social marketing scholarship has pointed to the role of legislation as a strategic tool to bring about social change upstream to create a context where downstream interventions have increased efficacy and impact (Hoek and Jones, 2011).

While Rothschild's MOA framework has been used previously to understand downstream targets, this paper explores the application of the MOA to understand veterinarians as midstream actors in the cat overpopulation macrosystem. Applying the MOA framework to veterinarians within the macrosystem of the cat overpopulation issue improves understanding of the concept and practice of midstream social marketing. It provides a practical and strategic tool to approach behaviour change through understanding midstream actors and their perceptions of the downstream, midstream and upstream continuum of a wicked problem.

Method

Qualitative research interviews were conducted with veterinarians to document their opinions and knowledge of the cat overpopulation issue and their general attitudes towards delivering consistent sterilisation information and services to the community to promote animal welfare. Six focus groups and three individual interviews were conducted. Individual interviews were conducted when particular veterinarians were identified with unique experience and perspectives regarding the cat overpopulation issue. Each focus group consisted of two to five participants, which were constructed around the participants' professional practice experience and their self-declared professional investment in the cat overpopulation issue. [Table I](#) provides summary data of participants.

Focus groups were kept small because of the professional, opinionated, invested nature of the participants. One researcher used an interview guide constructed from previous literature and expert opinion to conduct all interviews. Adopting a qualitative interview approach during data collection was effective because it facilitated the collection of rich, personal insights and shared understanding about animal welfare issues between the participants. Additionally, the approach also ensured data collection included the tacit information of practitioners, which could then be applied to explain how veterinarians could be more effectively engaged within a social marketing strategy addressing cat overpopulation.

Data analysis for the qualitative research interviews used an iterative and emergent process using a thematic analytic framework to identify predominant themes (Braun and Clarke, 2006). This allowed the researchers to become familiar with the qualitative research interview data and emergent themes. The data were then more purposefully explored through the participant's MOA to perform desired behaviours. Thus, the phases in data analysis firstly involved profiling veterinarians on their MOA to provide sterilisation services and advice to downstream targets (e.g. cat owners or citizen who care for free roaming cats). Exploration of the data then involved identifying veterinarians' perceptions and experiences with the downstream context and the MOA of targets to source cat sterilisation. Finally, veterinarians' perceptions of the upstream environment and their views on education, marketing and law to support behaviour change

Interview code	Interview details	Participant code	Participant details
I01	Emergency medicine veterinarians; conducted in a hired meeting facility	1P1	Female; 8 years' experience
		1P2	Male; 8 years' experience
I02	Small animal clinical practitioners; conducted in a hired meeting facility	2P1	Male; 8 years' experience
		2P2	Female; 23 years' experience
		2P3	Female; 10 years' experience
		2P4	Female; 10 years' experience
		2P5	Female; 5 years' experience
I03	Veterinary conference attendees; conducted in a hired meeting facility	3P1	Female; 2 years' experience; shelter practice
		3P2	Female; 4 years' experience; mixed practice (farm animals; pets)
		3P3	Female; 2 years' experience; small animal practice (pets)
		3P4	Female; 10 years' experience; small animal practice (pets)
I04	Shelter medicine practitioners; conducted in a meeting room at the shelter site	4P1	Female; 3 years' experience
		4P2	Female; 16 years' experience
		4P3	Male; 16 years' experience
		4P4	Female; 26 years' experience
I05	New and recent graduates in a feline specialist clinic	5P1	Female; 6 months' experience
		5P2	Male; 6 months' experience
		5P3	Male; 1-year experience
I06	University teaching clinic practitioners; conducted in meeting room at the teaching hospital	6P1	Female; 6 months' experience
		6P2	Female; 5 years' experience
		6P3	Female; 9 years' experience
I07	Individual interview; conducted in the workplace clinic	7P1	Female; 5 years' experience; current council representative consulting on cat population management
I08	Individual interview; conducted in the workplace clinic	8P1	Male; 34 years' experience; former council member consulting on cat population management
I09	Individual interview; conducted in hired meeting room	9P1	Female; 12 years' experience; veterinary student educator

Table I.
Participant summary

downstream were explored. NVivo 10 was used to assist with analysis of the interview data.

Veterinarians' motivation, opportunity and ability to engage in recommending and supplying sterilisation services to cat owners

Qualitative analysis uncovered the key themes that emerged from the MOA of veterinarians as midstream actors to provide downstream targets with services and advice to improve animal welfare. It is important to note that a cat owner in this context is a person who claims ownership of the animal. However, what complicates the issue of cat overpopulation is the influence of cat "semi-ownership" behaviours, which occur when citizens provide care to roaming neighbourhood cats but do not claim ownership and tends not to sterilise them, leading to surrender of unwanted kittens.

