Healthy Animals, Healthy People: Lived Experiences of Zoonotic Febrile Illness in Northern Tanzania

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Abstract

In the recognition that 75 percent of all emerging human infectious diseases in the past three decades originated in animals, many prominent veterinary and human health scientists have subscribed to the 'One Health' approach as a basis for redressing human diseases, animal diseases and environmental degradation worldwide (Rock et al., 2009). At its core, 'One Health' recognises the interconnectedness of humans, animals and the environment and thus calls for cross-sectoral, collaborative and integrative approaches to reducing disease burdens that arise at this interface. However, while the approach appears to be all encompassing in terms of interdisciplinary science, scant attention has been paid to the relationship between disease and society (Dzingirai et al., 2017). Endemic zoonoses, for example, disproportionately affects those in underprivileged communities and has significant impacts on rural livelihoods (Halliday et al., 2015). These diseases highlight how complex systems of health, poverty and politic collide, resulting in 'structural violence' (Galtung, 1969) and avoidable suffering for those who are already marginalised.

Through adopting a mixed methods ethnography, this thesis offers insight into the lived experiences of livestock and human febrile illness (many of which are zoonotic) in an agropastoral community in northern Tanzania. I trace, in detail, the health seeking strategies undertaken to remedy illness, from recognition of symptoms through to engaging with public and veterinary health systems. By adopting a biosocial approach to this research, I am able to scrutinise the ways in which health-related behaviours are socially mediated. In doing so I uncover how 'structural violence' (Galtung, 1969) is deeply embedded within health systems and ultimately embodied by livestock keepers when pursuing health care for themselves and their livestock. This thesis hopes to provide a more critical theorisation of health seeking by highlighting the ways in which animal and human illness is experienced within prevailing social, political and economic dynamics. This has the potential to contribute to social science scholarship within One Health by taking a more nuanced view of the material conditions in which people live that shape their ability to effectively pursue animal and human health and wellbeing.

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List of Abbreviations and Acronyms

ACCESS	Access project
ADDO	Accredited Drug Dispensing Outlet
AFO	Agricultural Field Officer
BACZOO	Bacterial Zoonoses project
CAHW	Community Animal Health Worker
CHW	Community Health Worker
CO	Clinical Officer
COSTECH	Tanzania Commission for Science and Technology
CBPP	Contagious Bovine Pleuropneumonia
CCPP	Contagious Caprine Pleuropneumonia
DMO	District Medical Officer
DVO	District Veterinary Officer
DVS	Director of Veterinary Services
ECF	East Coast Fever
ECG	Electrocardiogram
FAO	Food and Agriculture Organisation
FBAT	Febrile Antigen *Brucella* Agglutination Test
FMD	Foot and Mouth Disease
GoT	Government of Tanzania
HBM	Health Belief Model
HSB	Health Seeking Behaviour
ICHF	Improved Community Health Fund
IMF	International Monetary Fund
KCMC	Kilimanjaro Christian Medical Centre
LGA	Local Government Authority
LITI	Livestock Training Institute
LFO	Livestock Field Officer
LMIC	Low and Middle Income Country
MAC	Ministry of Agriculture and Cooperatives
MDRTB	Multi-drug Resistant Tuberculosis
MoHSW	Ministry of Health and Social Welfare
MRDT	Malaria Rapid Diagnostic Test
MSD	Medical Stores Department
NHIF	National Health Insurance Fund
NGO	Non-governmental Organisation
NLP	National Livestock Policy
OIE	Office International des Epizooties (World Organisation for Animal Health)
OTC	Oxytetracycline

PASS	Partners for Applied Social Sciences
PPR	Pestes des Petits Ruminants
RA	Research Assistant
RVF	Rift Valley Fever
SEEDZ	Social Economic and Environmental Drivers of Zoonoses project
TAWIRI	Tanzania Wildlife Research Institute
TAD	Transboundary Animal Disease
TB	Tuberculosis
TLMI	The Livestock Modernisation Initiative
TSH	Tanzanian Shilling
URT	United Republic of Tanzania
WHO	World Health Organisation
VEO	Village Executive Officer
VCT	Veterinary Council Tanzania
VPP	Veterinary Paraprofessional
VPPA	Veterinary Paraprofessional Assistant

Glossary of Swahili Terms and Phrases Used

Baridi	Cold
Bibi	Older woman
Binti kwetu	Our daughter
Binti kwenu	Your daughter
Bodaboda	Motorbike taxi
Boma	Homestead
Dawa	Medicine
Dawa ya magonja mengi	Medicine for many diseases
Diwani	Member of ward council
Duka la dawa	Drug store
Daladala	Bus
Hawapendani	They do not love each other
Homa	Fever
Homa ya kawaida tu	Just ordinary fever
Homa ndogo ndogo	Small fever
Homa kali	Severe Fever
Joto juu sana	The temperature is very high
Joto ni kidogo	The temperature is low
Jikoni	Kitchen
Kijiji	Village
Kijiweni	Village centre
Kizunguzungu	A neurological syndrome of small ruminants
Mahindi ya kuchoma	Roasted corn on the cob
Mpera	Guava tree leaves
Mtaalamu	Expert
Mwalimu	Teacher
Mwarrobaini	Herbal medicinal plant commonly used for treating fever
Mwenyekiti	Village Chairperson
Mzee	Older person (usually in reference to a man)

Mzungu	White/European person
Nitaongea na wafugaji kuhusu chanjo	I will talk to livestock keepers about vaccination
Sisi ni wakulima	We are farmers
Shamba	Farm
Tindigani	Swamp
Tulimwita mtaalamu	We called the expert
Tumezoea kufanya hivyo	We are used to doing this
Ujamaa	Familyhood
Vijana	Youths
Wanakijiji	People of the village
Wazee	Older people (usually in reference to men)

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Many people were involved in the making of this thesis and it is my pleasure to be able to acknowledge their contribution here. I would like to start by thanking the Zoonoses and Emerging Livestock Systems consortium for providing the funding for this study. It has been a real privilege to be a small part of this vast project and to witness the truly inspirational work being undertaken in this field.

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Author’s Declaration

I declare that, except where explicit reference is made to the contribution of others, this thesis is the result of my own work and has not been submitted for any other degree at the University of Glasgow or any other institution.

Jennika Virhia

Chapter 1
Introduction

Endemic zoonoses inflict an enormous disease burden that disproportionately affect the poor in the Global South. They are estimated to cause more than 2.2 million human deaths and 2.4 billion cases of illness annually, and include diseases such as: leptospirosis, cysticercosis, tuberculosis, rabies, leishmaniasis and brucellosis among others (Grace et al., 2017). Such animal-borne infections tend to cluster in mixed agro-livestock communities among pastoralists, agropastoralists and in peri-urban areas across the world, particularly in Africa, Asia and Latin America (Bardosh, 2016). People in these communities rely on livestock for draught power, income and nutrition, as well as for transport, fertilisers, hides and as symbols of cultural exchange, such as dowry payments (Smith et al., 2013). These benefits make animals an integral part of many rural and peri urban livelihoods across the developing world. However, they also present a major risk when zoonotic microbes spread between humans, livestock and wildlife – in un-boiled milk, when people assist with the birth of a new calf, when they eat raw or undercooked meat or when vectors, such as sandflies, tsetse, mosquitoes and ticks, move between them (Bardosh, 2016). As such, zoonoses create a large 'dual burden' for mostly poor livestock keepers in marginalised communities. They affect human health and wellbeing directly as common causes of human illness, and indirectly through impacts on livelihoods and food security as a result of livestock production losses (Halliday et al., 2015). This is further compounded by the fact that those living in such areas are typically isolated from political processes, communication, education and have little access to adequate human and animal health care (Grace et al., 2012). They also receive minimal policy attention because they fall in-between the cracks of the veterinary, public health and wildlife sectors, where existing capacities are low and inadequate (Leonard, 2000).

1.2 Zoonoses in northern Tanzania

In northern Tanzania, zoonoses have been identified to be a significant cause of human febrile illness, yet are largely underappreciated and under diagnosed. Crump et al's. (2013) prospective study in Moshi, Tanzania found that for 60.7% of patients clinically diagnosed

with malaria, it was confirmed as the actual cause of fever in only 1.6% of cases. In contrast, bacterial zoonotic infections such as brucellosis, leptospirosis and Q-Fever, constituted 26.2% of those presenting with febrile illness. Crump et al. (2013) and Halliday et al. (2015) highlight the clinical difficulties in dealing with endemic zoonoses such as lack of diagnostic capacity and low awareness by practitioners. Adding to this is the fact that many zoonoses have non-specific disease symptoms such as; headaches, fatigue, fever and joint or muscle aches which are also typical of non-zoonotic diseases such as typhoid and malaria. Similarly, in animals, abortion is one of the most readily recognisable signs of infectious illness yet is characteristic of several zoonoses such as brucellosis, leptospirosis and Q-Fever (Halliday et al., 2015), thus further inhibiting identification. Delays in case presentation also adds to complication of (human) diagnosis. A study on health seeking behaviour by Kunda et al. (2007) in northern Tanzania revealed that, in the case of brucellosis, just 22% of patients sought care at a hospital within the first month after the onset of their symptoms. This is important as even in the acute stages of the disease the diagnostic ability of blood samples is already low and falls even further when it becomes chronic (WHO et al., 2006). Similarly, leptospirosis can only be detected in the blood of an infected person within the first week of illness (ibid.). As such, understanding health seeking behaviour in response to febrile illness in Tanzania can provide vital insights into factors that inhibit timely attendance at health facilities.

The challenges presented by (re)emerging and endemic zoonoses have led to increased recognition of a need to integrate perspectives and actions from human, animal and ecosystem health (Zinsstag et al., 2015). This has become known as a 'One Health' approach, a concept that was catalysed into the global policy limelight with the avian influenza crisis of the 2000s (Scoones 2010). The approach has since been widely accepted by numerous scholars and practitioners as a means to addressing health problems that arise at the human-animal-environment interface. However, there has been an increasing recognition of the real-world challenges in moving from rhetoric to concrete policies, research and disease control programmes in different contexts (Bardosh et al., 2014; FAO, 2013; Scoones, 2010). Particularly noted is the lack of social science engagement within One Health, and thus the tendency to elide the reality and lived experiences of those afflicted with, and responding to sickness (Craddock and Hinchliffe, 2015; Galaz et al.,

2016). For example, while delayed case presentation has been identified as a critical factor for timely treatment for many zoonoses (and other illnesses), scant attention has been paid to the numerous social, political and economic issues that affect the ability of individuals to present to health facilities in a timely manner (if at all). Even less consideration has been given to the ways in which these processes also simultaneously affect livestock keepers when seeking health care for their animals.

With this in mind, I aim to situate the notion of health seeking behaviour within a biosocial approach as a means to addressing the social science gap within One Health discourse. In doing so I hope to bring to light the complex interplay between individual agency and wider structural processes that come to shape the ways in which individuals can mitigate or manage disease risks. While in theory endemic zoonoses are best controlled in the animal host (as a more effective and equitable approach than control in human hosts alone) in reality, communities are often left to manage disease themselves, with the focus on treatment rather than prevention (Grace et al., 2017). This thesis is an attempt to bring to light how exactly people are managing febrile illness themselves and the implications this has on health and wellbeing for livestock keepers. In order to achieve this, I follow the health seeking strategies livestock keepers in agropastoral community in northern Tanzania take as they contend with animal and human febrile illness, from recognition of symptoms through to navigating public and veterinary health systems. Examining health behaviours through a biosocial lens adds value to a One Health approach as it allows a closer inspection of the social, political, historical and economic factors that configure the ways in which people can react to animal and human illness. In tracing the journeys livestock keepers take, I also bring to light the 'structural violence' (Galtung, 1969) and suffering people experience in their pursuit to maintain animal and human health, wellbeing and livelihoods. In order for One Health to be successful, it must respond to the constraints to agency in accessing equitable animal and human health care highlighted throughout this thesis in order to mitigate the threat of emerging zoonoses and other future health challenges.

1.3 Thesis outline

Chapter Two establishes the conceptual framings of this thesis that underpin the empirical chapters. I begin by briefly reviewing the processes by which One Health came to be popularised in the mid-2000s, followed by discussion on the critical social science missing within its discourse. In response to this I posit biosocial approaches as a way to address this gap, as they necessarily consider the entanglements between biological and social processes. Thereafter I engage with the concept of 'structural violence' which Farmer et al. (2013), Kleinman et al. (1997) and Parker et al. (2016) and position as central tenets of biosocial theory. I discuss the capaciousness of the concept and the ways in which other theorists such as Scheper-Hughes and Bourgois (2004) have sought to develop and refine it. Following this, I situate the notion of health seeking behaviour within a biosocial approach as a means to interrogate the structural violence enacted on individuals as they navigate animal and human health systems in the pursuit of health and wellbeing. I conclude this chapter by outlining the overall aim and subsequent objectives of this thesis.

Following the conceptual framework, **Chapter Three**, the 'Research Setting and Methodology,' outlines the empirical context of this research and methodological approach taken. Here I provide information on the demographics of study participants including: gender, age groups, education level and tribal composition. I then go into further detail on the livelihoods of respondents as well as the climatic conditions which preceded fieldwork. The information included within this chapter is intended to provide readers with a contextualisation of the empirical research setting within which this study took place. Subsequently, I provide justification for the various methods employed in this research – namely a mixed methods ethnographic approach with the use of surveys, interviews, group discussions, participant observation and textual analysis. From here, I discuss my use of translators and translation before going on to detail the analytical strategy developed to work through the data. Finally, I reflect on the way in which consideration of the ethics of this research was necessary to carry out this study appropriately in its context.

In taking forward the biosocial approach discussed in Chapter 2, **Chapter 4**, provides a brief overview of the major structural and institutional changes made to animal and human health systems – from the 1960s through to the structural adjustment era in the 1980s.

This overview is intended to contextualise health seeking behaviours for human and livestock illness which are discussed at length in the ensuing empirical chapters.

In the two empirical chapters, **Chapters Five and Six**, I pay explicit attention to the lived experiences of human and livestock febrile illness in Msitu[1] village. I trace the health seeking strategies undertaken, step-by-step, from recognition of symptoms through to engaging with the health system. In doing so I uncover the structural contours that influence this journey, as well as highlight where the similarities and difference in animal and human health seeking emerge. Firstly, in **Chapter Five,** I explore the factors influencing remedial actions undertaken in response to human febrile illness, followed by the decision-making and resource-mobilisation steps that occur when preparing to go a health facility. Thereafter I bring attention to the myriad ways in which the health system is at times prohibitive to accessing effective treatment and therefore recovery from febrile illness. Subsequently, in **Chapter Six**, I draw specific attention to the role of local animal health actors and the prevailing conditions which inhibit them from delivering effective animal health services. Thereafter, I discuss the implications this has for the implementation of zoonotic interventions, namely vaccination. These chapters expose the everyday, normalised violence present at every stage of the health seeking process that inhibit people's ability to access essential services.

Chapter Seven brings the animal and human components of this research together by providing a brief summary of the main similarities and differences in animal and human health seeking. The main focus in this discussion is on health care access and the ways in structural violence is conferred through these systems onto individuals.

In **Chapter Eight**, 'Conclusions and Policy Recommendations,' I provide a summary of the main empirical findings of this research and consider the wider theoretical implications they have for understandings of health seeking behaviour, biosocial theory and One Health. I also provide some policy recommendations based on these findings that may be useful to consider when designing interventions for zoonoses in communities like Msitu.

[1] All names of villages and sub villages have been changed to preserve anonymity.

Throughout this thesis I have interspersed ethnographic 'interstitials.' These are narrative accounts of either my own or respondents' experiences which pertain to the main subject matter of the ensuing chapter. **Interstitial I** provides insight into my own observations and experiences as I arrived in the village of Msitu for the first time. It is my intention here to firmly establish the identity of the people in Msitu as farmers first and foremost (with an emphasis on crop cultivation) as means to contextualising findings in subsequent empirical chapters**. Interstitials II, III and IV**, as well as other stories I have included throughout this thesis, detail various individual experiences in relation to animal and human ill health. They are designed to provide testimony to the ways in which violence and suffering play out in the everyday lives of livestock keepers in Msitu when responding to illness.

Chapter 2
Literature Review

2.1 Introduction

As introduced in Chapter 1, the concept of 'One Health' has been widely accepted as a means to address the ever-increasing risks that arise at the human, animal and environment interface. This chapter begins by briefly reviewing the processes by which the concept of 'One Health' came to be popularised in the mid-2000s, followed by a discussion on some of its shortcomings. Social scientists caution that lack of consideration of critical social science is at risk of derailing the whole One Health endeavour (Craddock and Hinchliffe, 2015). In response, I posit that a biosocial approach to health can help address this gap, as it necessarily considers the interconnections between the biological and social aspects of life. Through considering this line of thought, I arrive at 'social suffering' and 'structural violence,' key concepts which are considered to be central tenets of a biosocial approach (Farmer et al., 2013; Parker et al., 2016; Kleinman et al., 1997). Thereafter, I come to health seeking behaviour. I review three models (The Health Belief Model (HBM), the ACCESS model and the PASS model), describing how I have drawn elements of each to inform this research. I discuss how I situate these (largely under-theorised) tools within a biosocial approach to health in order to appreciate the roles both individual agency and wider structural forces come to play in lived experiences of health and illness. In doing so I hope to provide a more critical theorisation of the social aspects of health seeking, thus providing a more nuanced understanding of the ways in which animal and human illness is experienced within prevailing social, political and economic dynamics. This has the potential to add more rigour to the One Health framework by taking a critical view of the conditions in which people live that shape their ability to pursue and maintain animal and human health and wellbeing.

2.2 The popularisation of 'One Health'

In 1996, the highly pathogenic H5N1 (avian influenza) virus was isolated from a farmed goose in Guandong Province, China. One year later, the first human infections with the virus were reported in Hong Kong – eighteen cases in total, six of them fatal (WHO, 2011).

This was the first known instance of human infection with the virus. Since 1997, the virus has spread rapidly throughout countries in Asia to Europe, Africa and the Americas, and has become endemic in poultry populations in countries such as China, Indonesia and Vietnam (WHO, 2011). Outbreaks have decimated millions of poultry populations (from infection or culling), as well as resulting in 860 human cases, and a further 454 human deaths to date (Centre for Health Protection, 2019). The outbreaks have seriously impacted livelihoods, the economy and international trade in affected countries. It was global anxiety about the pandemic potential of this virus that led to animal, human and environmental health experts to gather at Rockefeller University on September 29th, 2004 to address the growing concerns about diseases transmitted between animals and humans. The experts concluded:

> 'Recent outbreaks of West Nile virus, Ebola haemorrhagic fever, SARS, monkeypox, mad cow disease and avian influenza remind us that human and animal health are intimately connected. A broader understanding of health and disease demands a unity of approach achievable only through a convergence of human, domestic, animal and wildlife health: 'One Health.'' (Cook et al., 2009: n.p.)

Citing mutual benefits to humans and animals, the experts delineated twelve priorities for a holistic approach to preventing epidemics and zoonoses, known as the 'Manhattan Principles,' positing that we cannot solve 'today's threats and tomorrow's problems with yesterday's approaches' (Cook et al., 2009: n.p.). Since the meeting, the One Health approach has been propelled into the global policy limelight and has quickly moved from a concept to a global movement, with innumerable publications, projects, initiatives and platforms proliferating across the globe (Gibbs, 2014; Vandermissen and Welburn, 2014). Although the concept has some historical precursors as well as similarities with other contemporary movements (see Dakubo (2010) for a discussion on the related EcoHealth movement and Whitmee et al's. (2015) outline of 'planetary health') it was the quick succession of the avian flu, SARS and other (re)emerging diseases that brought a renewed urgency to these efforts (Porter, 2013).

The global response to the avian influenza crisis in particular is lauded as one of the approach's key success stories. It was launched in January 2006 against a One Health backdrop at the international ministerial and pledging conference in Beijing, co-hosted, organised and sponsored by the Chinese government, the European Commission and the

World Bank. This led to collaboration between key political actors (the European Union, USA and the United Nations) and five subsequent years of cooperation on the control of avian influenza (Gibbs, 2014). The World Bank estimated that between 2005 and 2009, 4.3 billion US dollars were pledged for the international control of H5N1 (World Bank, 2010).

One Health was accepted into mainstream global policy networks after the World Health Organisation (WHO), the World Organisation for Animal Health (OIE), and the Food and Agricultural Organisation (FAO) signed a tripartite agreement in 2008 for sharing responsibilities and coordinating global activities to address problems that arise at the human-animal-ecosystems interface (Zinsstag et al., 2012: 108). This was a shared vision of 'a world capable of preventing, detecting, containing, eliminating and responding to animal and public health risks attributable to zoonoses and animal diseases with an impact on food security through multi-sectoral cooperation and strong partnerships' (FAO, OIE et al., 2010: n.p.). Further inter-ministerial conferences were held in Bamako, New Delhi, Sharm El-Sheikh and Hanoi to establish what a One Health approach to (re)emerging zoonotic diseases would look like (Bardosh, 2016). Throughout these meetings a series of goals were established including: the need to move beyond disciplinary silos; promote wide-ranging institutional collaboration at the international and national-level; address the root causes of zoonotic diseases; improve surveillance and governance of veterinary and public health systems; strengthen emergency response networks; move from a focus of pandemics to existing diseases of the poor; and develop new research action strategies that facilitate the translation of targeted disease control programmes (FAO et al., 2008).

The concept and its accompanying movement has been widely been hailed as a significant 'paradigm shift' (Porter, 2013; Atlas and Maloy, 2014; Zinsstag et al., 2015) in public health, wherein efforts to address human health problems are increasingly rooted in considerations of our links to other species. At its core, One Health stresses the need to work across disciplinary divides through a cross-sectoral, collaborative and integrated approach to address zoonotic diseases – as well as other problems that cut across the human-animal-ecosystem interface (Scoones, 2010).

2.3 One Health in Tanzania

As alluded to in Chapter 2, zoonoses have been identified as a significant One Health problem in Tanzania (Crump et al. 2013, Halliday et al. 2015) which has prompted various studies on diseases that occur at the human, animal, environment interface in this region. These range from assessing seroprevalence and risk factors for specific diseases e.g. brucellosis (Asakura et al., 2018; Cash-Goldwasser et al., 2018 and Mirambo et al., 2018); tuberculosis (Mbugi, 2012) and rabies (Mpolya et al, 2017 and Cleaveland and Hampson, 2017). Others have focussed on local perceptions of zoonoses. For example, Mfinanga et al., (2003) assessed tribal differences in perceptions of tuberculosis. Their study found that Barabaig and Iraqw groups engaged in riskier practices (such as eating uncooked meat products) more than other tribes. Similarly, Mangesho et al. (2017) explored perceptions of animal transmitted diseases among pastoralists in northern and eastern Tanzania. Their findings reveal that pastoralists in northern Tanzania (in Ngorongoro district) possessed a higher awareness of the existence of a number of zoonoses than their eastern districts' counterparts (in Kibaha and Bagamoyo district). Furthermore, Ntirandekura et al's. (2017) study of pastoralists in Kagera region found that although people recognised brucellosis as a zoonotic disease, they did not consider it of high importance (but recognised that interactions between humans, livestock and wildlife could be potential risks for introduction of brucellosis in their communities). Additionally, Swai et al's. (2010) study on knowledge and attitudes towards zoonoses animal health workers and livestock keepers in Arusha and Tanga found that rabies, tuberculosis and anthrax were considered the three most common zoonotic diseases. Most respondents stated cooking of meat or boiling of milk as a way to prevent transmission. However, there was a significant difference in the perception of the risk posed by contact with potentially infected animals or animal products - with animal health workers having a much higher level of perception compared to livestock keepers. These studies reveal that research on zoonoses in Tanzania (particularly among pastoralists) has gained much traction in recent years, with an increasing recognition of the need for cross sectoral approaches to tackling these problems.

This PhD is interlinked with two projects at the University of Glasgow which are utilising an interdisciplinary approach to address zoonoses in Tanzania. These are: the social,

economic and environmental drivers of zoonoses (SEEDZ) project and its precursor - bacterial zoonoses (BACZOO). These projects bring together a range of stakeholders including human and veterinary health practitioners, epidemiologists and social scientists in order to understand perceptions of human health, animal health, zoonoses and drivers of change in pastoral, agropastoral and peri-urban livestock production systems. The studies focussed on three main zoonoses: brucellosis, Q-Fever and Rift Valley Fever and used integrated methodologies in order to investigate three main objectives. Firstly; to ascertain transmission dynamics of these three diseases and how human activity alters those dynamics, secondly; to identify key risk factors that can be addressed to reduce transmission and, thirdly; to provide information that can be useful for health professionals in their day to day working lives.

These projects, together with the studies highlighted in the previous paragraph, suggest that One Health in Tanzania has thus far tended to focus on zoonoses. However, Alders et al. (2014) note that there are other interlinked challenges that require a One Health approach. For example, they state that limited attention is given to chronic food insecurity which often leads to risky practices that favour the emergence and spread of infectious diseases (Alders et al., 2012). The authors adopt a One Health framework to support their research on food security in Tanzania and Zambia. They assert that bringing together animal, crop and human health specialists, economists, ecologists and social scientists can provide a unified approach to reducing childhood nutrition. Their research focused on enhancing women's role in improving poultry and crop integration and efficiency to strengthen household nutrition in an ecologically sustainable manner. Related to food insecurity, Jong (2019) also adopted a One Health approach to explore how artificial insemination can contribute to increased livestock production in the agricultural sector. These studies show how One Health is being adopted outside of the study of infectious diseases. While this may add to the capaciousness of the term, this is perhaps necessary in order to address a wide range of issues arising at the human, animal, environment interface – from zoonoses to conservation to malnutrition.

The capaciousness of One Health is, in part, also due to the coalescence of a wide range of researchers, scientists and practitioners who have come together to 'do' One Health. In

their paper on the challenges of One Health research Ladbury et al. (2017) elucidates the ways in which positionality and the theoretical and methodological approaches impact interdisciplinary research. The authors assert that One Health research requires interaction between scientists from different disciplines, such as the biological and social sciences and human and veterinary medicine. Different disciplines draw on norms, methodologies, and terminologies that have evolved within their respective institutions and that may be distinct from or in conflict with one another. These differences impact interdisciplinary research, both around theoretical and methodological approaches and during project operationalisation. Both the BACZOO and SEEDZ projects brought together an amalgamation of scientists from varying epistemological locations i.e. those from a critical social science orientation and those from a more traditional, natural science background. Yet, as Bryman (2016) notes, varying philosophical background need not hinder effective, collaborative research across disciplines. Both BACZOO and SEEDZ projects were necessarily interdisciplinary and are jointly led by an epidemiologist and a social scientist to overcome this. This has ensured that scientific and social scientific issues and mutual understanding between disciplines remain central to the project. Throughout the project, quantitative epidemiological approaches and disease modelling was complemented by qualitative research (including interviews, focus group discussions and participatory methods) to enable researchers to understand patterns of risk of disease transmission but also the reasoning that lies behind people's decisions to respond (or not) to this risk. The aim is that this will help to ensure that policy interventions to mitigate disease risk are developed in a way that is appropriate to, and therefore more likely to be accepted by, the communities in question. In this way the combination of social science methodologies alongside those of the natural sciences has produced a fuller picture of the story of zoonoses in Tanzania and ensured that normative ways of seeing do not go unchallenged. Ways in which this specific research hopes to contribute to the social science remit within SEEDZ and BACZOO is included at the end of this chapter.

2.4 Locating the (bio)social in one health

Despite efforts to integrate social science within One Health projects (such BACZOO and SEEDZ), Zinsstag et al. (2011) lament that truly integrated thinking is still lagging. Many

commenters have emphasised the significant political, institutional, economic and technical hurdles needed to put it into practice in different national and local contexts and across varying scales (Lee and Brumme, 2013). As such, the movement itself is grappling with what the concept means in practice. Particularly noted is lack of social science engagement and analysis within the framework (Craddock and Hinchliffe, 2015). Bardosh (2016) asserts that for all the discussion about multidisciplinary approaches, there has been significant lack of priority given to the social, cultural, political and economic dimensions that influence zoonotic disease (which is naturally best assessed and addressed by social scientists). The result is that our knowledge of underlying drivers of disease remains partial.

One Health is composed of an assemblage of international institutions, coordinating bodies, new organisation and policy initiatives which all have particular ways of conceptualising and 'doing' global health i.e. partnerships may not necessarily be neutral (Craddock and Hinchliffe, 2015). Smith et al. (2015) cautions that this can reproduce a top down version of scientific expertise, with the role of social science (if any) being relegated to easing delivery and dissemination of pre-established knowledge. For example, Zinsstag et al. (2012: 109) stated: 'what can be achieved in One Health will depend on the ability of society to *understand* and *accept* scientific evidence and guidance for One Health' and that engaging social scientists is the way to achieve this (emphasis added). This is because social science research (qualitative research in particular) typically elaborates a 'factorial' model of disease, with complex social and cultural processes being conceptualised as measurable 'factors', acting as 'barriers' to the effective implementation of global health interventions (Parker and Harper, 2006), therefore it is the role of social scientists to communicate these 'factors' or 'barriers' to scientists and local communities. Such work quickly becomes divorced from theoretical engagements in the social sciences and ends up lacking critical rigour, thereby leaving normative and simplistic ways of seeing unchallenged and reinforcing unhelpful assumptions about targeted populations (Parker and Harper, 2006). Tilley (2011) asserts that this results in the standardisation and simplification of society to make it amenable to interventions, thus rendering local human, animal and ecological worlds as intelligible. It also renders social scientists as nothing more than translators of other scientists' ideas.

Craddock and Hinchliffe (2015) assert that social scientists can go beyond this by playing a vital role in questioning the integrity of One Health concepts by elucidating the effects that uneven power relations, discrepant risks, and unequal access to resources have on vulnerabilities to disease and disease outbreaks. Parker et al. (2016) add that critically engaged research undertaken by social scientists often reveals the mistaken assumptions embedded in global health interventions, as well as the unique ways in which they are shaped by the political, historical, social and economic contexts in which they are delivered. Acknowledging this requires social science-led analysis of the configurations that make health a more, or less, likely outcome. Without this, there is the danger of One Health proposing a new set of expert-driven solutions that, in theory, appear to be all-encompassing in terms of interdisciplinary science, but become compartmentalised from wider and more complex systems of health, poverty and politic (Bardosh, 2016).

Such concerns do not belong to the One Health approach alone and are pervasive throughout all disciplines looking for more-than-biological explanations of health and illness. The WHO's Commission on the Social Determinants of Health[2], a landmark initiative for the agency, has been pivotal in helping to bring to light the various ways in which health risks are socially mediated. The framework (Figure 1) brings together various structural, social and intermediary factors that are believed to configure health inequalities. It proposes to conceptualise how the social, economic and political context can give rise to a set of socioeconomic positions, whereby populations are stratified according to income, education, occupation, gender, race/ethnicity and other factors. These socioeconomic positions in turn shape specific 'intermediary' determinants of health status which are reflective of peoples' place within social hierarchies. Based on their respective social status, individuals can experience differences in exposure and vulnerability to health-compromising conditions, thus resulting in inequitable distribution of health, wellbeing and disease across social groups (McCollum et al., 2019). Illness can 'feed back' on a given individual's social position, e.g. by compromising employment opportunities and reduced

[2] The WHO Commission on the Social Determinants of Health was set up in 2005 in an effort to understand the complexity of issues that define health. They were tasked with summarizing the evidence on how the structure of societies, through myriad social interactions, norms and institutions, are affecting population health, and what governments and public health can do to address it (Solar and Irwin, 2010)

income. Similarly, certain epidemic diseases can also 'feed back' to affect the functioning of social, economic and political institutions (Solar and Irwin, 2010).

Within the framework 'socioeconomic and political context' is broadly defined to include: 'all social and political mechanisms that generate, configure and maintain social hierarchies, including: the labour market; the educational system, political institutions and other cultural and societal values' (Solar and Irwin, 2010: 5). Structural mechanisms (such as governance, macroeconomic policies, social policies etc) are those that generate stratification and social class divisions in society and define individual socioeconomic position within hierarchies of power, prestige and access to resources. Such mechanisms

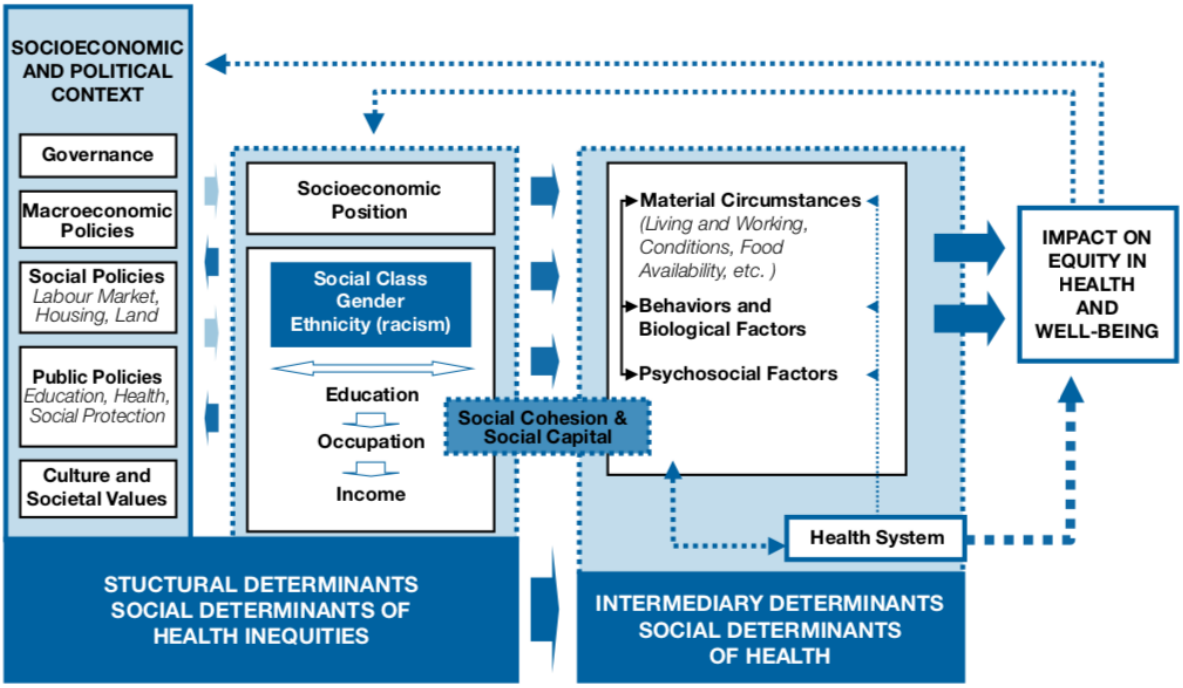


Figure 1: WHO framework on Social Determinants of Health. Source: Solar and Irwin, 2010.

are rooted in the key institutions and processes of the socioeconomic and political context. Solar and Irwin (2010) assert that the most important structural stratifiers and their proxy indicators include: income, education, occupation, social class, gender, race/ethnicity.

Together, context, structural mechanisms and the resultant socioeconomic position of individuals are 'structural determinants,' used as a proxy for 'social determinants of health inequities.' The underlying social determinants of health inequities operate through a set of intermediary determinants of health to shape health outcomes. Opting to use 'structural determinants' and 'intermediary determinants' underscores the causal link between these

two factors. The main categories of intermediary determinants are: material circumstances; psychosocial circumstances; behavioural and/or biological factors; and the health system as a social determinant. Interestingly, and of particular relevance to this thesis, is that the framework conceptualises the health system itself as a social determinant of health. The role of the health system becomes particularly relevant through the issue of access, which incorporates differences in exposure and vulnerability, and through intersectoral action led from within the health sector. As such, the health system plays an important role in mediating the differential consequences of illness in peoples' lives[3] (Solar and Irwin, 2010). Sparke and Anguelov (2012) attest that the Social Determinants of Health report is of especial importance as it brings attention to structural forces as coactive causes of the connections between inequality and poor health. These structural dynamics (sometimes described in terms of 'neoliberalisation') include cutbacks in health services, the deregulation of the workplace, the breakdown of social solidarity, welfare reforms, and structural adjustment policies such as privatisation and financial deregulation, and they have generally contributed to rising inequality and worsening health outcomes at the same time. More explicit reference to some of these structural processes is made in Chapter 4.

2.4.1 Biosocial theory

The conceptual framework on the Social Determinants of Health is underpinned by theoretical concepts looking to investigate the entanglements between biological and social aspects of life. Increasingly, medical anthropologists, social epidemiologists and other 'resocialising' disciplines (Farmer, 2013: xvi) draw upon biosocial and ecosocial theories to explore this. A biosocial approach posits that biological and clinical processes are shaped by society, political economy, history, culture and are therefore best understood as interactions of biological and social processes – hence 'biosocial' (Hanna and Kleinman, 2013). Such approaches were in part borne out what Farmer terms (2010: 376) the 'desocialisation' of scientific enquiry, i.e. a tendency to ask only biological questions about what are in fact biosocial phenomena. In response to this, he advocates for a biosocial approach as an analytic framework which can situate illness in its socio-political

[3] Throughout this thesis I use health system to refer to all health facilities throughout Tanzania, from small village dispensaries to large zonal hospitals.

contexts, its appeal lying in its fluidity to move between different disciplines (thus being of considerable interest to One Health). Biosocial approaches are considered systems approaches, where Kearns (1993) contrasts biomedical culture's linear notion of progress with the interactive and systems orientation of more biosocial paradigms. Robbins (in Richardson, 2016) aptly puts that systems approaches provide: 'a lens with which to view the swirling political and economic relationships that dialectically produce levees and slums, soils and dams, tourism and hunger, energy and climate,' with Richardson et al. (2016: 2) adding: 'health systems and pandemics.'

Such approaches build directly on the work of Goodman and Leatherman (1998), Kleinman et al. (2008), Leatherman and Goodman (2011), Farmer et al. (2013) and Singer (2015), all of whom have argued the case for developing critically engaged, biosocial perspectives on health and disease. Goodman and Leatherman's edited collection: 'Building a New Biocultural Synthesis' for example emphasizes the need for researchers to reflect on the way in which historical, political, social and economic relations shape power relations and the impact this can have on 'local biologies' (Goodman and Leatherman, 1998: 15). 'Local biologies' is a term associated with the work of Margaret Lock (Lock, 1993, 2001), who has challenged the notion of homogeneous and universal biological knowledge, and has argued that understandings of the body, and therefore of diseases, ceaselessly interact with local environments, and are indistinct from other aspects of culture.

Calls for theoretical models which reflect the entanglement of social and biological phenomena have also been made within other health literatures. Social epidemiologist – Nancy Krieger has made the case for an 'ecosocial' theory of health (Krieger, 1994, 1999). Ecosocial theory seeks to integrate social and biologic reasoning, along with a dynamic, historical, and ecological perspective, to address population distributions of disease and social inequalities in health. Krieger (2001: 693) asserts that embodiment is an important concept in ecosocial theory as it captures the idea that: 'people literally embody and biologically express experiences of economic and social inequality, from *in utero* to death, thereby producing social inequalities in health across a wide spectrum of outcomes.' This view challenges the notion that advent of disease is purely biological or inevitable, but rather should be viewed as a biocultural phenomenon wherein social factors generally play

a crucial role in its emergence, spread and governance (Wolf, 2015). Thus, the benefit of an eco/biosocial framework is in bringing forward the conceptualisation of health differentials as socially produced through and within dynamic biological processes; 'the biological is not rejected but understood in process with social relations' (Krieger, 1999: 679)

Singer and Clare (2003), Kleinman et al. (1997, 2008), Sommerfeld (2003), Farmer et al. (2013) and Alley and Sommerfeld (2014) all emphasize the multi-disciplinary nature of biosocial and ecosocial approaches. They rightly point out that such approaches necessarily involve drawing upon insights from a diverse range of disciplines in the biological and social sciences. Farmer (2013: xii) in particular refers to combining 'resocialising disciplines' such as anthropology, sociology, history and political economy with fields like epidemiology, demography, clinical practice, molecular biology, and economics. One Health already predicates itself on cross-sectoral, interdisciplinary approaches thus by emulating a biosocial approach there is opportunity to achieve a more equitable split between the social and biological sciences. This would necessarily bring a more critical understanding of the mechanisms and processes that link disease emergence to wider socio-economic contexts which thus shape health inequalities.

2.4.2 Biosocial approaches and One Health

With the rising popularity of One Health, there have been an increasing number of studies which have used such approaches to reconsider One Health challenges, particularly zoonotic disease outbreaks. For example, Richardson et al. (2016) use a biosocial approach to redress the 2013-2016 Ebola pandemic. They situate the life stories of four Ebola survivors in Kono district, Sierra Leone via a biosocial approach to bring into sharper focus how political economy, colonialism, patrimonialism, human rights abuses, ecology and culture as a claim of causality conspired together to configure the spread of transmission of the Ebola virus. Their study highlighted the survivors' embodiment of poverty and inequality when faced with Ebola, ultimately resulting in preventable deaths of hundreds of thousands of individuals. They conclude that obscuring these 'distal' determinants of health is to obscure the role of human rights failings in the role of the 2013-2016 outbreak (Richardson et al., 2016).

Dzingirai et al. (2017) also adopted a biosocial approach to their study of zoonoses in different parts of Africa. They assert that the One Health narrative in its current format can create a technical 'anti-politics' of One Health, where the underlying political, social and cultural factors that may have a potential bearing on emergence of zoonotic diseases are hardly considered. In their study on trypanosomiasis, Rift Valley Fever (RVF) and Ebola and Lassa fever, they explore how patterns of vulnerability to these diseases are constructed through structural political–economic factors over time. In Zimbabwe for example, expanding for-profit farming and investments in dam infrastructure pushed populations into increasingly marginalised, disease-prone areas – where disease risk was exacerbated by commercial interests in wildlife hunting and carbon sequestration. In Kenya, political marginalisation and long-term underdevelopment of pastoral areas has resulted in increased exposure to RVF and limited outbreak response and treatment facilities. Meanwhile, the very same areas have been appropriated by the state and private enterprise for new dams and irrigation schemes, excluding pastoralists from dry season grazing reserves and changing the disease ecology, further enhancing the vulnerability to those making use of irrigation areas for grazing and farming (Dzingirai et al., 2017).