Motivation

One of the major contributors to motivation being absent was that veterinarians did not see addressing cat overpopulation as a primary role for clinical practitioners, although they did acknowledge that the profession can help address the issue:

I don't really understand why the vets need to be concerned with regards to the overpopulation problem because they're not going to fix it. I mean, they're going to be an integral part, but we don't need to get every vet out there behind it in my opinion (4P3).

Another factor that emerged as reducing the motivation of veterinarians to encourage downstream targets to seek sterilisation services was a desensitisation to the issue:

It's kind of drawn out of you. I know before I became a vet I thought fixing these sorts of problems was something that a vet would get to do (4P4).

However, where motivation was present, veterinarians reported being motivated by three key issues:

- (1) The emotional impacts they felt in clinical practice because of the consequences of cat overpopulation:

I find it really stressful. I think I'm probably the one person at the clinic that everyone knows [gets affected]. They say my house is like Noah's Ark, because I'm just pathetic at saying no [...]. I have three cats already, because I couldn't bring myself to put them [healthy but unwanted cats] down (3P2).

- (2) The medical impacts of cat overpopulation on clients' pet cats, which they saw in their role as practitioners:

Well, it affects my clinical practice because I do see a lot of pet cats with cat fight abscesses [from fighting with stray cats] and that are spraying or urinating around the house [from stress due to presence of other stray cats in the area] (9P1).

- (3) The indirect impacts on medical services delivery in clinical practice:

In the sense that when they come to me with an emergent problem in their cat and they have no money to do anything, that then results in suffering on the cat's behalf or euthanasia. In that way, it indirectly affects me, because I mean I really dislike that aspect of vet medicine (1P1).

Veterinarians often expressed the willingness to volunteer time to help with community desexing clinics and education:

Probably if they [larger organisations such as RSPCA or government] have more activities and events doing that sort of thing [desexing clinics], so that more vets can join in our own time and volunteer, I would do that (5P3).

However, they also expressed that struggles with work-life balance within the industry could impact their motivation to be more proactive in engaging downstream targets in sourcing sterilisation:

Vets struggle finding a work-life balance really at the end of the day. It becomes different priorities I guess (4P1).

Ability

A key factor reducing the ability of veterinarians to engage downstream targets in sterilisation services and advice was that vets themselves demonstrated a lack of knowledge about the cat overpopulation issue:

I must say that before I started working here [in a shelter], everywhere I worked I would have not thought there was much of a cat overpopulation problem (4P4).

Veterinarians reported that they felt unable to persuade targets to desex their cats.

Basically, I try to educate the clients when they bring in their first kitten. But in the end, it's still up to them. I can't force them to desex their kitten (3P4).

Veterinarians also acknowledged that there was capacity for the profession to become more informed about aspects of cat overpopulation to better educate downstream targets:

For cat overpopulation, I'd like to know a little bit more information so then I can feel better prepared to talk to people in society and in the clinic about what's happening (2P3).

Veterinarians also noted that they may not have the surgical or anaesthetic skills to desex cats at a younger age, a procedure which can be advocated as a measure to ensure cats are sterilised prior to sale to prevent accidental pregnancies if owners delay or fail to source sterilisation:

I still get a little bit more nervous with those slightly younger ones, because I don't do them routinely enough to feel comfortable with my anaesthetic skills yet (6P3).

Opportunity

Opportunity to encourage downstream targets to source sterilisation services was absent primarily because of restrictions placed on practitioners by the small business nature of their work:

I think that the major role for vets is education of clients, but again you can only educate, A) the people that come to you, and B) within the time constraints of 15 to 20-minute consultations. Free desexing clinics would be great, but obviously no private practice is going to do that because it's a business (1P1).

Veterinarians also reported the conservative, risk-averse nature of the veterinary medical profession serves to limit their opportunity to make strong statements to downstream targets promoting cat sterilisation:

I guess one thing with desexing is that complications do happen. If you promote desexing and it ends up happening, I feel like it's my fault, kind of. So, if you make it compulsory, then it should be done. Then they [owners/public] wouldn't blame you (5P1).

Veterinarians' perspectives on cat owners

Key themes that emerged during data analysis explaining veterinarians' perceptions of downstream targets to source sterilisation services included the following – motivation, opportunity and ability.

Motivation

Veterinarians identified motivation was present in targets when there was intrinsic value placed on the cat and on the concept of responsible pet ownership.