These cases demonstrate how disease outbreaks and transmission dynamics are affected by historical, political–economic processes, rooted in structural relations of politics and interests. Ecology, demography and livelihoods intersected with entrenched political and economic forces to produce vulnerability. These diseases do not just solely emerge in particular localities through immediate drivers of climate, ecology, demography and livelihood practices, but rather they are produced in conjunction through long-term forces linked to political, commercial and security interests. 'Structural violence' and political ecologies intersect to generate vulnerabilities for particular people. The authors conclude that these findings have huge implications for One Health approaches. They assert that One Health must move beyond a focus that emphasizes only the integration of multiple disciplines at various scales to ensure health for people, animals and environment. More than that, it must also reject an anti-political, technocratic approach and embrace a wider analysis of historical political economy and ecology. This would necessarily foster a greater appreciation of the structural drivers that give rise to disease in the first place (Dzingirai et al., 2017). While these studies highlight the need for a truly integrated, biosocial approach

to one health, in reality it is unclear how to address this in practical terms. See Person et al. (2016), Bardosh et al. (2016) and Pearson (2016) for examples of biosocial research that have made attempts to integrate both social science research with epidemiological data in order to provide effective, locally relevant intervention programmes.

2.5 Social suffering and structural violence

The studies by Dzingirai et al. (2017) and Richardson et al. (2016) demonstrate how a biosocial approach to zoonotic disease (and illness in general) can reveal the underlying political-economic forces that drive health inequalities and vulnerability. A key concept to which both studies allude is that of 'structural violence.' Kleinman et al. (1997: ix) describes this as: 'what political, economic and institutional power does to people, and reciprocally, how these forms of power themselves influence responses to social problems.' In other words, institutions and their agents can enact violence in the name of health and welfare and social forces, including economics, politics, social institutions and social relationships can cause pain and suffering to individuals. Kleinman et al. (1997: ix) further elaborates that 'social suffering' captures the lived experiences of distress and injustice, while exposing the 'often close linkage of personal problems with societal problems.' In effect challenging the problematic tendency to focus mainly on the individual and ignore broader determinants.

In general terms, Winter and Leighton (2001: 99) assert that structural violence is the violence of injustice and inequity which is 'embedded in ubiquitous social structures [and] normalised by stable institutions and regular experience.' Rylko-Bauer and Farmer (2016) describe structures as social relations and arrangements – economic, political, legal, religious or cultural – that shape how individuals and groups act within a social system. These include broad-scale cultural and political-economic structures such as caste, patriarchy, slavery, apartheid, colonialism, and neoliberalism, as well as poverty and discrimination by race, ethnicity, gender, sexual orientation and migrant/refugee status. They go on to state that these structures are violent because they result in avoidable deaths, illness, and injury; and they reproduce violence by marginalising people and communities, constraining their capabilities and agency, assaulting their dignity and sustaining inequalities (Rylko-Bauer and Farmer, 2016). The 'violence' part of the concept

lends the needed sense of both brutality and intent and focuses attention on the reduction to bare life as well as the premature and untimely deaths of people (Mukherjee et al., 2011; Gupta, 2012). As Farmer (2010: 369) aptly states:

> 'Structural violence is structured and stricturing. It constricts the agency of its victims. It tightens a physical noose around their necks, and this garrotting determines the way in which resources – food, medicine, even affection – are allocated and experienced.'

The term 'structural violence' was first introduced by Norwegian sociologist Johan Galtung (1969) who was the main founder of Peace and Conflict Studies and of the Journal of Peace Research. Galtung defined peace as not only the absence of direct physical violence but also what he termed indirect structural violence, caused by forces such as poverty, marginalisation and exploitation. Galtung explicitly linked structural violence to unequal power, especially 'the power to decide over the distribution of resources,' which results in 'unequal life chances' (Galtung, 1969:171). A key facet of the concept is that of avoidable harm. Invoking the difference between 'the actual' and 'the potential' to illustrate this, Galtung argues that: 'violence is present when human beings are being influenced so that their actual somatic and mental realizations are below their potential realizations.' (Galtung, 1969: 168). In other words, people from disadvantaged backgrounds are often forced to live miserable and precarious lives until they die prematurely, unable to reach their full potential in life (Sen, 1999) or to realise their hopes and dreams. Galtung further states that violence is defined as the cause of the difference between the potential and the actual, it increases the distance between the potential and the actual and it impedes the decrease of this divide. He uses the example of tuberculosis to illustrate this: 'if a person died from tuberculosis in the eighteenth century it would be hard to conceive of this as violence since it might have been avoidable, but if he dies from it today, despite all the medical resources in the world, then violence is present' (Galtung, 1969: 168). He goes onto say that 'the case of people dying from earthquakes today would not warrant an analysis in terms of violence, but the day after tomorrow, when earthquakes may become avoidable, such deaths may be seen as a result of violence.' (Galtung, 1969: 168).

Paul Farmer, who draws extensively on the idea of structural violence in relation to human rights and health, recalls his experience in Haiti to illustrate the concept of avoidable harm.

He asserts that in addition to the direct deaths caused by the 2010 earthquake, many indirect deaths and fatalities were largely avoidable due to lack of clean water, inadequate shelters, insufficient food and poor access to medical care. He described the earthquake as an 'acute-on-chronic' event – where instantaneous direct violence combined with layers of slow, deeply rooted, pervasive and multifaceted structural violence. Haiti is also plagued with TB, and to this day structural violence continues to play itself out in the daily lives and deaths of the part of the population living in poverty (Farmer, 2004).

Galtung uses structural violence interchangeably with social injustice, linking it to the notion of social and economic rights (Lykes, 2001). As such it becomes a morally weighted term, resonating with other scholars and advocates who have explored the relationship between violence and injustice. For example, Martin Luther King Jr. (1966) referred to 'the violence of poverty.' King believed poverty was the result of ongoing economic exploitation, low wages and income inequality; it was the inevitable outcome of steps taken by the privileged classes to sustain their privileges (Jones, 2018). The working class and poor were condemned to segregated, ghettoised neighbourhoods, chronic unemployment and low-paying, meaningless jobs that contributed little to community improvement. Pervasive and persistent want demoralized the poor, undermined human dignity and led to family disintegration, drug and alcohol abuse, violence and crime. The 'violence of poverty,' King asserts, destroyed 'the soul and bodies of people,' (King, as cited in Jones, 2018 n.p.) making it a moral evil. Similarly, others have written about the violence of racism (Geiger, 1997; O'Neil, 2009; Oliver, 2001; Farmer, 2005; Hamer, 2015). Garver (1973) characterised violence as the violation of fundamental human rights, illustrated through examples from inner city life in the US. His category of covert institutional violence that: 'operates when people are deprived of choices in a systematic way by the very manner in which transactions normally take place' is similar to Galtung's structural violence (Garver 1973:265). Paulo Freire (2004: 118) also wrote that violence 'refers not only to direct, physical violence, but also to … violence and hunger, violence and the economic interests of superpowers, violence and religion, violence and politics, violence and racism, violence and sexism, violence and social classes'—in effect referring to structural violence. Conceptually, Farmer's invocation of structural violence has been open to criticism by Wacquant (2004) and Bourgois and Scheper-Hughes (2004) and others who assert the

terms needs to be elaborated, complicated, diversified and redefined. Biehl and Moran-Thomas (2009) and Bourgois and Scheper-Hughes (2004) state that greater attention is needed on the ways in which structural violence is understood locally, by examining emotions, perceptions and meanings within studies of how those affected by poverty, exclusion, and discrimination respond against or adapt to these assaults. This includes assessing how poverty, racism and exclusion create contexts of shame, stigma, humiliation, loss of respect, and violation of self-integrity which in turn affect health, wellbeing and interpersonal relations, and can sometimes lead to self-destructive, extra-legal activities and physical, even collective, violence (Benson, 2008; Bourgois, 2003; Bufacchi, 2007; Gilligan, 1997; Metz et al. 2010; Uvin, 1999).

Bourgois and Scheper-Hughes (2004) insist that structural violence is only one among several forms of less visible violence that are interconnected in complex ways. 'Symbolic violence' is commonly associated with sociologist Pierre Bourdieu (2000) and refers to sociocultural mechanisms and relations of unequal power and domination that exist within interpersonal relationships and in other spheres of life. It is embedded in ordinary daily life, manifested through language, symbolism, and actions that are perceived by both perpetrator and victim as normal or deserved. Symbolic violence is so powerful precisely because it is unrecognisable for what it is '[its power] rests… in its lack of visibility' (Morgan and Bjorkert, 2006: 448). A classic example is of intimate partner violence, where women blame themselves and are blamed by others for the violence perpetrated against them. 'Normalised violence' is most commonly associated with Bourgois (2001) and is an adaption of Scheper-Hughes 'everyday violence' (1992). This term was used to highlight the extreme poverty and high infant and child mortality that characterised life in Brazilian shanty towns. The concept of normalised violence recognises the indifference in broader society and identifies mechanisms by which violence becomes an inevitable part of everyday life for its victims. Bourgois and Scheper-Hughes assert that other concepts consistent with Farmer's invocation of structural violence include: Arendt's (1994) 'banality of evil,' Levi's (1989) 'gray zone,' Basaglia's 'peace-time crimes' Agamben's (2000) 'impossibility of witnessing,' Foucault's (1978) 'biopower,' Scheper-Hughes and Bourgois (2004) 'violence continuum' and Kleinman (1997) and 'social suffering.' Farmer (2005) himself admits that the term is a highly capacious concept that he does not wish to diminish

through sharp definition. He notes that it: 'takes its toll in ways that seem to defy explanation.' (2005: 28). As Sen (2005: xv) notes:

> 'A rich phenomenon with inherent ambiguities calls for a characterisation that preserves those shady edges, rather than being drowned in the pretence that there is a formulaic and sharp delineation waiting to be unearthed that will exactly separate out all the sheep from all the goats.'

Throughout this thesis I take advantage of the capaciousness of the term to uncover the ways in which not only structural but multiple violences permeate the health seeking process – from the everyday, inevitable, silent and normalised. I stay true to Galtung's notion of avoidable harm by paying explicit attention to the experiences of the poor and the ways in which their inability to pursue effective remedial actions for fever is, in the 21st century, largely avoidable. In doing so I can highlight how these violences manifest themselves in real lives, in real people and the emotional and physical toll they take when pursuing good health and wellbeing.

2.6 Structural violence and agency

So far, I have discussed in some depth how wider structural forces may come to determine health and illness. Yet, in doing so tends to obscure the experiences of the poor when designing strategies to respond to illness. In 'Partner to the Poor' (2005) Farmer describes the plight of Robert David, a Haitian native who struggled with multi-drug resistant tuberculosis (MDRTB) over a period of nine years before eventually succumbing to his illness. Throughout the course of his illness, Robert visited numerous health facilities and was prescribed various drug regimens to combat his persistent and unrelenting TB, with no real improvements in his condition. During this period, Robert's family made huge financial sacrifices in order to help him secure the costs for treatment, including selling half of the land they owned. It was not until Robert met Dr Farmer several years later that his sputum samples were sent outside of Haiti to the US, where tests revealed the TB he had was resistant to several antibiotics (thus confirming MDRTB) including the ones he had previously been prescribed. The only antibiotics that were effective were not available in Haiti and had to be imported from the US. After starting this new drug regimen he showed marked improvement for some time, but the MDRTB eventually returned after one year and Robert succumbed to his illness in December 1995, age 29, in his sister's home.

Robert David's lamentable experience brings into sharp relief the complicated relationship between individual agency and structural violence. Robert could not be faulted in his admirable attempts to seek remedial actions for chronic TB yet forces outwith his control ultimately resulted in his untimely death. Taking a biomedical view of Robert's story would place an overemphasis on his lack of compliance to his drug regimens, yet nowhere would we read about the insurmountable barriers to effective biomedical care he, and the overwhelming majority of those living in poverty face. Just as the poor are more likely to find themselves to develop 'diseases of poverty' (including endemic zoonoses), they are also the very ones who are unable to secure adequate treatment for such diseases. Farmer argues that: 'When structural violence is overlooked, agency is often overestimated, constraint underestimated and attentiveness to life stories... usually reveals that their illness is the latest in a string of tragedies.' (Farmer, 2013: 31).

Throughout this thesis I draw on the concept of 'health seeking behaviour' in an attempt to highlight the complex interplay between agency and structural violence when responding to illness. Tracing the remedial actions livestock keepers undertake in response to illness (zoonotic or otherwise) allows me to understand both the role of individual behaviour and wider social factors that influence the health seeking processes. In doing so I am able to disclose the structural and everyday violence embodied by individuals in their personal experiences of human and livestock febrile illness. In this section I review three prominent health seeking behaviour models - the Health Belief Model (HBM), the ACCESS model and the PASS model, highlighting how I have drawn elements from each to inform my research. I conclude this chapter with discussion on ways in which health seeking behaviour can be conceptualised within a biosocial approach in order to recognise both the power of agency and structure in health-related decision-making. I also make specific reference to how such an approach can further One Health discourse by taking a detailed look at how the interplay of these factors manifest themselves in both the animal and human health seeking process.

2.7 Health seeking behaviour

Health seeking studies focus on people (Suchman, 1965; Chrisman, 1977; Kleinman, 1981). They apply pathway models and follow sick individuals step by step from the recognition of symptoms through different types of help seeking until they feel healed or capable of living with their condition. Such studies are believed to provide a deeper understanding of why, when and how individuals, social groups and communities seek access to health care services, as well as investigating the interactions between public and health professionals (Montgomery et al., 2006). In this perspective, social actors are the potential driving force for improving access to effective and affordable health care, but as discussed in this chapter thus far, they are often constrained by wider political-economic and social processes (Singer and Baer, 1995; Farmer, 1999; Baer et al., 1997). A cursory glance of the prevailing literature on health seeking behaviour (HSB) reveals a plethora of different models and frameworks addressing particular aspects of this body of research. MacKian (2003, after Tipping and Seagall (1995)) roughly divides these into two different types; those which focus on end point utilisation of the formal health care system and those which emphasise the *process* of illness response.

2.7.1 The process of illness response

Studies that focus on the process of health seeking behaviour take their roots in social and medical psychology and explore health seeking behaviours more generally. They are premised on identifying the factors that enable or constrain people from making affirmative, health promoting behaviour change (MacKian et al., 2004). There have been a myriad of social cognition models attempting to conceptualise possible behaviour patterns and its affects on health, based on a mixture of demographic, social and cognitive factors. Traditionally, these models tended to focus on identifying, quantifying, and understanding the impact of individual-level determinants of specific health behaviours (MacKian, 2003). Some examples include the 'Theory of Reasoned Action' (Fishbein and Ajzen, 1975); Theory of Planned Behaviour (Ajzen, 1991); and the Transtheoretical Model (Prochaska and Velicer, 1997). These models allow an understanding of people's behaviour beyond their knowledge, attitudes and practices (which have been criticised for being superficial and reductionist (Parker et al., 2016)). However, it is the Health Belief Model (HBM) which has been most widely used within public health. Originating in the 1950's, the HBM was created by the US Public Health Service Department to explain why public health preventive

services were not successful. The use of the model was later expanded for insight into compliance with medical prescriptions (Janz et al., 1984; Turner et al., 2004; Olsen et al., 2008). The HBM framework is shown in Figure 2.

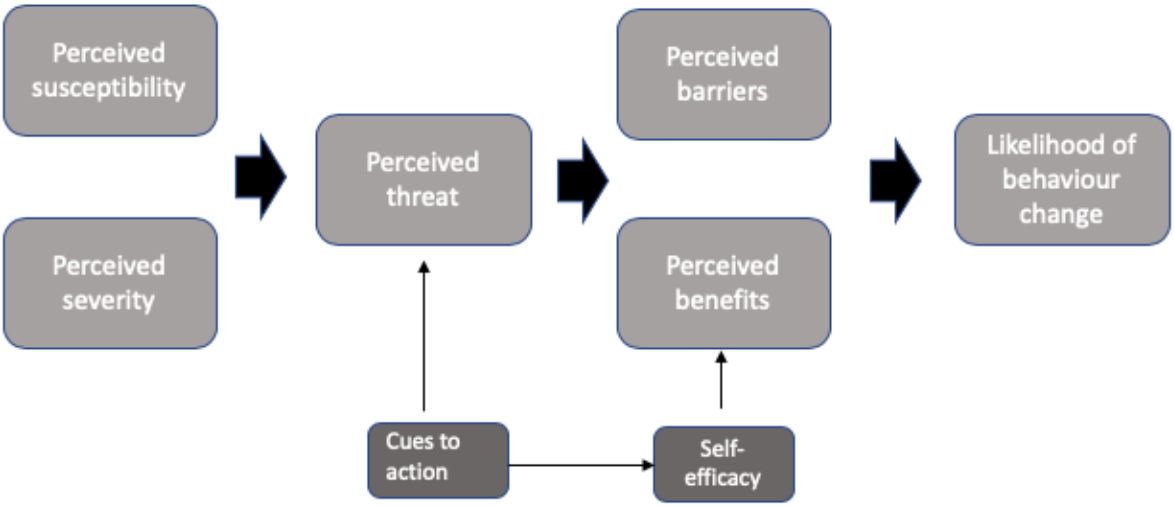


Figure 2: Health Belief Model. Adapted from Metta (2016)

The central posits of the HBM are based on the beliefs that 'behaviour is a function of the subjective value of an outcome and of the subjective probability or expectation that a particular action will achieve that outcome' (Tanner-Smith and Brown, 2010: 100). The model is based on the idea that people are more likely to change their behaviour and adhere to treatments if: (i) they perceive that they are at risk of contracting the disease (perceived susceptibility), (ii) they perceive the disease might have an unfavourable outcome (perceived severity), (iii) they perceive the proposed health behaviour to be both effective and practical (perceived benefits), (iv) they perceive the barriers to adopting the behaviour to be minimal (perceived barriers), (v) they perceive themselves to have the ability of applying and practicing the specific behaviour proposed (perceived self-efficacy), and (vi) they have the cues for motivating their actions such as internal cues (pain, symptoms, past experiences) or external cues (advice from friends, relatives and mass media campaigns) (cues to action) (Rosentsock et al., 1988; Janz et al., 1984; Turner et al., 2004; Olsen et al., 2008; Metta, 2016).

The specificity of the HBM to health made it suitable for use in understanding and explaining the behaviour with regard to health outcomes – and this may also explain its

wider use in public health (Hausmann-Muela et al., 2003). Specifically, the model has been applied to help increase voluntary screening rates for cervical cancer (Hay et al., 2003); cancer support group participation (Sherman et al., 2008); breast self-examination (Champion and Menon, 1997); chronic disease management (Clark et al., 1988); predicting the uptake of vaccinations (Brewer et al., 2007) and HIV prevention and risk perceptions (Bailey et al., 2008) to mention a few.

There are various elements of HBM which I consider to be useful for this study, particularly in assessing the perception of risk when fever sets in as well as in explaining the agential processes that influence individual decision-making processes. However, the main criticism of the HBM, and of social cognition models in general, are that most view the individual as a rational decision maker who can 'maximise utility' by systematically reviewing available information and forming behaviour intentions from this (MacKian, 2003). They do not allow any understanding of *how* people make decisions (rational or not), or a description of the *way* in which people make decisions (MacKian, 2003, emphasis in original). For example, when an individual makes a decision in relation to their health, they weigh up the potential risks or benefits of a particular behaviour (as alluded to in the HBM) but they do so in a way that is mediated by their immediate practical environment, their social rootedness and their outlook on life more generally. Not all of this is immediately apparent to an act of health seeking behaviour but it is all nonetheless inherent to that act, and must therefore be acknowledged. As seen in Robert David's experience of MDRTB, focussing solely on the centrality of cognitive processes overemphasizes the agency of individuals and underestimates the ways in which people's ability to respond to illness is constrained by social, structural and economic forces outwith their control.

2.7.2 End point utilisation

Studies focussing on end point utilisation of health systems generally are more cognisant of the importance of social context in health seeking behaviour. They have a particular focus on various socioeconomic factors that facilitate or inhibit engagement with formal health systems. These are usually categorised by the types of barriers or determinants (such as social, cultural, economic etc) or by the processes or pathways at work. For example, Bedri (2001) developed a pathways to care model in her exploration of abnormal

vaginal discharge in Sudan. She identifies four 'sub pathways' that women may follow, from seeking modern medical care immediately, to complete denial and ignoring of symptoms. This study is particularly interesting as it revealed that women will follow different pathways for different conditions (she also conducted a similar study in response to malaria), relating predominantly to the role of the husband, social networks and cultural customs (see Bedri, 2001). Bedri asserts that such an approach offers an opportunity to identify key junctions where there may be a delay in seeking competent care and is therefore of potential practical relevance for policy development.

Other studies focussing on delay in accessing treatment include the 'Three Delays Model' initially conceptualised by Thaddeus and Main (1994). They posit that i) a delayed decision to seek care, ii) delayed arrival at a health facility and iii) delayed provision of adequate care all contribute to increased likelihood of maternal mortality. The authors state that while it is widely accepted that distance and cost are major obstacles in the decision to seek care, there is evidence that people often consider the quality of care more important than cost. Yet, these three factors (distance, cost and quality) alone do not provide a full understanding of decision-making process. Their salience as obstacles is ultimately defined by illness-related factors, such as severity, when in reality differential use of health services is also shaped by other variables as gender and socioeconomic status. Moreover, patients who make a timely decision to seek care can still experience delay, due to the accessibility to health services. For example, in rural areas, a woman with an obstetric emergency may find the closest facility equipped only for basic treatments and education, and she may have no way to reach a regional centre where resources exist. Finally, arriving at the facility may not lead to the immediate commencement of treatment. Shortages of qualified staff, essential drugs and supplies, coupled with administrative delays and clinical mismanagement, become documentable contributors to maternal death (Thaddeus and Maine, 1994). As such, the study highlights the complexity of factors that lead to delay, factors that do not solely reside within the decision-making capacity of the individual but rather are shaped by wider forces outwith their control, with the potential to result in avoidable death and suffering.

2.7.3 The ACCESS Model

Of particular interest to this research is the ACCESS[4] model (designed by Obrist et al., 2007) which situates health care utilisation within the broader context of livelihood insecurity (as shown in Figure 3). Access is the key issue within this model – both to livelihood assets as well as to health systems. The authors assert that a person's decision to actually seek treatment either through drug stores or other health care services largely depends on their access to household, community and wider societal assets. These comprise human capital (local knowledge, education, skills), social capital (social networks and affiliations), natural capital (land, water, and livestock), physical capital (infrastructure, equipment and means of transport) and financial capital (cash and credit) (DFID, 1999).

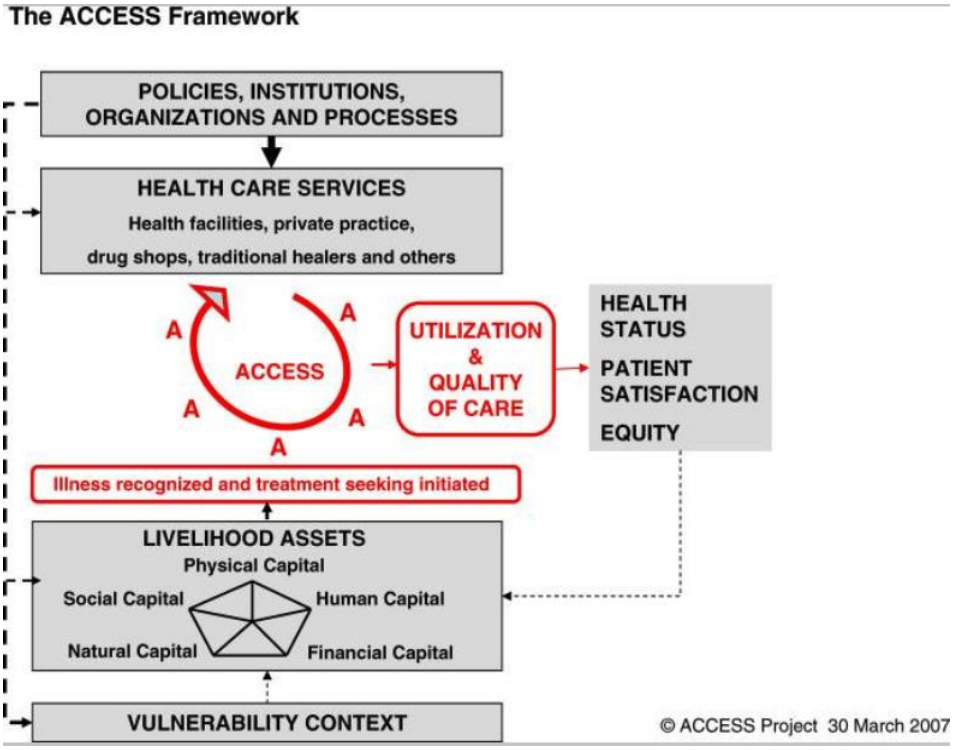


Figure 3: The Health Access Livelihood Framework. Source: Obrist et al. (2007)

Using their study in the Kilombero Valley in Southeastern Tanzania, the authors demonstrate how subsistence rice farmers in this region tap into their livelihood assets to pay for malaria health treatment. For nearly all members of the study communities, land is the backbone of their livelihoods (natural capital). In order to raise money for renting

[4] The ACCESS model is influenced by the Sustainable Livelihood Approach (Carney, 1998) where livelihood assets are deemed critical for pathways out of poverty.

transport to go to hospital, buying drugs and paying for treatment – farmers often have to tap household savings, sell food stock, borrow from local money lenders or work as casual labourers (financial capital). Often, family members and friends will assist by taking sick children to health care services, helping with hospital bills and provide practical and moral support (social capital). If families own vehicles (physical capital) – such as a bicycle or motorbike this then facilitates treatment by removing the need to raise cash to rent transport from a third party. A study by Chuma (n.d.) in Kenya demonstrated the difficulty people face in gaining access to household and community assets which then constrains their strategies to cope with illness. As such, the ability to not only possess, but mobilise resources and assets is a critical factor influencing people's access to health care, with the ability to delay access to treatment.

Access to health systems becomes a critical issue once illness is recognised and treatment seeking is initiated. Obrist et al. (2007) assert that this is mediated through the five domains of accessibility (highlighted in red in Figure 3). These are outlined in Table 1 and include (physical) accessibility, affordability, acceptability and adequacy (after Penchansky and Thomas 1981). The authors assert that the degree of access reached along these five dimensions depends on the interplay between health services and wider structural processes - what they call 'PIOPS' (policies, institutions, organisations and processes) that govern the services as well as the livelihood assets people can mobilise. The combination of these three factors are what the authors refer to in the model as the 'vulnerability context.'

Dimension	Related Questions
Availability: The existing health services and goods meet clients needs	• What types of services exist? • Which organisations offer these services? • Is there enough personnel? • Do the offered products and services correspond with the needs of poor people? • Do the supplies suffice to cover the demand?
Accessibility: The location of supply is in line with the location of clients	• What is the geographical distance between the services and the homes of the intended users? • By what means of transport can they be reached? How much time does it take?
Affordability: The prices of services fit the clients' income and ability to pay	• What are the direct costs of the services and the products delivered through the services? • What are the indirect costs in terms of transportation, lost time and income, bribes and other 'unofficial' charges?
Adequacy: The organisation of health care meets the clients' expectations.	• How are the services organised? • Does the organisational set up meet the patients' expectations? • Do the opening hours match with schedules of the clients, for instance the daily work schedule of small-scale farmers? • Are the facilities clean and well kept?
Acceptability: The characteristics of providers match with those of the clients.	• Does the information, explanation, and treatment provided take local illness concepts and social values into account? • Do the patients feel welcome and cared for? • Do the patients trust in the competence and personality of the health care providers?

Table 1: Five domains of health care access. Source: Obrist et al. (2007)

The ACCESS model is appealing as the livelihood aspect is often overlooked in studies on health seeking. While it has been acknowledged that ill health contributes to poverty because of the costs associated with seeking care, it is hardly recognised that people often cannot gain access to services or initiate treatment seeking because they cannot mobilise critical livelihood resources. Thus, the ACCESS model represents a significant advance in consideration of how wider social context comes to influence the strategies individuals undertake in response to illness. This can ultimately lead to the identification of key entry points and targeted action for health and poverty alleviation.

2.7.4 Pathway models

More recent health seeking behaviour models have attempted to combine the process of illness response (as identified in the HBM) with end point utilisation, as well as acknowledging the wider social context in which behaviour is embedded. Pathway models start with recognition of symptoms and centre on the path that people follow until they make first contact with a health facility. Factors are sequentially organized, according to the different key steps (i.e. recognition of symptoms, decision-making, medical encounter, evaluation of outcomes, re-interpretation of illness) which determine the course of the therapy path (Hausmann-Muela et al., 2012). Throughout my search on health seeking behaviour models, I found the PASS model (Figure 4, designed by Hausmann-Muela et al., 2012) to be the most comprehensive, structured model that incorporates all aspects of the health seeking process, from recognition of symptoms to utilisation of a health service provider. It is primarily this model which my thesis draws upon.

The origins of the PASS model are founded in a Disease Control Priority Project working paper on 'health seeking behaviour and the health system response' (Hausmann-Muela et al., 2003) which reviewed a range of health seeking behaviour models applicable to malaria in particular with reflections on their strengths and weaknesses. The idea behind the PASS model was to select elements from different access and HSB models and merge them together on theoretical foundations. The model is described by Hausmann-Muela et al. (2012) as an easy to use hands on tool to develop theory-based hypotheses that cover as many aspects as possible without losing sight of the real aim i.e. to identify the principle reasons determining HSB and access to care in marginal communities.

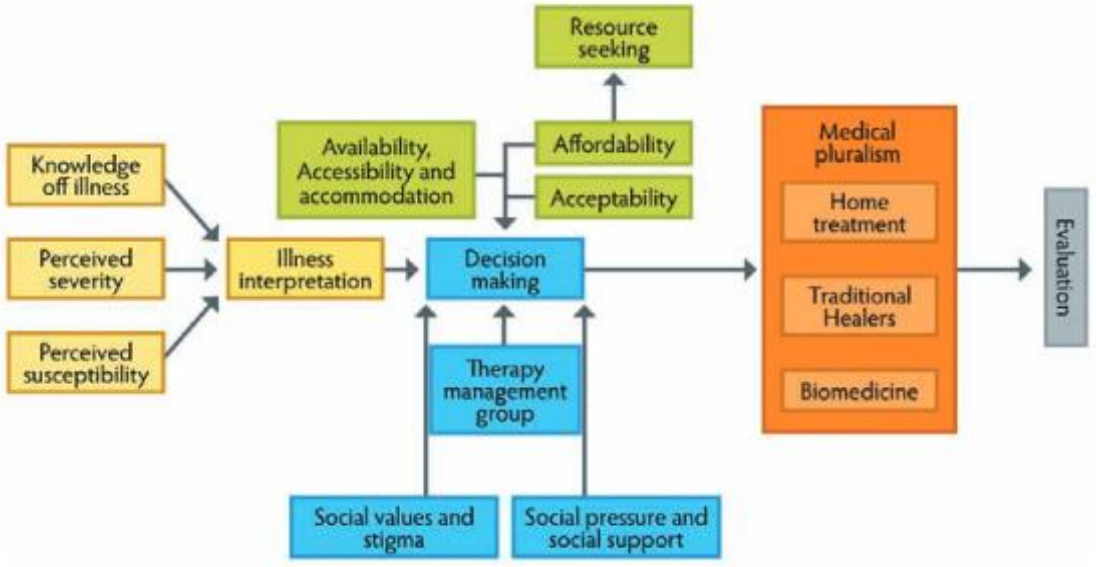


Figure 4: PASS model for health seeking behaviour and access to care research. Source: Hausmann-Muela et al. (2012)

The model is built on the backbone of a pathway model and at its core is a framework used for describing the steps of the path that people follow when pursuing remedial actions in response to ill health. It focuses on the factors involved in each step that hinder or facilitate prompt treatment and access to care. The model organises its factors into four main categories: i) illness perception and explanatory models (in yellow); ii) decision-making and social values (blue); iii) access to care and resource seeking (green); and iv) medical pluralism (orange). The authors assert that behind the model are worldviews, social structures and values, and medical organisations that build the context of health seeking processes and furnish the different factors at play with specific meaning (Hausmann-Muela et al., 2012).

The PASS model allows for considerable extension of the HBM and ACCESS model as it combines the process of illness response (HBM) as well as endpoint utilisation (ACCESS). As such, it permits a fuller view of the wide range of potential factors considered relevant for explaining or predicting health seeking behaviour. It pays explicit attention to the cognitive processes that lead up to treatment seeking being initiated – such as knowledge of illness and perceived severity and susceptibility; it focuses on decision-making and the social factors involved in illness response; it recognises the importance of access to

livelihood assets, as well as conditions that configure access to health systems – all within a sequential, step-wise process. As such, the PASS approach allows documentation of the full health seeking process – from recognition of symptoms, decision-making and engagements with the health system.

2.8 Situating health seeking behaviour within a biosocial approach

While the ACCESS and PASS models represent an advancement on ways in which traditional health belief and health care utilisation models can be conceptualised, there are still some inherent gaps which can be addressed by considering these approaches through a biosocial lens. While both models make efforts to contextualise individual health seeking behaviour within wider societal and structural processes, these have not been acknowledged explicitly nor has the resultant violence this enacts on individuals been explored in relation to health seeking behaviour (and even less so in relation to livestock illness). As such there is still a tendency for these models to overemphasize the agency of the individual to choose and follow behaviour which is considered adequate, and who acts independently of the wider social environment. As I have discussed extensively throughout this chapter, there is a need to look beyond the actions of the individual and to scrutinise in detail the ways in which agency is constrained by broader social forces. Capacity to do so usually fall out of the remit of traditional health seeking behaviour models (Williamson, 2000). This is why in this thesis I look to combine health seeking behaviour alongside the main concepts discussed throughout this chapter (biosocial analysis, social determinants of health, structural violence and social suffering) in order to obtain a fuller picture of the embodied, subjective experiences of livestock keepers seeking health care for themselves, their families and their livestock. By situating HSB within a biosocial approach to health, we begin to see the value of understanding HSB not as something that resides in the individual, but as a reflection of wider societal structures and processes that can enact violence and suffering on individuals. Thus, using health seeking behaviour as a tool allows me to document how structural violence 'operates in real lives' (Bourgois and Scheper-Hughes, 2004: 318).

Situating health seeking behaviour within a biosocial approach will also allow me to contribute to the social science remit within the SEEDZ and BACZOO projects, and to One

Health more generally, as there has so far been little synthesis of knowledge that scrutinises health seeking behaviour for both animal and human illness within the same context. The incorporation of critical theorisations of health seeking can provide a more nuanced understanding of the ways in which animal and human health is experienced and situated within wider social, political and economic dynamics. Specifically, I aim to look at the structural preconditions of animal and human health care systems and how these may reinforce patterns of violence and suffering among individuals who seek out their services. As highlighted in the Social Determinants of Health model earlier in this chapter, the health system is important for mediating access to essential health services. As such, exactly how health systems come to enact violence and suffering among individuals who seek out their services is worth further scrutiny. The SEEDZ project in particular focusses on drivers of zoonoses which should necessarily allow consideration of the health system and its role on this. Considering health seeking behaviour through structural violence lens also adds a politicised element to the SEEDZ project, wherein individual experience of illness is considered in relation to historical, political and socioeconomic factors. Positioning health seeking behaviour within the framework of the biosocial places emphasis on these structural conditions and moves the locus of control away from the individual. It thus renders the tool far more meaningful in helping to understand utilisation of services within these systems. Moreover, focussing on animal and human health seeking behaviour concurrently has the added dimension of giving insights into where these factors converge or diverge throughout the health seeking process for both people and livestock. This is especially pertinent for One Health as understanding the differences, or indeed the overlaps, in how people experience and contend with livestock and human illness can provide important insights into how to design contextually appropriate zoonotic interventions.

2.8.1 Conceptualisation of key themes

Figure 5 overleaf provides an illustration of the key elements from biosocial approaches and the ACCESS and PASS models I draw upon to inform my research.

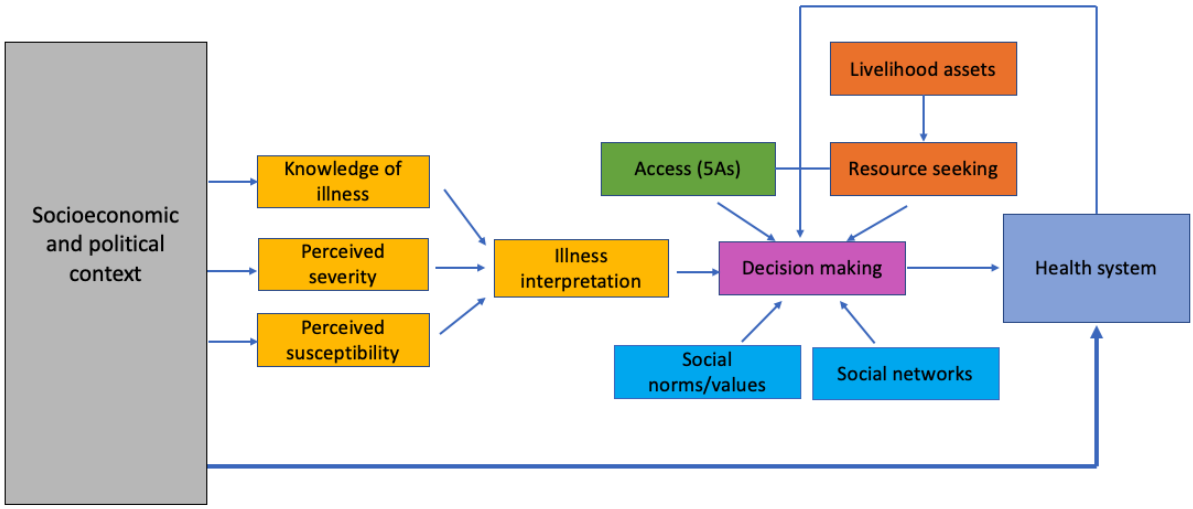


Figure 5: Conceptualisation of key themes, drawing together elements from the HBM, ACCESS and PASS health seeking behaviour models. Source: Author's own

The diagram is a slight adaptation from the PASS model – with the inclusion of 'livelihood assets' taken from the ACCESS model to highlight their role in the resource seeking and decision-making stage of health seeking. As discussed, I found the PASS-model to be the most appealing health seeking behaviour framework due to the representations of the logical steps people take along the therapy path from - illness interpretation to use of the health system. However, as discussed throughout this section, what I felt this model was lacking was explicit attention as to how individual behaviours are embedded within the wider socio-economic and political context. Hausmann-Muela et al. (2012) assert that such processes are 'behind' their (PASS) model, when I believe they should be brought to the forefront. Therefore, I have included this, giving it prominence to reinforce the presence and influence of structural factors at every stage of the health seeking process, and especially within health systems. I have made the connecting arrow between 'socioeconomic and political context' and 'health system' thicker than the others to highlight how structural factors condition health systems, rendering them as sites that enable or constrain individual agency in accessing effective health services. I have also added a feedback loop from 'health system' back to the decision-making process to highlight how perceptions and previous experiences within health systems factor into the decision to engage. This also emphasises the dynamic, reiterative nature of illness and

health seeking, the reality for many of those living in poverty throughout sub-Saharan Africa.

While the model is an attempt to provide a visual conceptualisation for the ideas brought forward throughout this chapter, it also highlights the complexity surrounding factors that influence individual health seeking strategies. I do not claim that simply adding a box that represents wider societal structures makes it any easier to recognise or analyse these structures, as Narayan (1999) states, social phenomena are so all-pervasive yet often difficult to define. However, through a consideration of structural violence, the *effects* of structures on lived experiences becomes tangible. Also important to note is that traditional HSB models tend to view health seeking behaviour as a one-off event, following a linear direction, filtered in different ways along its course. In reality, the process of responding to illness or seeking care is not isolated but rather involves multiple, reiterative steps that can rarely be translated into a simple one-off choice or act, or be explained by a single model of health seeking behaviour (Uzma et al., 1999). As MacKian (2003: 10) asserts – we need to understand health behaviours as a 'state of being which ebbs and flows throughout daily life and is brought into sharp focus at particular points of crisis in time and space.' The actions (or non-actions) of people, decisive for explaining delay in health care, can be better understood when one looks beyond the 'last episode' of illness. This approach is required not only because the previous events and experiences condition the therapeutic path but also because hardship and problems tend to accumulate (Chuma et al., 2006; Russel 2005). As such, there is a need for debates on health seeking behaviour to move into messier terrain to consider the dynamics of engaging in a complex and ongoing process that cannot adequately be conceptualised by measuring dislocated actions aimed at a specific endpoint. I acknowledge that it is inherently problematic to attempt to capture the complexity of human experience within one model, with the risk of becoming reductionist and meaningless. As such, the chart is intended to serve as a way to guide my research, rather than a step-by-step representation of the steps the empirical chapters will follow. As Farmer (2013: xxiii) puts:

> 'If anthropology, history and the other resocialising disciplines share a common analytic purpose, it is to render whole what is hard to see as such. It is also to acknowledge that human experience of suffering in pain or injury – and of the

individuals and institutions that seek to redress suffering – are difficult to render as abstractions of models or theories. Every account is partial and none could hope to capture the complexity of human experience.'