Again, the majority of people will have their animals desexed that you see in private practice. [...]. The people who take their animals to a vet, they value it; it's generally part of the family and they would do almost anything for the animal (4P3).

Veterinarians believed that people were motivated to source sterilisation by being informed of the benefits of sterilisation to their individual cat rather than community benefits.

I really push [desexing]. I really tell them. I'm like, "well, you know, there's a higher chance of your cat getting cancer [if it is not desexed]. That's not good, you wouldn't want that for your cat or your dog." Pretty much I scare them. I focus on the health consequences for the individual animal, as opposed to an overpopulation issue, because they wouldn't care unless it's their own animal (3P4).

Veterinarians perceived that a key reason why motivation to sterilise was lacking in downstream targets was because there is low value placed on cats and on responsible cat ownership.

Maybe to some people, having a cat's a novelty. Then that person doesn't really want it, or doesn't really care or want to find out how to take care of it. So just like, 'Oh yeah, we'll keep it, but we won't desex it, and we'll just let it run around outside' (5P2).

There was also the belief among veterinarians that passive forms of cat ownership also prevented targets from sterilising cats.

People who might have a cat who visits their house every day, and they feed them, but they're not actually claiming to have responsibility for that animal. It's supporting their existence, but not actually stepping in and helping with [sterilisation and reducing unwanted breeding] (6P2).

Opportunity

Veterinarians believed that cost can be a barrier for targets seeking sterilisation services for their cats but only for a subset of the targets.

I think it's a good method [to offer discounted desexing to increase community uptake] but it would only reach a very small percentage of people. A lot of people would desex their

cats at any price, pretty much. People who don't, it doesn't matter, even if it's free [...] (5P1).

Veterinarians stated that targeted discounts are important to ensure that those downstream actors most in need receive the service:

You have people who start to wrought the system, and then that actually undermines the feeling of those people that are involved in it (6P3).

They also questioned whether discounts were really capturing people who would otherwise not sterilise their cats:

Are you still pulling from that population of people who were going to desex in the first place, or are you actually tapping into that group of people who would never consider desexing as part of their responsibility (6P3)?

Ability

Veterinarian's perceptions of a target's ability to source cat sterilisation centred on clients' knowledge. That is, a lack of knowledge was a key factor in a client's ability to source sterilisation:

Yeah, I think a lack of knowledge is a big problem. And a lack of caring. But maybe that stems from a lack of knowledge about the problem (4P2)?

Veterinarians' perceptions of the upstream regulatory environment

Key findings when exploring veterinarians' perceptions of the upstream environment were the difficulties of a complex stakeholder network and the need for an integrated approach – including education and marketing, backed by legislation and enforcement.

Reflecting the wicked nature of the cat overpopulation issue, there was diversity in the opinions of veterinarians as to who has key responsibility for managing the problem:

That's a question of is it a national problem, or a local council problem? Because you know Australian governments; like the national government will try and make it a state government problem, and they'll try and make it a local government problem (4P2).

Consistent with a systems approach, veterinarians identified that addressing cat overpopulation would require a collaborative approach engaging the complex network of stakeholders – focusing on creating connections between microactors:

It's complex. It should be a combination of all levels of government, veterinary groups, shelter groups, as well as community. It needs a community mindset to start with, and that's a ten year program at least (8P1).

In keeping with the macromarketing perspective, veterinarians acknowledge that the influence of structural changes addressing cat overpopulation will be slow to evolve overtime:

Over time when [legislation is] brought in, and the people get used to it, and that's drummed into them, then that's how things are going to be done, over time it will just happen. It's not just going to happen overnight, but over time (4P3).

Marketing

While veterinarians supported legislation backed by enforcement, they also acknowledged there is a role for reinforcements to encourage behaviour change in targets:

I'm all for a more positive reinforcement approach, but I think that there is a role for punishment [fines and enforcement] if it was then tempered with, "Here's an incentive, too" (6P3).

Veterinarians also saw a role for emotive propaganda to persuade targets to source cat sterilisation services:

I'll tell you what [vets] don't do, they don't seem to do a lot of propaganda. You don't walk into a vet clinic and see, "prevent unwanted cat pregnancies", or any of that kind of stuff (1P2).

We need these shock [tactics]. You think about AIDS and the grim reaper and those drinking and driving shock campaigns that they did – and they've definitely had a big impact (4P3).

Although they acknowledged a role for propaganda, participants did express that the veterinary profession itself is quite conservative and not vocal:

Yeah, well we don't really go out into the community with anything, do we? That's something we could do more (3P3).