Thus, what I hope to achieve throughout this thesis is to illustrate how the process of 'seeking' is highly subjective, contextually defined, socially rooted. Something that extends over time, space and the health system in complex ways, and cannot be picked out as something intrinsic to the individual alone. Evans and Lambert (1997) adopt the word 'strategy' rather than 'behaviour', to reflect the complexity of the decision-making process that people face on a daily basis, weighing up social, economic, practical, cultural and personal factors, and not simply in response to one-off isolated illness events. This, they argue, suggest a purposeful action rather than an unreflecting, predetermined behaviour. This idea is salient across the study of health seeking behaviour and mirrors my own interest in analysing health seeking behaviour in a more meaningful way.

2.9 Conclusion and aims and objectives

Throughout this chapter I have attempted to lay out the conceptual foundations that this thesis is predicated upon. Being embedded within an interdisciplinary zoonotic disease project in Tanzania, I orient much of this thesis around the concept of One Health. Yet in recognising its limitations I advocate for a biosocial approach for providing more critical theorisations of the ways in which zoonoses (and other febrile illnesses) are experienced by individuals. Specifically, I aim to provide a detailed understanding of the ways in which people's ability to strategize against illness is influenced by the wider social matrix, and the resultant violence and suffering this causes. I hope to contribute to One Health discourse by using this approach to explore how constraints to agency diverge or overlap throughout the health seeking process for both human and livestock illness. This will be achieved through the following objectives:

- To determine, in detail, the health seeking strategies undertaken in response to human febrile illness - from recognition of symptoms to experiences within the health system.

- To establish, in detail, the health seeking strategies undertaken in response to livestock illness, from recognition of illness to experiences with various livestock health providers.

- To ascertain the constraints on individual agency that limits the ways in which people can act to effectively treat livestock and human febrile illness.

Interstitial I
Living among *wakulima*

*When I first arrived in Msitu in February 2017, seeing endless acres of reddish-brown fields left me with no illusions as to what the main livelihood for people here was. Rows of contoured farms, bulls ploughing through fields, tractors propelling clouds of dust into the air and men spraying insecticide at the side of the road revealed that these were expert farmers, and the often-echoed sentiment '*sisi ni wakulima*' ('we are farmers') was said with a well-placed sense of pride.*

Figure 6: Contoured farms in Msitu

Starting fieldwork in the height of the seed-planting season meant that I had to organise my schedule to fit the rhythms of life in the kijiji (village). *People rose at first light to tend to their* shamba[s] *(farm[s]) returning around 10am for a break before heading back in the afternoon. Once I settled into the Hamisi*[5] *homestead I started to offer my help to Ali and Ma'Rizwan (the heads of the household) around the house and farm. This was initially met*

[5] All first and last names have been changed to preserve anonymity.

with polite protest, however, days in the field are long and when data collection was done for the day they saw that I started to become restless. As such, they eventually relented and let me plant some sunflower seeds. This involved walking along the length of their field, barefoot, dropping three ('only three' I was instructed) seeds of sunflower at a time along the way. We all started at the same point but they soon left me far behind. They reached the end of the shamba *and returned to do the next line before I was even halfway through my first. I could not fathom how they were doing it so quickly, effortlessly reaching into their bags and somehow managing to only pull out and drop three tiny seeds, a quick kick of the soil to cover them, weaving in and out of maize crops, careful not to damage them. Stopping to watch them every so often (to try and emulate their technique) I saw such precision, skill and efficiency that can only be gained through years of experience, something that is ingrained since birth that farming is your life. This realisation made me all too aware of my inexpertise, that if I plant these wrong I could ruin this crop for this family (which thankfully did not happen) and that, what to me is an activity to merely try and understand the life of the* wakulima*, to them is an insurance of income, food and sustainability for the months to come.*

As the months drew on I watched the landscape change from brown to green, with sprigs of yellow and purple interspersed in between. The harvest. Women would lay corn kernels out on a kanga[6] *to dry in the mid-afternoon sun. Men and cattle struggled at the side of the road with ox carts, full to the brim with white maize, often ladies would sit among a pile of it during interviews, removing the corn from the husk to make into* ugali *(maizemeal porridge) while answering our questions. Determined not to prove my hands were 'too soft' for farming I would help them with this at every opportunity, feeling slightly proud of my red and calloused thumbs at the end of the day. These initial encounters, experiences and observations helped me frame the main identity of these people as* wakulima *first and foremost – a sentiment that was echoed frequently throughout interviews and group discussions.*

[6] Brightly printed cotton fabric commonly worn by women.

While people primarily identify as crop cultivators in Msitu, the life of the wakulima *would not be possible without livestock. Living with Ali's family it became clear to me how vital they are to everyday life and livelihoods. A large proportion of the Hamisi family's day-to-day routine is spent tending to livestock-related activities: taking them to graze, taking them to the river, milking, giving them medication, using them for draught power and using them to transport materials. Every family member has their own roles in caring for the animals - Ali brings grasses and administers medication, Ma'Rizwan milks and looks after the young animals and the young boys are often left in charge of taking the mature animals for grazing and to the river.*

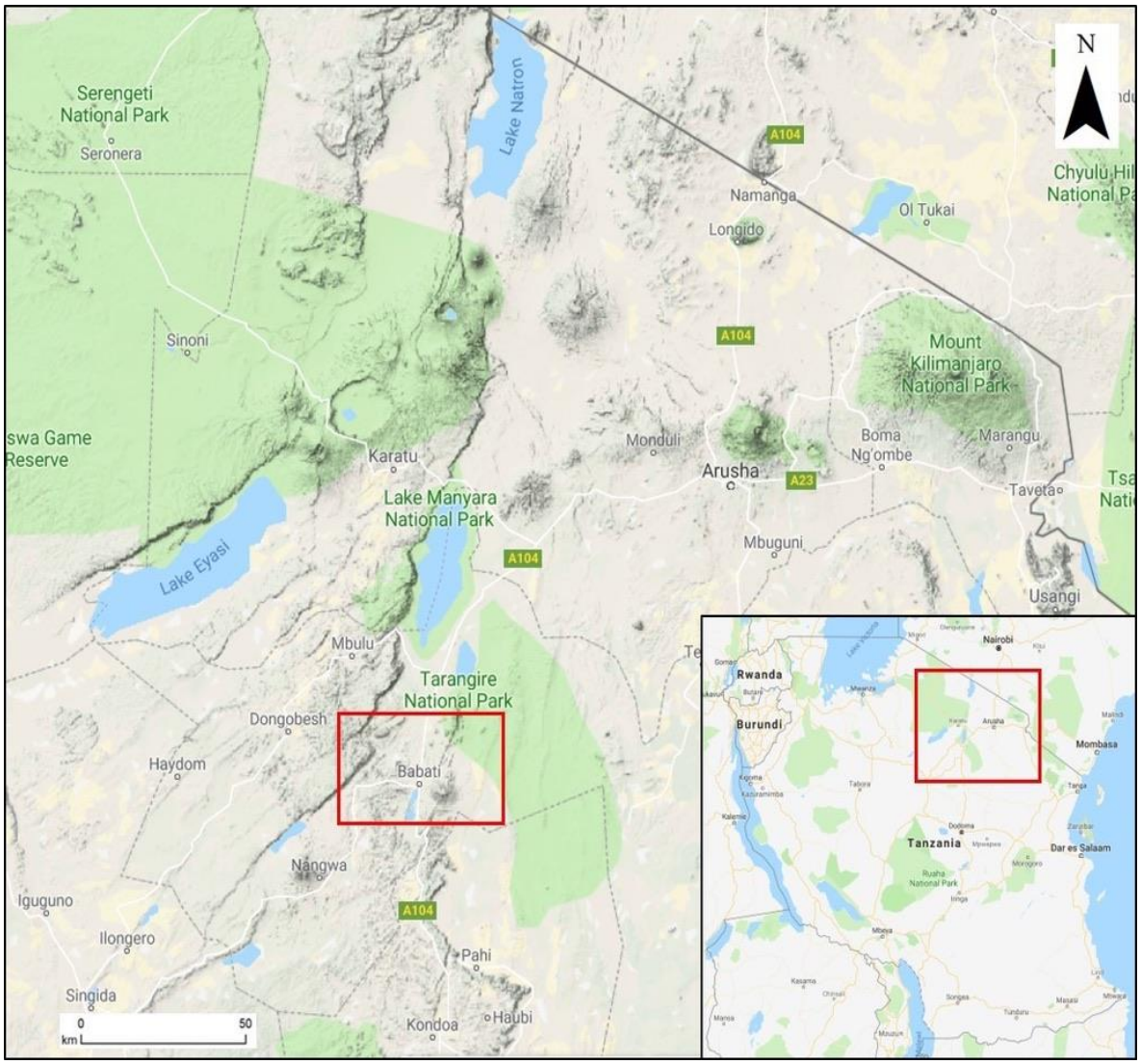
Grazing practices vary throughout the year and between person to person. For the Hamisi family, Ali brings grass to the homestead for the animals as it is too risky to allow them to pass freely through fields, for fear of doing damage to the growing crops. Some people will allow others to graze livestock on their land provided they then agree to cultivate it during the planting season. At other times the animals are just grazed on the side of the road. Arguably, bringing grasses to the homestead is the most labour-intensive activity as it involves travelling to the shamba *(which is not always nearby home) chopping extremely tough and fibrous grass and carrying huge bales of it back home. I watched Ali do this at least twice a day – with a mixture of long grasses and the leftover stalks of maize. During the non-harvest season, grasses are left to grow in the field and animals are allowed to graze freely on farms, albeit supervised. All of this is done in an effort to maintain that which helps in the life of* wakulima*. It is vital to ensure that animals are healthy and happy so that they can work on farms, provide milk, bear healthy offspring, which in turn allows Ali and his family to maintain their livelihoods and plan for the future.*

Chapter 3
Research Setting Methodology

3.1 Research setting

As alluded to in Interstitial I, the entirety of this research took place in Msitu, an agropastoral village in the Manyara region of Northern Tanzania. Msitu was one of twenty randomly selected villages by the Social and Economic Drivers of Zoonoses (SEEDZ)[7] project within which this PhD is embedded. Another affiliated student had chosen to work in an agropastoral Maa-speaking site in Arusha region, therefore, I decided to focus my research in an agropastoral Swahili-speaking site in Manyara which would allow for comparison of results. This then narrowed my choice down to approximately four locations. In February 2017 I visited these sites and while I had several parameters in mind that were relevant to my research focus, such as; number of available health facilities; distance to health facilities; distance to nearest urban centre; access to clean drinking water and presence of community (animal) health workers. I did not want to be too prescriptive in my choice for fear of influencing the results. Ultimately, it came down to personal preference: I knew I would be spending significant amounts of time in this area so I chose the place where I felt most welcome, thus not imposing myself on the community. Hence, Msitu village in Babati district was the chosen location for my research (shown in Map 1 overleaf).

[7] One of eleven sub-projects within UKRI funded Zoonoses and Emerging Livestock Systems (ZELS).



Map 1: Study district encompassing study site

Babati is the administrative capital of Manyara region and located approximately 35km south of lake Manyara. It has an urban population of 93,108 and a rural population of 312,970 (National Census, 2012). Msitu is located in Jiwe ward in Babati rural and has a population of 14,146. Msitu itself is comprised of three sub villages – Mlima, Ziwa and Mto. This research focussed specifically on Mlima and Ziwa, as these were the focus of the SEEDZ study. Each subvillage has an elected leader, the *Mwenyekiti Wa Kitongoji* or subvillage chairperson. There is also an overall village official in charge of the three sub villages, referred to as *Mwenyekiti Wa Kijiji* (village chairperson). Each *Mwenyekiti* appoints ten assistants or *balozi*[8] – each in charge of ten households to assist with overseeing subvillage

[8] The is the smallest level of village organisation and previously linked to Nyerere's TANU party (now known as *Chama cha Mapinduzi* (CCM) (Snyder, 2005).

matters. All village chairpersons and ten-cell leaders answer to one Village Executive Officer (VEO), the lowest government administrative official in charge of a village in Tanzania. This system of village governance is a lasting legacy of President Julius Nyerere's 'Operation *Vijiji*' (or villagisation process) whereby citizens were relocated in the 1960/70s to live on new settlements in the spirit of cooperative living. In Nyerere's socialist vision the villages were to be 'rural economic and social communities where people live together and work together for the good of all' (Nyerere 1968: 348). Reflecting higher systems of governance, each village has a two-tier structure – one political (the chairpersons), the other is administrative (the executive officer). Each village also has a village assembly constituted by all the adult village residents who are scheduled to meet every quarter, offering to residents a public space to discuss the conduct and the decisions of the village leadership. The village leadership is constituted by a village council (a board of a maximum of 25 representatives) and the chairpersons described above (Greco, 2016).

This organisation of village governance was designed to offer space for democratic political debate, widen political participation at the local level; promote collective action and reinforce popular democracy (Greco, 2016). Yet, this system bore little resemblance to traditional authority and undermined the position of male elders within long-standing communities (Snyder, 2005). More explicit reference is made to this within the context of empirical findings in Chapter 6. In reality, village politics are often insulated from the decisions of central government in a kind of 'decentralised despotism' where the flow of information is largely from the core to the periphery (Greco, 2016; Snyder, 2005). Moreover, it is subject to a system which encourages petty corruption and embezzlement within village administrations, whose majority of members do not receive a salary (Mamdani, 1996). Approval from the village leaders was integral to conducting this study, as such I have included a short description of their inner dynamics to understand the local context in which this research took place.

3.2 Gaining permission

Before I was able begin my research in Msitu, I was required to obtain permission from various different government agencies. This included the Tanzania Commission for Science and Technology (COSTECH) which provided initial research clearance (Appendix 1). Upon

receiving this, I was then required to get a class C residence permit (Appendix 2) from the Arusha immigration office as it is not authorised to conduct research in Tanzania without this. I also had to seek further permission from the Tanzania Wildlife Research Institute (TAWIRI) which provided me with the necessary introductory letters explaining who I was and what the purposes of my research were (Appendix 3). It was only then that I was able to take the necessary documentation to the Babati District Executive Officer where I was given written permission to be in my chosen village and ward.

In addition to official authorities, permission also often needs to be sought from local gatekeepers (Banks and Scheyvens, 2014). This was primarily done through the village chairpersons who can be considered the everyday gatekeepers to my research. Mandel (2003) asserts that everyday gatekeepers may be the most important people to approve research as they exercise considerable authority and autonomy, depending on the local context and have the ability to facilitate or inhibit access to resources (Cornet, 2010). Indeed, having accompanied the SEEDZ field team to three different study sites in 2016, I became aware of how important the village chairpersons are as gateways into the community, and so I knew my cooperation with them would be integral to my research. I first met Daudi (the subvillage chairperson of Ziwa) on my first exploratory trip to Msitu where he gave me a tour of the village. When I returned to start my fieldwork, my initial meetings were with him, the subvillage chairperson of Mlima and the VEO. During these meetings I explained the purpose of my study and that I would like to stay in the village for its duration. Initially, all of them were reluctant for me to stay there, citing concerns for my safety. However, after I insisted that it would be beneficial to my research to witness and participate in the everyday lives of the *wanakijii* (people of the village) we eventually settled on a site about a five-minute walk from *kijiweni* (the village centre) which belonged to Daudi's half-brother, Ali Hamisi. It was within the Hamisi homestead where I set up my camp and stayed for the duration of my fieldwork.

3.3 Introduction to study participants

One hundred participants in total were recruited for the study and were randomly selected from a list of households provided to me by each subvillage chairperson. What follows now is further details pertaining to the demographics of respondents including: gender, age

groups, education level and family size (as detailed in Table 2). I also include a brief history of the *wanakijiji* before discussing livestock and acreage ownership. The information included here is to offer insight into life in Msitu as it occurred throughout the time I spent there and to provide context for the ensuing empirical chapters.

Characteristics	Ziwa	Mlima	Total
Sex			
Male	20.0	36.0	**56.0**
Female	27.0	17.0	**44.0**
Age Groups			
18-24	0.0	1.0	**1.0**
25-34	9.0	6.0	**15.0**
35-44	13.0	10.0	**23.0**
45-54	11.0	13.0	**24.0**
55-64	9.0	10.0	**19.0**
65-74	6.0	8.0	**14.0**
75+	1.0	1.0	**2.0**
Don't know	1.0	1.0	**2.0**
Education			
Primary	35.0	44.0	**79.0**
Secondary	0.0	4.0	**4.0**
Post secondary	1.0	1.0	**2.0**
No education	5.0	10.0	**15.0**
Family size			
1-5	22	18	**40**
6-10	26	32	**58**
11-15	2	0	**2**
Tribe/ethnicity			
Nyaturu	27	6	**33**
Iraqw	13	38	**51**
Barabaig	1	3	**4**
Arusha	4	0	**4**
Other	4	3	**8**

Table 2: Characteristics of respondents (n=100)

3.3.1 Gender

The study included 56 men and 44 women. This slight difference is for a number of reasons. As detailed in Interstitial I, I had to set my schedule to accommodate the daily lives of participants. As they were all crop cultivators first and foremost, much of their day was spent tending to the *shamba,* thus when I arrived at a household I settled for interviewing

whoever was available and willing to take part. From my time in Msitu, I observed that men and women were involved equally in farming activities, but women often had the added responsibility of tending to the day-to-day running of the household such as cooking, cleaning and looking after children and livestock. Men's work varied from season to season: during the harvest they would spend hours or days away from home, harvesting other people's farms to earn money or looking for other work. I conducted the majority of my work during the planting season meaning men were more available during this particular period. While I would have liked an even split between genders, sensitivity to local context meant this was not always possible.

3.3.2 Age and family size

The majority of respondents fell between the ages of 25 and 64 and were married. Most respondents had family sizes that ranged between one and ten people all living within one homestead, with the average family size being six. A typical family unit in Msitu was represented by a husband, wife and their children. They usually lived together in one dwelling and would be surrounded by their *shamba,* enclosed by shrubs to demarcate their territory from their neighbours'. A typical homestead is shown in Figure 7. Within the compound small ruminants would be kept in a sheltered outhouse while any cattle owned would be in a kraal (usually uncovered).

3.3.3 Education level

Seventy seven percent of respondents had at least primary level schooling. Within the village boundary there is a local primary school which caters for children aged seven to 13. In theory, primary education is free in Tanzania, however the additional costs of uniforms, school materials and exam fees often inhibits some families from being able to afford this. The primary school has two classrooms and the village council, at the time of the study, were raising funds to build another two. Secondary schooling is offered from age 15 onwards and is subject to fees. This, plus the additional costs mentioned above make it increasingly difficult for people to attend.

Figure 7: Typical homestead in Msitu

3.3.4 Tribal/ethnic composition

In Ziwa subvillage, just over half of respondents belong to the Nyaturu tribe, while the rest are from mixed ethnic backgrounds. In Mlima subvillage the majority of respondents belonged to the Iraqw tribe. The Iraqw are unique in Tanzania as they are a Southern-Cushitic agropastoral community, originating from their homeland – the '*Irqwa Da'aw* (or *Mama Issara* in Swahili) in Mbulu district some 60kms north west of Babati (Snyder, 2005). While the Iraqw have been settled in Msitu for a long time, the village location itself is on the lower regions of the Rift Wall, just outside of the *Irqwa Da'aw* homeland and was previously nomadic pastoralist territory (including Datoga and Fiome[9] tribes). Iraqw expansion into these lower regions began in the 1800s by younger men moving out of the homeland in search of new opportunities (Snyder, 2005). Their migration was accelerated by the colonial state which favoured agriculturalists over nomadic pastoralists, thus allowing the Iraqw to settle into places outside of the *Irqwa Da'aw* (Snyder, 2005), like Msitu.

[9] Personal communication with Dr Alicia Davis (2018)

While the Iraqw originate from Mbulu, the Nyaturu (sometimes called '*Arimi*') people originate from Singida region, in central Tanzania. *Arimi* literally translates as 'farmer' in the Turu language, and like the Iraqw, they farm the land and raise livestock as their main livelihoods. Much of the Nyaturu population migrated out of Singida for better pastures, including to Manyara region where they have integrated with other tribes such as the Iraqw. Although it is not clear when they first started migrating to Babati (specifically Msitu), the *Mwenyekiti* of Mlima attests to the arrival of other tribes occurring after villagisation. The Nyaturu in Msitu are primarily of Islamic faith, while Iraqw are mainly Christian. Despite differences in faith and tribe however, residents and village leaders attest to living in peace and harmony with one another. Friendship, cooperation and intermarriage between different groups are common, as evidenced by the harmony in which Ali (Nyaturu, Muslim) and Ma'Rizwan (Iraqw, Christian) live together.

3.3.5 Livelihoods

Almost all households that participated in this research kept a combination of land and livestock. The average household owns between 2-4 acres of land (as shown in Figure 8) and has up to five cows (plus other small ruminants, shown in Figure 9). This composition of livestock ownership plus land owned would categorise Msitu as a smallholder agropastoral production system (as per the SEEDZ work on land classification in northern Tanzania (de Glanville et al., forthcoming). This livelihood classification is important in understanding the remedial actions livestock keepers undertake when responding to illness, as will be discussed in the ensuing empirical chapters.