Suggestions were made that welfare, government and activist groups had a role to play in generating propaganda content:

If it's something big like the RSPCA or the AVA [Australian Veterinary Association] or the government puts up a campaign that says, "Get some [cats] desexed" I'm sure people will join in, and the public will know, the media will know, everyone will know (5P2).

Veterinarians also commented on the contribution commercial marketing can have on creating a culture of devaluing cat ownership and the associated responsibilities involved, such as desexing:

We all go shopping; it is the Gruen effect when you go into a shopping centre, it's to make you buy. You've got animals in a window that are cute and fluffy, and people buy them on impulse and they don't understand the responsibility. They're paying an exorbitant amount for a dubious animal that's not desexed (4P1).

Legislation

There was consensus among the veterinarians in advocating for paternalistic approaches to address cat overpopulation, including calls for legislation backed by enforcement. This legislative approach was particularly in regards to microchipping, registration and compulsory desexing:

Ideally, it [compulsory desexing] would be great because it just takes away that option. Just do the paternalistic approach and just say no (1P1).

Make enforceable rules that are logical, outcome-focused and then enforce them (8P1).

Veterinarians saw legislation as a way to support them in their recommendations to the public regarding cat sterilisation:

I think when you have something that's government-driven, it actually carries more weight, because it's an across-the-board instigation, and you have more people buying into it as well.

Whereas, the problem with things that are individually vet-driven, is that the clients, I think they are a little bit suspicious of what is the vet getting out of it (6P3)?

While veterinarians did see enforcement as difficult, they did acknowledge that it is an important starting point in a long-term, community-based change process:

It's probably like, right now it'd probably be hard to police, but we've got to start somewhere [...] maybe, if you start something this year it might be really crappy enforcement for the next five years, but it starts to catch along. You won't solve the whole thing, but it's a step, I guess (5P2).

While enforcement was identified as an important component in creating change, veterinarians were clear that they should not be placed in the position of identifying those targets not conforming with legislation. Such responsibility was seen as a conflict of interest – both in terms of business (damages client relationships) and animal welfare (deters people seeking treatment for undesexed cats for fear of prosecution):

Even if you force vet clinics to participate [report legislation breaches], that doesn't mean we would still do it. For example, Queensland is not allowed to have rabbits, but I'm aware that some clinics, because they want to help out the rabbit, they will still treat the rabbit, and not report you. Similarly, let's say your cat is not desexed, so by law you should report it to the government, but you still want to help the cat. Vets may still treat without reporting you (5P3).

Veterinarians saw a place for veterinary professional bodies to take a leadership role or advocacy through a stronger voice representing the veterinary profession to the community, through lobbying the government and through greater guidance for veterinarians by promoting policy:

I definitely think [the Australian Veterinary Association, (AVA)] they should have a role in advocacy. I mean I just think that they're very out of the spotlight. You never know, I wouldn't even know currently what their stance is on either of those things [early age desexing and compulsory desexing] (1P1).

Education

Veterinarians expressed that education was a key component to long-term improvements in community motivation source cat sterilisation and improving the value placed on cats and responsible cat ownership:

I really think it's about education and about encouraging people to desex their animals and to have effective control over their animals, whether that be keeping the cat in at night or having the cat enclosed (1P1).

Veterinarians saw a role for veterinary professional bodies and industry to provide educational resources:

[The AVA] could help organize, even like information packs for you to take home with your kitten. If they got companies on board to sponsor it, a little bag of kitten food and a little information pack so that we could distribute that to all the people (3P1).

Discussion

How social marketers conceptualise issues in animal welfare defines how marketing can be used to provide a solution. The wicked nature of the cat overpopulation

problem calls for a broader conceptualisation of the issue, beyond just a target audience focus. This paper proposes that a systems approach conceptualised from a macromarketing perspective provides directions on how to incorporate microactors in finding solutions that address animal welfare concerns. Our findings demonstrate the importance of understanding the microactions of microactors that form a part of an interdependent, interconnected, complex system – a macrosystem – that takes a long time to emerge and evolve – and, therefore, a long time to change through multi-layered and multi-faceted interventions. Social change for the wicked problem of cat overpopulation must start by understanding the microactions of microactors in the evolution of a macrosystem that can be mobilised to address animal welfare.

Applying the MOA framework to understand veterinarians reveals their influential roles as midstream actors that have resources – knowledge, skills and networks – that can be used to inform multiple intervention approaches – education, marketing and law – incorporating multiple actors – including government, councils, welfare organisations, industry and professional bodies. It also revealed that veterinarians anticipated the long view to social change put forward by a macromarketing perspective (Lusch, 2006), meaning that they accepted the idea that social change for cat overpopulation was going to will evolve slowly over time. These findings support the adoption of a systems engineering approach to address wicked problems, where systems engineering refers to arranging and channelling environmental and social forces to create a high probability that effective social action will occur (Kennedy and Parsons, 2012). In this sense, we argue that systems engineering supports the concept of an integrated approach to social marketing when conceptualised as an approach that promotes creating a holistic environment that facilitates the effectiveness of reductionist interventions.

The findings revealed a strong call by veterinarians for support from governments and organisations – including welfare, professional body and activist organisations – to play a stronger role in developing and delivering interventions to address cat overpopulation. Veterinarians viewed themselves as important contributors to managing cat overpopulation; however, they also noted the need for support and commitment from upstream-driven interventions to increase their influence downstream, allowing them to better promote and deliver sterilisation services to the community. In fact, an interesting insight is that veterinarians often identified themselves as targets requiring interventions – for example, in the form of education and training – from upstream stakeholders. Moreover, our analysis recognises the importance of identifying the competitive and market forces acting on veterinarians in delivering sterilisation education and services to clients. Veterinary medicine for the most part is delivered in a small business setting. Veterinarians have financial and time constraints placed on them that are competing with the need to deliver information and services to clients for the purposes of addressing cat overpopulation. Utilisation of the MOA allowed identification of these major barriers to the co-creation of solutions with downstream targets, which a collaborative systems integration approach to social marketing promotes.

Veterinarians provided insights into the nature of competitive forces acting on downstream targets that can contribute to cat overpopulation, such as the impulse purchasing of pets promoted by pet shops. Identification of the market forces that

exist on downstream targets add further insight into these forces and highlights the place for macro-social marketing in addressing cat overpopulation. Macro-social marketing – which refers to the use of social marketing at a societal level by those (e.g. governments) who control the social context influencing all others – can be directed at these competitive commercial influences identified by veterinarians (Kennedy and Parsons, 2012). Thus, this approach would reduce the effectiveness of traditional marketing forces that serve to compete with the desired behaviour in downstream targets and also encourage influential government actors to shape the environmental context in which downstream targets experience competitive forces (Kennedy and Parsons, 2012).

Conclusions and implications

This paper presents fresh insights into a complex animal welfare issue interpreted from interviews with veterinarians who are knowledge experts based on the service provision they extend to the community through animal welfare education and other services (e.g. sterilization). Consistent with a macromarketing perspective, we argue the cat overpopulation issue should be conceptualised as a network of microactors – from cat owners and veterinarians to veterinary business owners and animal welfare services (e.g. RSPCA) to policy makers across the political system. Thus, we put forward a systems continuum purview of social change, which involves (and requires) intricate, fluid interconnections within and between these actors along the continuum. Our macromarketing conceptualisation of the cat overpopulation network embraces the collaborative systems integration perspective in social marketing – supporting the idea that effective social change requires a balance between reductionism (i.e. participation of individual microactors) and holism (willingness to participate and negotiate in seeking solutions). The strength of utilising the MOA framework in this study to interrogate the cat overpopulation problem is that it facilitates understanding of the interconnections between veterinarians as microactors and their upstream (e.g. political microactors) and downstream environments (e.g. cat owners) in the macrosystem. Future research to effect social change can be directed at exploring the other microactors in the cat overpopulation systems continuum. In addition, the exploratory nature of this research means future research can further explore veterinarians as midstream microactors, through interviewing other subsets, such as clinic owners, and through surveys and quantification of attitudes and perceptions.

This study and its application of the MOA framework facilitates identification of competitive forces that act on veterinarians and their network connections. It is vital to acknowledge powerful competitive forces can act at levels beyond just the downstream microactors. In doing this, we demonstrate that applying the MOA framework to veterinarians within the macrosystem of the cat overpopulation issue improves understanding of the concept and practice of midstream social marketing. Furthermore, we have demonstrated that the MOA is a practical and strategic tool that can be applied to approach behaviour change through understanding midstream actors and their perceptions of the downstream, midstream and upstream continuum of a wicked problem. Our application of the MOA framework in this paper, thus, responds to criticisms that social marketing places too much emphasis on the target audience and lacks the utilisation of theory in the design of interventions. Our application adds weight

to the premise that social marketing as a discipline possesses theoretical frameworks that offer practical processes for understanding and managing complex social issues within a broad social context.

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