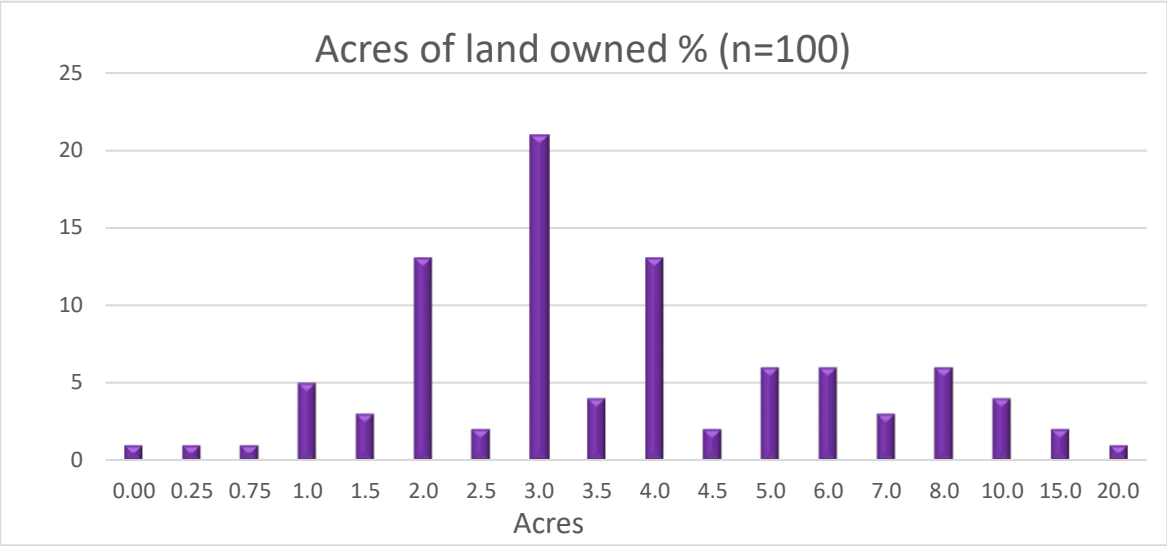


Figure 8: Land Ownership in Msitu

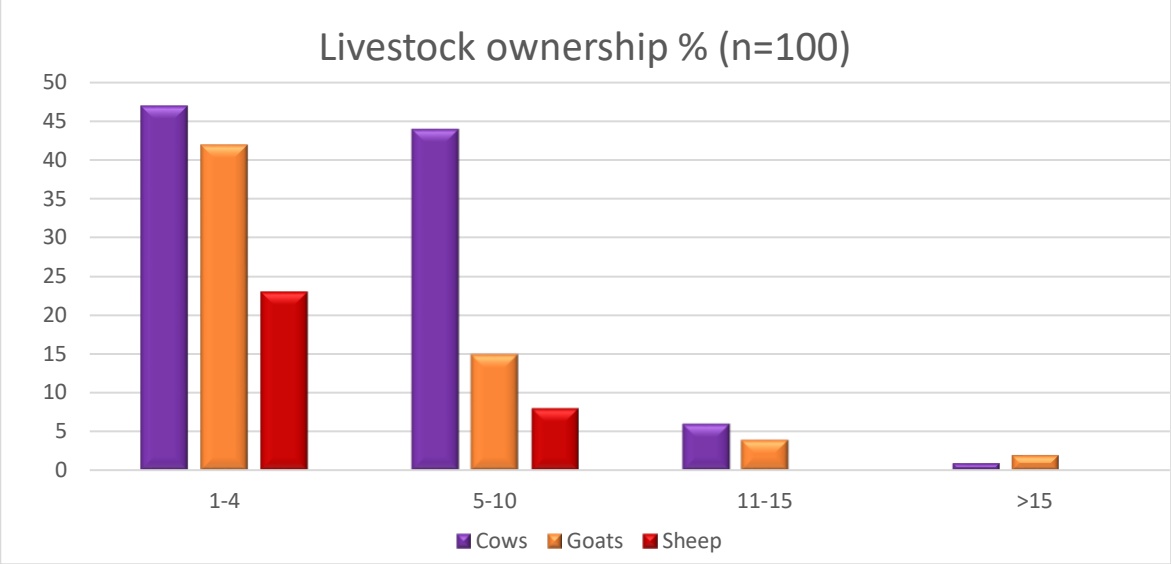


Figure 9: Livestock ownership in Msitu

The land is used to grow maize, beans and peas which sustain families throughout the year, either through consumption or selling in times of need. Other crops grown include: millet, sorghum, sesame and sunflower. Unsurprisingly, most households in Msitu owned cattle as, in addition to providing meat and milk, they are required to support farm activities – such as providing draught power for ploughing the soil and for transporting crops. Small ruminants are also highly valued in Msitu but are much more readily dispensed of when quick cash is needed. In addition to crop cultivation and livestock providing the main sources of income, there were other activities respondents were involved in to supplement

this. For men this included: seasonal work as tractor drivers, handymen, security and tour guides. For women this included selling cloth as well as growing tomatoes, onions, bananas, sugarcane and potatoes for petty trade.

The number of acres owned was used to create a wealth profile of study participants (Table 3). This is based on my observations of the importance of crop cultivation to the livelihoods of people in Msitu. For reference, most Tanzanians own between two and seven acres of land (Gaddis et al., 2013). From the table it can be seen that those in the highest wealth ranking owned between 10-20 acres of land, had an average of nine cattle and six small stock. The poorest group owned less than one and a half acres of land and kept an average of two cattle and two small stock. The majority of respondents fell between the second and third groups (named 'poor' and 'middle' respectively) keeping on average five cattle and four or five small stock. House types and other assets owned also changed as households moved up the wealth ranking. As the table shows, houses in the highest wealth group were primarily made of brick, whereas houses in the poorest were made of mud. Houses in the highest group also owned high value physical assets such as motorbikes, ox carts and solar energy compared to those in the poorest quartile who owned primarily phones, radios and bed nets.

		Assets (average)			House type		
Wealth ranking	**No. of households**	**Acreage**	**Cattle ownership**	**Small stock**	**Mud**	**Brick**	**Other assets**
Poorest	10	<1.5	2	2	90%	10%	Phones, radios, bednets
Poor	57	2 - 4.5	5	4	40%	60%	Ox ploughs, bike
Middle	21	5 – 9	5	5	14%	86%	Ox carts, tv, sofa
High	7	9.5 – 20	9	6	0%	100%	Motorbikes, solar

Table 3: Wealth profile of respondents

3.4 *Ukame* (drought)

Figure 10: Msitu during the drought

The heavy reliance on land and livestock in Msitu means that livelihoods are inherently sensitive to increasing climatic variability. As such, it is here I wish to acknowledge the drought that occurred when I first arrived in Tanzania and highlight the affect this had on residents here. The cause of this particular drought was due to below average rainfall in October to November 2016 (Famine Early Warning System Network (FEWS), 2017). This persisted into early 2017 where seasonal rains were well below average (<50%) and delayed by more than one month (FEWS, 2017). The effects of the late onset of rains were all too apparent on the journey out of Arusha towards Manyara region, where the grasses became progressively browner and the landscape became littered with animal carcases abandoned by the roadside. It is now believed to be somewhat arbitrary to classify seasons in tropical climates according to the months in which they are expected to occur, as due to ever increasing climatic variability, the arrival of the rains has become more variable and impossible to predict (Nicholson et al., 2017; Rowhani et al., 2011; Mkonda and He, 2017; Luhunga et al., 2018). However, it is traditionally expected that long rains start from late February and last till late May. This year the rains did not start until the end of March 2017, with clear implications on the health of livestock, people and livelihoods. Over 3/4 of respondents (75%) reported experiencing debilitating circumstances due to the late rains, this included: hunger (45%), no harvest (21%) and loss of grazing land (5%). Respondents had to engage a range of strategies in order to cope with the effects of the drought. This included replanting (20%), selling livestock (27%), engaging in wage labour (13%), borrowing money (9%) and travelling further to search for grasses to bring for livestock (8%). It is important to acknowledge the drought here, as with various resources already depleted in order to cope with drought meant that, in some cases, this impinged on people's ability to cope with

financial costs of illness. More on this is discussed in empirical chapters. Before doing so, I turn to the methodology and methods I used within this research.

3.5 Methodology

From March 2017 to November 2017 I lived with the people of Msitu conducting fieldwork for my study with the assistance of Happy Diameth, Benny Japhet and Raymond Mollel. This research is grounded in a mixed methods ethnographic approach which explores the richness and complexity of the human experience as it relates to animal and human health and illness. The specific data collection methods used within this approach include: surveys, interviews, group discussions, policy analysis and participant observation. The quantitative data gathered through surveys acted as a means to describe and characterise the remedial actions undertaken by respondents, whereas the qualitative data was used to explain and provide deeper insight into these behaviours. When integrated together they provide a detailed and holistic understanding of the lived experiences of livestock and human and febrile illness in this setting. The specific quantities and location of each data collection method is highlighted below:

		Location	
Data collection method	**Total**	**Mlima**	**Ziwa**
Surveys	100	50	50
Semi-structured interviews	50	25	25
Follow-up interviews	20	10	10
Key informant interviews	17		
Village elders	5	2	3
Village chairpersons	2	1	1
Animal health workers	4	Babati district	
Human health workers	6	Babati district	
Group discussions	10	5	5
All Male	4	2	2
All Female	4	2	2
Mixed	2	1	1

Table 4: Data collection methods

Throughout the rest of this chapter I provide explanation and justification for the methods used to undertake this study. Thereafter, I give some consideration to my experiences working with research assistants and translation, before going on to discuss how I approached the analysis of my data. I end this chapter with a discussion on the wider ethical

implications of conducting research of this nature, with a specific focus on representation, positionality and reflexivity.

3.5.1 Mixed-methods ethnography

Ethnography refers to processes of participating and observing in particular spatial settings for the purposes of research and provides a way 'to understand the world views and ways of life of actual people from the 'inside'', in the contexts of their everyday lived experiences (Cook, 2005: 167). In its most characteristic form, ethnography involves the researcher immersing herself in a group for an extended period, participating in people's daily lives, watching what happens, listening to what is said, asking questions and collecting whatever data is available to throw light on the issues that are the focus of the research (Hammersley and Atkinson, 1995). Traditionally, participant observation and ethnography are often used interchangeably and definitions of each are often difficult to distinguish. However, Hoggart et al. (2014) assert that ethnography reflects an approach to understanding human behaviour that goes *beyond* observing while being a participant. They state that ethnography has the added dimension in that it is often used to invoke both the method of research *and* the written product of that research, where participant observation offers a useful description for how data is collected (Hoggart et al., 2014; Delamont, 2007). In my endeavour to truly understand how the people of Msitu experience health and illness over a prolonged period of time from the 'inside', I deemed an ethnography to be the most suitable approach to take for this study. I now discuss the specific methods I used within this approach, namely participant observation, surveys, interviews, group discussion and policy analysis.

<u>Participant observation</u>

> 'Going about daily life in the company of others, as both participant and observer, grants insights at many levels, from the 'materials' to be written down to less tangible bodily knowledge; in the process, a person is transformed' (Narayan, 2012:95).

Historically, ethnographic research has developed out of a concern to understand the world views and ways of life of actual people in the contexts of their everyday, lived experiences and the method of participant observation is how ethnographers have often done this. This method, as the name suggests, involves researchers participating in a

community – by deliberately immersing themselves into its everyday rhythms and routines, developing relationships with people who can show and tell them what is 'going on' there (Cook, 2005: 167). Where an interview or group discussion only provides information from a select few perspectives, participant observation enables the researcher to gain a broader overview of the overall community and the relationships within it (Valentine, 2001).

Implicit in this method are some ethical concerns pertaining to the 'role' the researcher adopts. These generally exist on an axis between overt and covert, and participant and observer. An overt observer is someone who informs the members of the community being studied that they are being watched for their research. A covert participant is someone who does not tell the people that they are living and/or working with that their involvement is for research purposes. In between these two extremes is overt participant and covert observer (Cook, 2005). My intentions in doing participant observation were very much overt. Indeed, it would have been difficult to conduct any type of covert research in Msitu, given that I was so clearly an outsider to the community and my sudden and incongruous appearance would have arose suspicion as well as raising ethical concerns.

Bryman (2016) asserts that reliance on other methods (such as interviewing or surveys) depends on the level of participation, where high levels of participation primarily draw on observations and low participation tends to rely on other data collection methods. While I would argue that my level of participation in everyday community life was high, this method ultimately did not constitute my main method of data collection. The way in which I used participant observation in this research was to demonstrate my commitment to the people of Msitu by becoming involved in their everyday lives and forming relationships with them. I helped sow sunflower seeds in the Hamisi *shamba* (farm); I accompanied the young boys when they took the livestock to graze; I sat with Ma'Rizwan in the *jikoni* (kitchen) while she cooked our meals; I collected water for the family; I washed my clothes alongside Ma'Rizwan when she was doing her washing; I accompanied her to the *tindigani* (swamp) to buy leafy greens to have with our dinner; I observed Ali giving worm medication periodically to his livestock; I saw Ma'Rizwan milking cows every morning to give to us milk in our tea; I watched Ali build his brick house with his bare hands; I helped harvest beans and maize until my hands were red. Outside of the Hamisi homestead I had informal chats with people I encountered on my evening walks around the village; I attended the wedding

of the son of one my participants; I bantered with the children and the *Bibis* when we gathered at the water pump; waiting my turn to collect water. As Kawulich (2005) asserts, immersion in the study setting allows for spending sufficient time with participants, participating in their everyday lives, sharing experiences and forming relationships. This then leads to greater depth of understanding and more realistic responses by putting them at ease. I would add that finding common ground through shared experiences worked to reduce the power relations between us and allowed me to connect with participants on a more personal level. However, it should be noted that as much as I tried to connect with people, the fact that I was a privileged, western researcher coming to research a marginalised group could not be ignored. Moreover, despite staying in the village, it was always expected that I would eventually leave. I reflect on the ethical issues these points raise later in this chapter.

Ultimately, participant observation was integral to this study in allowing me to ascertain the context in which everyday decisions around health and illness occur. In doing so, it allowed me to grasp the key structures and processes at play that enable or inhibit people from pursuing effective treatment when experiencing fever. It also allowed me to gain deeper insight into the individuals whose testimonies I have interspersed as vignettes throughout this thesis. As Biehl and Petryna (2013: 3) note:

> 'By looking closely at the live stories and at the ups and downs of individuals and communities as they grapple with inequality… we begin to apprehend larger systems. We are able to see them in the making or in the process of dissolution, and we understand more intimately the local realities, so often unspoken, that result when people are seen or governed in a particular way or not at all.'

<u>Mixed open/closed surveys</u>

While participant observation was vital in allowing me to form trust with the *wanakijiji* and to participate and observe their everyday lives, this method alone did not allow me to address my research questions. Asking respondents about their health seeking behaviour primarily relied on them recounting, in detail, the series of remedial actions they took in response to a recent episode of illness. As such, I deemed a face-to-face survey to be most suited to capturing this type of information. The survey was designed to track the various elements of the health seeking process – from recognition of symptoms through to

experiences with animal and human health systems. Questions were informed by the health seeking behaviour models discussed in Chapter 2, meaning I had a sequence of questions in mind when I began my fieldwork. However, these were amended and revised throughout the process to reflect my growing understanding of the research area. As such, I came to view my research as an evolving and ever-changing process. The final list of questions included in the survey can be found in Appendix 4. Due to the very general way in which many zoonoses manifest themselves among humans and livestock, it was impossible to distinguish between fevers caused by zoonoses and those which were not. As such, the surveys capture the range of illnesses resulting in fever which provides a more holistic view of the types of illnesses people in Msitu must contend with. I initially started asking about 'fever' in general, however, respondents themselves distinguished between 'small' and 'big' fevers (see Langwick, 2011), often differentiated by temperature. While it may have been prudent to only focus on 'big' fevers which may be more representative of various zoonoses, I chose to enquire about both as I believed uncovering the differences in how people perceive and respond to different severity of fevers would be interesting results in and of themselves.

As indicated in Table 4, one hundred surveys were conducted in total, fifty from each subvillage. Participants were randomly selected from a list of households provided to me by the chairpersons of each village. Based on this list, the chairperson and I would arrange our schedule on a weekly basis based on who was available[10] and, logistically, according to which houses were situated near each other. Upon arrival at the participants' household, I introduced myself, my research and research assistants and asked the individual if they were willing to take part in the study (emphasising that they were under no obligation to do so). If they agreed, the information sheet was read to them and written or oral consent was obtained. While I had identified which households I wanted to talk to, I initially did not specify whether it was the husband or wife I wanted to question. As discussed earlier in this chapter, living in a community where crop cultivation is the main livelihood, it meant people's day-to-day activities revolved around being on the farm. As such, I had to be

[10] The chairpersons would call participants ahead of time to notify them they had been selected for the study and to check if they were available to take part.

flexible in who was available to talk to me. However, as the fieldwork progressed, I realised I had been speaking to more males than females, and subsequently I specified to the chairpersons that I would like to talk to more women, if they were available.

Conducting these surveys allowed me to address my first and second objectives as they allowed me to characterise the health seeking behaviours as a whole for study participants. They also allowed me to identify key points to raise later during the data collection period. For example, throughout the surveys, respondents were particularly vocal about their experiences with animal and human health services providers. As a result, I was able to pursue these topics further in group discussions and interviews. Consequently, a large proportion of both empirical chapters are devoted to lived experiences within the human and veterinary health system.

While I would not have been able to get the breadth of data I did without conducting surveys, a key criticism of such an approach (and of quantitative methods more generally) is that they reinforce power relations between the research participant and researcher, where the researcher extracts information from the research subject and gives nothing in return. Moreover, the researcher is often seen as detached, with limited interpersonal knowledge of their participants (Dowler, 2001). By immersing myself within the village of Msitu I worked to overcome this power gradient by getting to know and interact with participants on a personal level. Depending on the season, I would conduct surveys while helping people husk corn, or over a shared snack of *mahindi ya kuchoma* (roasted corn on the cob). In this way I attempted to present myself not as 'detached' but as having an active interest in their experiences and showcasing a willingness to participate in their lives. In doing so I managed to create a more relaxed atmosphere, often generating laughs and looks of dismay at my inability to husk corn without ruining my 'soft hands.'

Interviews

Surveys were integral in allowing me to gather a great deal of data on actions surrounding human and animal illness, however, the nature of this method meant that there was no space for in-depth personal experiences to be shared. Valentine (2005) asserts that interviews are sensitive and people-oriented, allowing interviewees to construct their own accounts of their experiences by describing and explaining their lives in their own words.

As such, throughout September 2017 to November 2017, I conducted follow-up interviews with twenty survey respondents in order to have a more in-depth discussion with them about their illness and their experiences with the health system. Burgess (1984:) asserts conducting interviews allows for rich, detailed and multi-layered material to be generated, producing a deeper picture than relying on a survey alone.

At the time of conducting follow-up interviews, I had been in the community for several months and respondents were used to my presence, both formally as I had previously conducted surveys with them, as well as informally by becoming accustomed to seeing me around the village. I affectionately became known among the *wanakijiji* as *binti kwetu* (our daughter) and so while I myself became more relaxed about this second round of data collection, I found that respondents themselves, due to our familiarity, were also visibly more comfortable. This was undoubtedly also influenced by the fact that my interview materials changed from a formal A4 survey to more informal materials i.e. a simple pen and notebook. Moreover, by this point my Swahili was at such a level that I could ask the few introductory questions by myself. This meant that there was a nice flow between doing the necessary greetings and preliminary informal conservation to starting the interview process, only needing Benny (my research assistant at the time) to step in when the questions became more complex.

This familiarity facilitated individuals being more open and willing to share in more detail their experiences with febrile illness and the health system. Silverman (1993) asserts that one of the additional strengths of conducting interviews is that they allow respondents to raise issues that the interviewer may not have anticipated. In addition to exploring respondent's experiences within health systems in more depth, it was also through these interviews I got to learn how illness is experienced over time for people in Msitu. In almost all these interviews, the individual was either still suffering from their previous illness or the illness period in question had spanned much longer than I had originally thought. This was key in helping me to understand the reiterative, cyclical nature of illness in Msitu, which I never would have elicited through reliance on surveys alone.

Key informant interviews

In addition to conducting follow-up interviews with survey respondents, I also conducted seventeen key informant interviews. These included: five elders in the community, four animal health professionals, two village chairpersons and six human health professionals. Bryman (2016) states that a key informant is someone who offers the researcher perceptive information about the social setting, important events and individuals. Accordingly, these interviews were useful to gain insight from those who held key positions in the community to provide commentary on typical health seeking behaviours for the *wanakijiji.* Moreover, they allowed me to gain perspectives from those working within animal and human health systems, highlighting the constraints they face in their day-to-day work which inhibit the services they can effectively provide to the public.

Semi-structured interviews

Throughout this research I also conducted fifty semi-structured interviews on perceptions and attitudes towards livestock vaccination. This was initially intended to be the main focus of my thesis, due to its value for potential zoonotic interventions. However, when I began asking these questions it was clear that due to lack of any experience with vaccination, respondents struggled to answer questions surrounding it in any depth. Not being fluent in Swahili, I often had to take non-verbal cues as a means of determining how a participant was feeling. I noticed that when I informed people I would like to ask them about vaccination, their expressions soon turned to confusion, and in some cases anxiety. It transpired that beyond a basic knowledge of what a vaccine is, and the names of some common ones currently available in Tanzania, lack of experience or familiarity with them inhibited people's ability to answer any subsequent questions. This meant I had to scale back the extent to which vaccination was featured within this thesis. However, lack of familiarity also represented a key finding in itself and is discussed in more detail in Chapter 6.

<u>Group discussions</u>

In addition to interviews and surveys, I also opted to use group discussions throughout my fieldwork. Group discussions are useful for allowing the researcher to gain insight into the spectrum of views that individuals hold regarding a particular issue and the nature of their interaction and dialogue over the issue (Conradson, 2005). As such, these were useful

ascertaining the range of opinions people held about the quality of the various health service providers in the vicinity of the research area. While survey questions focussed on what an individual had actually done in response to a recent episode of illness, questions asked in group discussions were much less specific. The type of information I wanted to elicit from them included but was not limited to: what people generally did when they get fever; what health services did they feel were available to them, and what their perceptions of these services were. Group discussions were also useful for triangulating data obtained from other sources. For example, throughout surveys very few people attested to using herbal remedies when treating illness. Yet, when asking group respondents what remedies were available to them when they got sick, herbal treatments were frequently mentioned. More on the contradictions that a multi-method approach raises is discussed later in this chapter.

Analysis of secondary sources

While the majority of my data collection depended upon talking to people, there were instances where I had to go to secondary source documents for information. This primarily included analysis of various Tanzanian health and livestock policy documents such as the National Livestock Policy (2006) and the Veterinary Act (2003). Chilton and Schaffner (2003) state that textual analysis can help to understand power structures in place. As such, reviewing these documents allowed me to understand how laws concerning animal health professionals are codified in Tanzania and who this includes/excludes in legal practice. Triangulating data collected from these policy documents with interviews with animal health professionals allowed me to ascertain where disparities and ambiguities lie concerning the practice of veterinary care in Tanzania and what this means for the numerous actors involved in this type of work.

3.6 Research assistance

Turner (2010: 208) states that:

> 'In our task to put pen to paper and analyse our field data, reflections upon the process of working with a research assistant/interpreter have been frequently overlooked, and their voices too often ignored.'

As such, it is here that I wish to acknowledge the work of Happy, Raymond, and Benny and the key roles they played throughout the research process. I initially worked with Happy

and Raymond from March till May 2017 and Benny thereafter for the rest of my fieldwork. Happy was a student studying business in Dar es Salaam and so could only commit to a period of two months before having to resume her studies. Alongside Happy I also employed Raymond as a driver. Msitu is a rural agropastoral village located 13kms from Babati town and a further 5kms from the main road, as such, access to a car was essential. Being part of the SEEDZ project, I was fortunate enough to make use of one of the designated land cruisers known among the team as 'DCX'. Initially, Raymond was only supposed to drive Happy and myself to Msitu, help us establish ourselves and then return to Arusha, leaving DCX in my possession. However, logistical issues meant he ended up staying with us for the duration of the initial two months. Ultimately, this arrangement worked out well for all of us. Raymond has a very bubbly, outgoing personality which meant he was quickly able to make connections with the village chairpersons and the Hamisi family, which was integral to the facilitation of my fieldwork. McLennan (2014) asserts that not only can research assistants help with nuts and bolts of data collection (such as surveys, interviews etc) but they also help with the more intangible aspects of fieldwork such as building rapport with research participants and assisting with travel and safety requirements, as such they can be viewed as 'ambassadors at large' (Binns, 2006: 152). Happy and Raymond fell into these roles nicely where, Happy executed the 'nuts and bolts' aspects of the research and Raymond was key in building up a relationship between us and the *wanakijiji.*

This dynamic worked well until the end of April/beginning of May 2017 when both Raymond and Happy had other work commitments to attend to, meaning I had to find a new research assistant. I was introduced to Benny as a taxi driver through my supervisor, Dr Alicia Davis, in February 2017 and recalled from a previous conversation with him that he had experience working as a research assistant (RA) with other academics. This, coupled with his experience as a field driver (and my desire to resume fieldwork as quickly as possible), made him the ideal candidate. After a brief discussion about payment, he agreed to assist me and we worked together for the rest of my fieldwork period.

Turner (2010) states that whether you employ an insider or outsider as an RA it is important to think about their positionality, as all RAs have a position in relation to research participants which have a significant impact on the research. Neither Happy nor Benny

could be regarded as 'insiders' as none of them were from Msitu. However, one of the reasons I chose to employ Happy was due to her Iraqw ethnicity and her ability to speak the language fluently, in the hopes of putting the Iraqw respondents more at ease during the surveys and interviews. However, despite these commonalities, I felt that there was still some distance between her and the study participants. As Temple (2002: 850) notes: 'it is not merely enough to select someone who speaks the relevant language' but also important to note their background, social position, religious and cultural beliefs and how this influences the lens through which they interpret/translate people's views. At the time, Happy was living and studying in Dar es Salaam and was from quite a wealthy background, as such I felt her class privilege distanced her somewhat from being able to connect to Iraqw respondents in the way I had anticipated. I do not believe this hampered the research in any way, but rather she was received as any other outsider to the community would be, as opposed to someone who approached 'insider' status. Benny, on the other hand, comes from a modest background and therefore I felt he could much more easily find common ground with the *wanakijiji*. This was evidenced by the ways in which he much more naturally took to village life e.g. through readily going to fetch water for the homestead or taking an active role in socialising with the *wanakijiji*[11]. Furthermore, he always approached every participant with a great sense of humility and respect, with the ability to make them feel more open and at ease during the interview process. I am not sure if it was this, or an increasing familiarity with myself (or a combination of both) that made people open up more during interviews and group discussions after he arrived. Later in this chapter I reflect on my own positionality and the wider ethical concerns I had throughout the research process. For now, attention turns to translation, as this formed a key component of Happy and Benny's work.

3.7 Translation

Most of this research was conducted in Swahili, the national language of Tanzania and several other countries in East Africa. Prior to conducting my fieldwork in 2017, I undertook an intensive three-week residential Swahili class at a reputable college in the outskirts of

[11] Undoubtedly Benny and Happy's ability to ease into life in the village was influenced by differing gender expectations. For example, it would not have been acceptable for Happy (or myself) to socialise with the *wanakijiji* outside of the homestead at night in the way it was for Benny or Raymond.

Arusha. By the end of this course I could very comfortably hold a conversation with people, as well as introduce my research: '*nitongea na wafugaji kuhusu chanjo'* ('I will talk to livestock keepers about vaccination'). However, that is where the extent of my Swahili about my research started and ended. It was therefore necessary to work with Happy and Benny in the translation and interpretation of results. Traditionally, positivist approaches to translation have tended to view the role of a translator as mechanical and a potentially problematic part of the research process (Edwards, 1998; Temple, 2002). Berman (2011) asserts that under a positivist approach, researchers felt that they must control the translator by using processes such as back translation, triangular seating arrangements and checking and monitoring devices. Additionally, researchers felt that they must become familiar with the participant's culture solely to ensure the interpreter is carrying out the interview or focus group appropriately. Thus, translation and interpretation was seen as a technical act where the main concern was to eliminate errors (Shklarov, 2007).

In light of this, feminist researchers have begun to unpack the role of translator outside of a positivist approach (Edwards, 1998; Temple, 1997; Temple & Edwards, 2002). Temple and Young (2004) assert that social constructionist, interpretive, non-positivist and other epistemologies lying between historical-hermeneutic and critical science all acknowledge that how knowledge is produced and our location within the social world influences the way in which we see it. If we subscribe to this view of social reality, then translators *must* also form part of the process of knowledge production (Temple and Young, 2004: 164, emphasis in original). Larkin et al. (2007) and Squires (2009) also make the case for making the translator visible by encouraging her or his presence and consultation in every step of the research process. This inclusion of the translator as a key member of the team is said to strengthen the rigour and trustworthiness of qualitative cross-language research. Shklarov (2007: 530) further highlights that the importance of the translator's 'double role' must be acknowledged, as both researcher and translator. She asserts that 'biocultural translators' can help negotiate different perspectives and cultural understandings, which she argues is an advantage from the point of view of the research process, both in protecting participants from harm and maintaining research integrity.

In an attempt not to view Happy and Benny as merely passive or mechanical aspects of data collection, I was keen to involve them in as much of the research process as possible. Prior to starting data collection, I met with them both to discuss the full range of questions I had intended to ask throughout my fieldwork and asked if they had any concerns or questions of their own I should add. Benny in particular had some thoughtful amendments and additions to my questions. For example, before conducting interviews with drug store purveyors, he suggested enquiring further into the motivations behind why drug store owners decided to open local pharmacies. Given some respondents hold the view that hospital staff deliberately direct patients from health facilities to privately owned drug stores to buy medication, I felt this was a pertinent question to add.

Throughout all methods of data collection, I chose to do on-the-spot translation with Happy and Benny. We decided that they would give me broad brush strokes on everything that was said, in order to keep the interview moving at a pace that was not frustrating for the interviewee, but that I may ask follow-up questions and expanded responses from participants to enable clarification and understandings. Arguably this method was more suited to some forms of data collection than others e.g. it worked well while conducting surveys as the answers given were relatively short and so there was not much delay between writing down responses and the next question being asked. Whereas, in interviews and group discussions, answers given were generally longer which meant there was some time taken between each question to allow for translation, note-taking and for any follow up questions to be asked. When data collection was done for the day, we would go back to the homestead and read over the notes to ensure what I had written down correlated (or contradicted) with what had been said by participants. This also allowed either Happy or Benny to go into more detail on certain points of interest raised throughout the survey, interview or discussion. Being able to talk through the day's research with Happy and Benny was integral in aiding my evolving understanding of my research focus.

3.8 Contention and contradiction

Conducting multi and mixed method research allows the researcher to understand the consistency and contradiction of another's world view, allowing them to compare 'what people say, what people do and what people say they do' (Bryman, 2016: 430). Indeed,

conducting group discussions alongside surveys, interviews and participant observation allowed me to triangulate my data, and in doing so highlighted some contradictions - particularly concerning the use of herbal medicines. Before starting my fieldwork, I had assumed that use of herbal or traditional medicines would be common place in Msitu, both because of my previous experience in sub-Saharan Africa as well as my own cultural background. This notion was supported in interviews and group discussions, where use of herbal remedies was mentioned as a possible treatment option when fever sets in. Yet, throughout the surveys I administered, which questions people on what they *actually* did in response to fever very few respondents reported using any herbal or home remedies. This forced me to check my own assumptions about the use of such remedies in Msitu – and was especially made apparent in a specific interaction I had with a group of youths, as illustrated in the vignette below.

Quest for mpera (guava leaves)

Ever since we started working together, Benny would periodically complain of stomach ache. I knew he had some health problems but my suggestions that he go to the dispensary to seek professional advice were always left unheeded. One day, I informed him that I was going for my usual evening walk before dinner. As usual, he opted to stay in the homestead, however this time he asked me to bring him back some guava leaves. Being from the Arusha tribe (distinct from, but related to Maasai), Benny is accustomed to taking herbal remedies when dealing with ill health. Luckily, on a previous stroll around the village, we encountered a guava tree where he plucked some of the leaves to show me, informing me of their medicinal qualities when ingested. As such, I had a vague memory of what they looked like, so I left for my walk with an added sense of purpose. However, while I remembered what it looked like I could not remember where *we saw that last guava tree and, moreover, there did not seem to be any others around. When I reached the village centre, I thought it best to ask someone for advice. I saw a group of* vijana *(youths) outside the local convenience store, and while I had some trepidation about approaching them (as I would about approaching any youths in any part of the world) they were the only discernible people around that I could ask. When I explained that I was looking for guava leaves, their response was one of confusion, 'what do you need those for?' they asked. I elaborated that I needed to give them to my research assistant who has stomach ache, to which they replied that*

they had never heard of the leaves being used in such a way. I then found myself in the bizarre position of having to explain to them that the leaves have medicinal properties which stirred up a lot of intrigue. After some back and forth banter about this, they eventually asked a passing Mzee (elder) *about the elusive* mpera *leaves. Fortunately, he knew the location of a guava tree and instructed me to follow him, leading me into what seemed like a private garden. There, hidden behind the house was indeed a guava tree. I had some reservations about trespassing on someone's property, but the* Mzee *had no such hesitations himself and began plucking leaves from the tree to give to me. I got a healthy-looking bunch and made my way back to the homestead.*

This interaction made me reflect on a few things. There is some stigma surrounding the use of herbal remedies in Tanzania which I thought may have influenced how candid people wanted to be about their use throughout surveys. Accordingly, I had assumed that, despite my survey results suggesting otherwise, use of herbal medication would be commonplace in the community (supported by what was said in interviews and group discussions). However, the interaction with the *vijana* made me revisit this assumption. Undoubtedly, the generational gap would have had some bearing on their lack of awareness about the guava leaves, as the use of herbal medicines seemed to be more prominent among older generations (evidence by the *Mzee* who directed me to the tree). This interaction does not mean that *no one* in Msitu is using herbal remedies, but perhaps does reflect that it is not as prevalent as what I assumed it to be. The salient point of this anecdote is not on the use of herbal medications *per se*, but to emphasize that contradictions are inherent in the research process, and it is ultimately up to the researcher to decide how they interpret them.

3.9 Data Analysis

Adopting a mixed quantitative and qualitative approach meant I had to undertake different forms of analysis suited to the medium in which data was collected. This primarily involved descriptive statistics, qualitative coding and constructing individual narratives. The aim of the quantitative aspects of data collection was to determine *what* remedial actions people took, *when* they took them, *where* they went for treatment and the more qualitative aspects of data collection were to ascertain *why* people took the actions they did, thus

uncovering factors that enable or constrain individual health seeking behaviours. My two main empirical chapters, then, chart the health seeking process, firstly for human febrile illness and subsequently for livestock illness – from recognition of symptoms in the home through to their lived experiences with animal and human health systems. I had initially considered analysing human and livestock health seeking behaviour in tandem, cutting across certain themes, however I realised in doing so would produce a rather shallow account of each, missing the key issues that pertain to each experience. As MacKian (2003: 23) notes: 'The complexity of peoples' actions is rarely traced in detail, and is usually disaggregated, losing all sense of the actual reality.' As such I chose to analyse them separately to chart how the evolution of health seeking unfolded for each phenomenon.

All data was entered into Microsoft Excel. While specialist programmes exist to manage and analyse quantitative and qualitative data separately (such as NVIVO for qualitative data), I found it more straightforward to keep all my data together in one place. Excel in particular made it easy to move between different data sets, as I had created separate sheets according to the medium in which the data was collected. I conducted basic descriptive statistical analysis on the quantitative data as its purpose was to simply characterise health seeking behaviours for research participants as a whole. The main aim of this thesis was to undertake an in-depth examination into people's experiences of ill health, as such, the use of inferential statistics was not considered an adequate approach for analysis. Sacrificing the 'breadth' of knowledge that statistical testing can offer, therefore, this study was interested in garnering 'depth' of understanding of the complex realities of health and illness in Msitu. I created graphs and tables as a means to visually represent common behaviours, which I believe provide a good starting point for further detailed analysis of the qualitative data which supports (or contradicts) these behaviours.

Qualitative data was analysed by undertaking coding in Excel where I kept 'raw data' in one column, initial descriptive codes in a second column and gradual thematic codes in a third. This allowed me to categorise large chunks of texts fairly efficiently. Codes were developed by undertaking 'open coding' (Crang, 2005) where I read through all my 'raw data' to look for emergent themes, noting specifically what was interesting or surprising about the data. I initially analysed interview, group discussion and observation materially separately, before mapping emergent themes onto a wall of white board paper (as seen in Figure 12). These were largely descriptive in nature and acted as an aid in order to help me integrate the data. Ideas on how to structure ensuing empirical chapters were informed through the health seeking behaviour models discussed in Chapter 2 i.e. starting with perceptions of illness and ending with health system factors. Yet space accorded to each stage was largely informed through inductive codes obtained from the data. For example, through coding I was able to see the prominence with which experiences relating to the health system were apparent, which subsequently influenced me to accord this key finding more space in the empirical chapters. Inductive codes also allowed for new themes to emerge such as health care provider experiences, also discussed at length in the following chapters. An example of the coding scheme used is shown below:

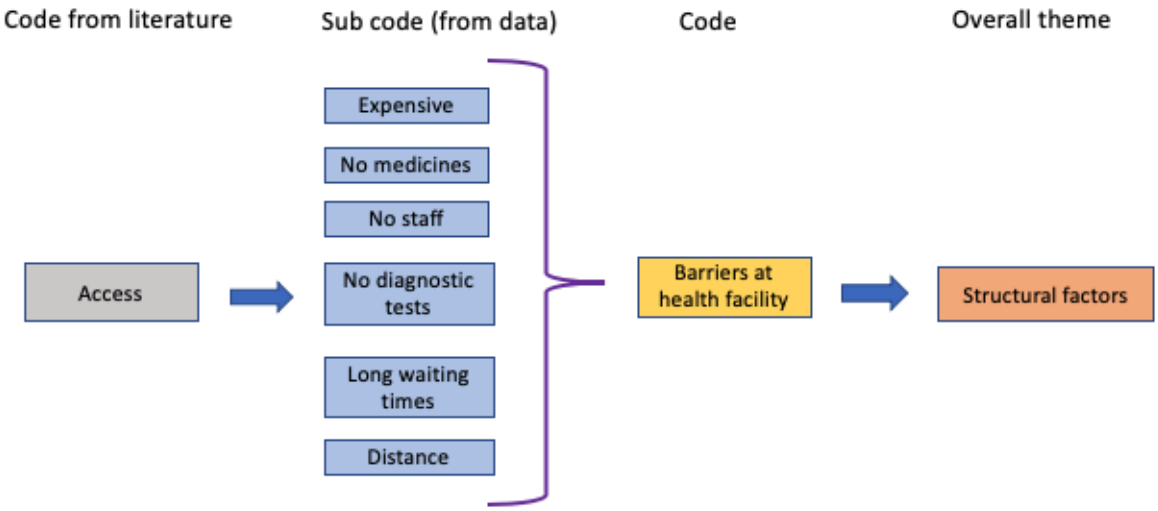


Figure 11: Sample coding scheme

Lofland and Lofland (1995) assert that qualitative data analysis is largely an inductive, reiterative, open ended process that is not easily captured by a mechanical process of assembly line steps. As such, I went through several cycles where these initial descriptive codes gradually became more analytical and thematically linked after each cycle of coding.

The aim of these coding cycles was to connect the data to theory in order to draw out new and interesting elements of this particular research and to find where it can make a contribution to knowledge.

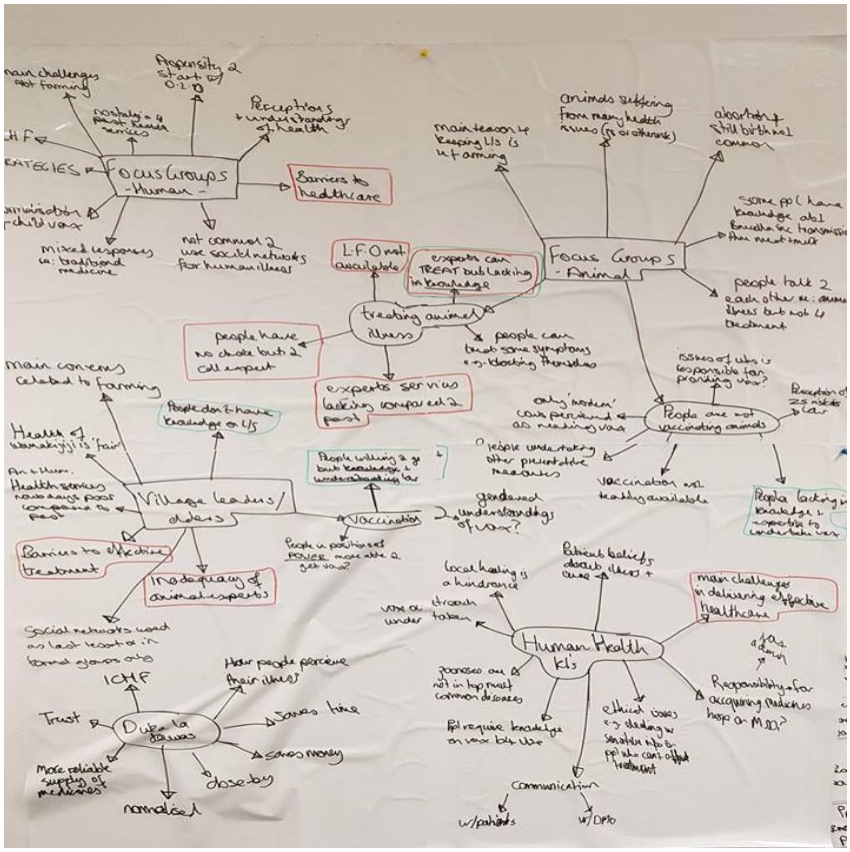


Figure 12: Mind map of initial descriptive codes

3.9.1 Constructing stories

One of the most commonly mentioned criticisms of the coding approach is that it results in a fragmentation of data, so that the narrative flow of what people say is lost (Coffey and Atkinson, 1996). Sensitivity to this issue has been heightened by a growing interest in narrative analysis. Reissman (1993) in particular became concerned about the fragmentation of data that results from coding themes when she came to analyse data she had collected through interviews on divorce and gender. She writes:

> 'Some interviewees developed long accounts of what had happened in their marriages to justify their divorces. I did not realise they were narratives until I struggled to code themes into long accounts that had coherence and sequence, defying easy categorisation. I found myself not wanting to categorise long accounts

> into distinct thematic categories. There seemed to be a common structure beneath to talk about a variety of topics.' (Reissman, 1993: vi)

In keeping with the concerns of Reissman, I have also interspersed vignettes throughout this thesis, partly because I believe the personal accounts told of illness defy easy categorisation, but also because they provide a platform from which a variety of topics can be discussed. As Hoggart et al. (2014) state, cutting and pasting themes from these accounts to fit into predetermined codes would remove essential elements of these stories, and in doing so would give a lesser account of the individual subjective experiences of illness. Keeping personal accounts whole allowed me to neatly capture the confluence of factors that work to constrain individual agency throughout the health seeking process. In essence, they disclose the structural violence enacted on individuals in their attempt to seek remedial actions for ill health. This method was in part inspired by Farmer (2005: 31) who asserts that 'structural violence' is best described through the 'gritty details of biography.' In Chapter 2 I recalled Farmer's story of Robert David, the Haitian native who battled with tuberculosis for almost ten years before eventually succumbing to his illness at the age of 29. In telling his story, Farmer personalises suffering by highlighting that, despite Robert's best efforts, his inability to access effective treatment was ultimately due to insurmountable barriers to health care. As Rebecca Chopp (1986: 2) states:

> 'Knowledge of suffering cannot be conveyed in pure facts and figures, reportings that objectify the suffering of countless persons. The horror of suffering is not only its immensity but the faces of the anonymous victims who have little voice, let alone rights, in history.'

With this in mind, I have included the biographies of Jacob, Maria, Amina, Sebstian, Wilfreda, Paulo and others throughout this thesis in order to personalise anonymous suffering (Laurie, 2014) and to shed light on the ways in which structural violence manifests itself in real people, in their everyday experiences of health and illness.

Encountering silence

Unlike Reissman (1993), whose interviewees gave her long accounts about their divorces, the vignettes I have included throughout this thesis have been constructed through piecing together information from surveys, follow-up interviews and participant observation. Before entering 'the field' I had, somewhat naively, thought that I would be able to sit down

with respondents and ask them to regale, in great depth, every minute detail of their recent experiences with febrile illness, in the hope of being able obtain detailed testimonies as to the struggle and suffering endured by individuals in their pursuit for good health. However, while I had developed good relationships with the *wanakijiji* on a personal level, when it came to discussing my research, I was often met with silence. There are many possible reasons for this: firstly, as I came to learn throughout my fieldwork, illness is part of the fabric of everyday life in Msitu and so asking people to recount their last experience with fever undoubtedly seemed mundane and tedious. Secondly, there was a discernible shift in the political climate since I had last been in Tanzania in 2010 and people noticeably had reservations about criticising the government, or any of its services, to outsiders. A possible third reason somewhat related this is that, as Farmer (2005: 25) writes: 'silence is… imposed from above.' He asserts that structural violence generates silence among the destitute sick and underneath this lies 'the pent-up anger born of innumerable small indignities, and of great irremediable ones' (Farmer, 2005: 25). Initially, I was guilty of describing this silence as stoicism, however, Farmer asserts that to describe it as such is to miss the 'great eloquence' beneath this silence (ibid).

Similarly, in recounting her PhD experience within residential care homes, Parr (2001: 191) became disheartened at the lack of residents' willingness to talk to her. She writes that her fieldwork was not going well because: 'everyone I had met wasn't spilling their guts to me and I feel guilty, why should they.' Parr acknowledges that this silence conveyed something of the disempowering atmosphere that was common in the care homes (Parr, 2001: 191) and this ethnographic experience allowed her to construct geographical knowledge:

> 'This in itself helped me to understand something about residential care homes and dwelling places, where the human agency of the residents as meaningful social actors was not generally recognised or given much chance to flourish (Parr, 2001: 191. In Limb and Dwyer, 2001)

While I am cautious to describe study participants in Msitu as disempowered, I do believe that their reservations to speak candidly about their experiences within the health system are borne out of numerous negative experiences which erodes their sense of being capable agents that have a voice. Barriers to effective healthcare within health systems are so commonplace that the innumerable indignities people face hardly seem worth talking about (see also Laurie, 2014)

It was when I encountered silence that I was faced with a dilemma, whether to probe further or to end the survey or interview. Moments like this were highly subjective: if I felt that the individual was silent due to the way in which I had asked a question, I chose to probe further to see if asking it in a different way would allow them to open up. However, if I felt that the reason for the silence was due to unspeakable suffering, I chose not to pursue it. While many participants were motivated to tell me about their experiences with illness, there were times (particularly when I came to know that the illness was fatal) that I could not in good conscience ask people to relive their suffering for the benefit of my research, when it was so clearly uncomfortable for them to do so. As Farmer notes: 'Sometimes it is more respectful not to scratch at the surface of silence; it is respectful to note it' (Farmer, 2005: 26).

3.10 Ethical considerations

Implicit in the inclusion of these stories, and indeed in all the quotes, numbers and testimonies I have included throughout this thesis, as well as the conclusions I have drawn from them, are concerns about representation. Madge (1994: 95) writes: 'the demands of analysis, writing up and dissemination of information often force us to detach ourselves, switch back to 'western mode' to produce texts and develop 'distance' to use information.' This distance inevitably invokes concerns about how we write about and represent 'others' (Kapoor, 2004; Raghuram and Madge, 2006; Sumner and Tribe, 2008). A number of postcolonial feminist writers such as Spivak (1988) and Mohanty (1988) drew particular attention to the politics of representation of women of the 'Third World' in texts produced by western researchers. In line with this, England (1994: 81) asks: 'can we incorporate the voices of 'others' without colonising them in a manner that reinforces patterns of domination?' (1994: 81).

While there are no simple answers to the question posed by England, they have forced western researchers to be more accountable and to engage in some serious self-reflection. Katz (1992) asserts that in order to counter oppression in the research process researchers must renegotiate and engage with the situatedness of their knowledge and positionality. This involves continual questioning of a researcher's social location (gender, class,

ethnicity, age, abilities and so on) and of the physical location of the field area. She goes further to say:

> 'We can no longer valorise the concrete experience of oppressed peoples while remaining uncritical of our roles as intellectuals. Neither can we presume to speak for or about peoples and nations as if they were outside of the contemporary world system, refusing to recognise that our ability to construct them as such is rooted in a larger system of domination.' (1992: 495).

In light of this, many researchers have begun to demonstrate an acute awareness of their positionality in relation to those who they are researching, thus problematising their own histories and identities, and reflecting upon how these things influence the research process and relationships formed (Abbott, 2006; Chacko, 2004; Henry et al., 2009).

Concerns over the legitimacy of research by westerners in the 'Third World' have led some academics to abandon research in developing countries altogether. Kobayashi (1994) notes that some academic women and men have withdrawn from research that 'might place them in territory to which they have no social claim, or that might put in question their credentials for social representation' (Kobayashi, 1994: 74). However, as Briggs and Sharp (2004: 673) note: 'Rather than abandon fieldwork, it is perhaps now more than ever necessary to de-centralise western centrism' geographically, linguistically and culturally. In other words, development fieldwork can play an important role in disrupting the idea that western cultural practices and whiteness are normal and that everything else is 'other' (McEwan, 2011: 24). The reflexive turn has contributed to healthy debate and reflection on fieldwork which has helped move beyond positivist assumptions about the neutral role of the researcher to more nuanced understandings of the ways in which positionality, relationships and personality affect the research process (Scheyvens, 2014).

Approaches to positionality have changed over the years, reflecting changes in theories of subjectivity. Rose (1997) asserts that researchers' attempts to overcome positionality by situating themselves within power relations (often as middle class, white and western) do nothing more than approximate a 'goddess trick'[12]. She asserts the notion of being transparent through reflexivity is inherently problematic as it implies that the researcher is

[12] A reference to Donna Haraway's (1988) 'god trick' – a critique of disembodied, objective scientific neutrality.

a ‘transparently knowable agent whose motivations can be fully known’ (Rose, 1997: 309), when in reality ‘unknowability’ and uncertainty are pervasive throughout research and cannot be easily articulated through reflexivity. While I acknowledge that it is impossible for me as a researcher to fully understand my position and how the inherent power relations between myself and participants has affected my research, I am still cognisant of the fact that my research interests and the research questions I have posed reveal something about who I am. As Guillemin and Gillam (2004) assert, our choice of research design, the research methodology and the theoretical framework that informs our research are governed by our values and beliefs. Moreover, our interpretations and analyses and how we choose to present our findings, together with whom we make our findings available to, are all constitutive of reflexive research. Reflexivity in research is thus a process of critical reflection both on the kind of knowledge produced from research and how that knowledge is generated. As Susan Krieger (1991: 89) aptly puts:

> ‘The pot carries its maker’s thoughts, feelings, and spirit. To overlook this fact is to miss a crucial truth, whether in clay, story, or science.

3.10.1 Reflexive concerns

The reflexive turn has seen researchers devote substantial portions of their theses and published work to considerations of how their gender, age, race, ethnicity, sexuality and so on have shaped the research process and the kinds of knowledges constructed. This has produced richer and more honest accounts of fieldwork, revealing how all knowledges are situated and embodied in specific ways. Moreover, readers gain important insights into the position from which you write and into the epistemological foundations of your project. In an earlier draft of this chapter, I devoted a considerable chunk to the fact that in addition to being a female, privileged western researcher, I was also Indian, and what this intersection of gender/privilege/ethnicity meant in my research. I included several paragraphs detailing the history of indentured labourers from India brought over to East Africa by the British to work on the railways. I then discussed how colonial organisation of East African society on rigidly racial lines inevitably engendered ways of thought and attitudes which were prohibitive to any kind of interracial social integration, before discussing the effect this may have had on my fieldwork. However, I realised that this soon made this chapter sound rather solipsistic and performative. As Kobayashi (2003: 348)

notes, some reflexive accounts are little more 'a privileged and self-indulgent focus on the self that… ends up distancing the writer… from the very people whose conditions she might hope to change.' While I believe that being reflexive is an important way to address power relations in research, I believe it is important to discriminate between reflexive information that supports our research goals and that which does not. It is for this reason that I chose to delete that section from this chapter. In any case, I do not believe that in Msitu my ethnicity as an Indian had any more or less bearing than a typical privileged, female, western researcher coming to do research in the Global South[13]. While my skin is brown, people instantly knew from the way I dress and my mannerisms that I was more akin to a *mzungu* (white/European person) than an Indian Tanzanian.

Another reason I chose to delete that section is because I believe when discussing reflexivity, much emphasis is placed on how we, as researchers, are different from those we research, rather than on our shared similarities. As Narayan (2012: 98) states:

> 'Rather than slamming down a list of intersecting coordinates about who you are (gender, race, class, ethnicity, sexual orientation, regional background and so on)… try to move beyond the centripetal urge of being the star. Stand back: discern the ways you are linked to others by shared experiences, or interactions across differences and inequalities.'

While the differences between myself and the *wanakijiji wa Msitu* (people of Msitu) could not, and should not, be ignored, I made the active decision for our differences not to be the main focus of this reflexive process. Rather, I made every attempt to become involved and participate in their lives, creating shared experiences, in effect working to reduce the power relations between us. We shared meals, we bantered by the water pump, we gossiped, we laughed (often at my attempts to live the village life) I attended their weddings, rejoiced in their celebrations, empathised with their losses. These efforts were not merely done in an effort to be a reflexive researcher, but on a more personal level, they were borne out of a human need to make connections with the people who I was privileged to call my neighbours for the eight months I lived with them.

[13] While I noticed this in my personal relationships, which were especially more pronounced in more urban areas, I did not feel this in Msitu

Figure 13: The Hamisi family, Benny and myself

Figure 14: The people of Msitu and myself

3.11 Conclusion

Throughout this chapter I have attempted to provide some insight into the village of Msitu and the people involved in this study as a means to contextualise subsequent empirical findings. Thereafter I discussed how I came to use a mixed method ethnographic approach to help address my research objectives, namely through surveys, participant observation, interviews, group discussions and textual analysis. I then gave some consideration to the

importance of research assistants throughout the research process, not only in translation but in building rapport with participants. Thereafter I discussed the process of data analysis, giving insight into what type of analysis I did for each element of my research. Finally, I finished this chapter with a discussion of the implicit ethical concerns of doing research in the Global South, and how greater attention to positionality and reflexivity have attempted to address these concerns. Before going onto examine how the people of Msitu contend with febrile illness, I provide a brief overview of the major structural and institutional changes to the animal and human health landscape in Tanzania throughout the years. In doing so I aim to contextualise the wider social conditions under which the people of Msitu design strategies to deal with ill health.

Interstitial II
Jacob's story

I initially encountered Mzee *Jacob in a group discussion concerning the available health services within and around Msitu. I knew he was a member of the village council and was therefore somewhat relieved when I saw he would be joining the group as I anticipated he may have a lot to contribute. As it transpired, however, he remained fairly quiet throughout the first half of the discussion, preferring to take in what was being said rather than offering any opinions of his own. It was not until I asked people about their thoughts on the quality of health services that he became more vocal: 'They should bring back the first aid box' he said. When I asked him to elaborate he explained that in the past (referring to the socialist days under* Mwalimu *Nyerere) there had been a box in some villages that contained basic medical supplies, including painkillers, bandages and ointments. He said residents could access these supplies when needed free of charge[14]. Jacob was lamenting the loss of this box while discussing his dissatisfaction with the local dispensary – where he perceived that a lack of adequate medical supplies and understaffing often acted as deterrents for people seeking health care there. Nowadays, without the first aid box, people have no choice but to pursue other forms of care at a cost. Other participants, while not as vocal as Jacob, seemed to be nodding in quiet agreement with him. As time went on, the group discussion became more akin to an interview with myself, Benny and the* Mzee*, as he had many opinions on the general demise of public health service provision which also extended to veterinary services. Interestingly, he often focussed on the attitudes of providers, stating that they are 'not serious' or not as attentive as how they used to be, perhaps a reflection of how he feels valued - by animal health workers, public health workers and by the state in general. Subsequent interviews with other elders in the community revealed that Jacob's concerns were common, particularly amongst those over 50 years of age. They all shared a fairly melancholic view of the present and a nostalgia for the past - where public and veterinary care was either free or highly subsidised and life in general seemed better.*

[14] Supported through a community financing scheme under the '*Ujamaa* Village Public Health Programme' 1980-1981 (Carrin and Vereecke, 1992)

Tanzania, like many other developing countries, has undergone significant economic and ideological shifts in recent decades, from non-aligned socialism to capitalism with clear effects on the national psyche. For Mzee *Jacob, and many others like him, nostalgia for the past is inextricably linked to his disappointment with life as it currently exists, a life heavily impacted by neoliberal economic policies. Talking to Jacob and other elders, there was a tangible sense of loss for a government that seemed to genuinely care about its citizens, compared to the present were people are left dissatisfied, disillusioned and their sense of agency and control over their own lives eroded.*

CHAPTER 4

From *Ujamaa* to structural adjustment: tracing changes in governance of animal and human health systems

4.1 Introduction

In order to understand *Mzee* Jacob's disappointment with the present, it is necessary to take a deeper look at the past. Farmer (2013) asserts that episodes of suffering are structured by historically given (and often economically driven) processes and forces that conspire to constrain agency. Similarly, Moore ([2018] after Braudel [1958, 2009]) asserts that only by understanding the long-standing structures of the economy can we understand the continuities that exist between past and present which shape the character, flow and possibilities of people's lives. It is for this reason that I include a brief overview of the major historical changes to public and veterinary health systems in Tanzania – from independence to the era of structural adjustment. Much of how Tanzanians experience health and illness today are informed by the substantial changes made to the health system throughout this period. Accordingly, it is important to chart the major policy, political and structural processes that altered the animal and human health landscape in order to obtain a fuller picture of the forces which determine health seeking behaviours. Considering animal and human health landscapes together can add value to a One Health approach by looking at the shared structural and systemic changes that affected each sector and the resultant implications this has on human and livestock health and wellbeing.

4.2 Health care for all – health provision under *Mwalimu* Nyerere

Upon achieving independence from the British colonial powers in 1961, President Julius Nyerere established a system of African socialism, driven by the concept of *Ujamaa* (familyhood) as a basis for developing the country. Although *Ujamaa* was a Tanzanian initiative, it was part of a broader continental phenomenon of African Socialism (Lal, 2015) – a blend of political concepts and strategies reflecting the high hopes and ambitions for

African nations in the post-Independence era. Nyerere was committed to developing a health care system in alignment with the principles of *Ujamaa* and promptly declared war on the main enemies of the country: poverty, ignorance and diseases (Jonsson, 1986). However, economic hardship, legacies of colonial medicine and widespread drug shortages somewhat hampered his efforts (Barry and Bia, 1986). It was not until after the Arusha Declaration in 1967 that he made substantial gains towards this vision. The villagisation programme (1969-1975) and the decentralisation of the government in 1972 in particular made it easier to reach a larger proportion of the rural population with social services and created a unique infrastructure for participation in decision-making (Jonsson, 1986). While the *Ujamaa* vision was not without its faults (some critics assert that it was more utopian than practical, and out of sync with the existing realities of the Tanzanian people [Ibhawoh and Dibua, 2003]), the developments made in education, health and water services throughout this period cannot be understated. Between 1961 and 1983 the adult literacy rate increased from 20% to 85% and primary school enrolment increased from 15% to 96%. Universal primary education was increased in 1977 and has been sustained and clean and potable drinking water was provided to 50% of villages within the country (ibid). Nyerere's contributions to health services were particularly notable; between 1977 and 1984 expenditure on health services almost doubled and life expectancy increased from 37 years in 1967 to 51 years in 1978 (ibid). By the end of 1975 there were 160 health centres and nearly 1800 dispensaries distributed so that 90% of the population was within 10km of a health facility (Coulson, 2013).

Nyerere's commitment to provision of public services meant that veterinary services were also largely funded, managed and delivered by the state. This included provision of clinical services (e.g. diagnosis and treatment), control of major notifiable[15] and zoonotic diseases, and the creation of national research and training institutes and central laboratories (Ole-Nessele and Loomu, 2008). Government veterinarians led disease control programmes, assisted by veterinary assistants (with 1-3 years of training) and state services were generally free of charge or highly subsidised. Driven by the *Ujamaa* philosophy to provide

[15] Any disease that is required by law to be reported to government authorities. Notifiable livestock diseases in Tanzania include: CBPP, rabies, foot and mouth disease (FMD), and CCPP (National Livestock Policy, 2006).

underserved areas with essential services, Nyerere established 594 veterinary centres run by diploma and/or certificate holders, in addition to ensuring every village instated a publicly appointed extension officer (Mpelumbe, 1997). In 1965, the Morogoro College of Agriculture was established to run diploma courses, and eight farmer-training centres were also operating at this time (FAO, 1994). In 1976, Tanzania began to grant veterinary degrees from the (then) Division of Veterinary Science at University of Dar es Salaam. The purpose of the course was to produce competent vets who were knowledgeable in animal production, farm economics, rural sociology and veterinary extension (Mosha et al., 1997). In 1985, the Division of Veterinary Science was elevated to faculty status with the establishment of the Sokoine University of Agriculture (Silkin and Kasirye, 2002). As such, it is clear Nyerere's rule not only expanded the reach of government veterinary services significantly, but also set institutional structures in place dedicated to the production of highly trained veterinarians.

4.3 Strictures of structural adjustment

The *Ujamaa* vision came to an untimely end in the mid-1980s when global economic crisis, mounting debt and high levels of poverty eclipsed the earlier goal of achieving substantive socialism. High oil prices in the mid-1970s spurred the economic crisis (followed by soaring interest rates) throughout the developed world, lowering demand for products exported from the developing world (Basilico et al., 2013). The governments of developing countries had taken out significant loans at flexible interest rates and were now squeezed by growing debt services on the one hand and declined demand for their exports on the other. In many cases, the situation was exacerbated by hyperinflation, fuelled in part by expansionary monetary policies aiming to abate the initial crisis (ibid). The levee broke on August 18, 1982, when the Mexican government defaulted on its loans, damaging Mexico's creditors and signalling systemic debt problems across the Global South (Easterly, 2002). Within months, dozens of developing countries, especially Latin America, were also nearing default. Commercial lenders panicked, drawing significant amounts of capital out of developing countries and pressuring Western governments to intervene on their behalf to increase debt repayment (Basilico et al., 2013).

International Finance Institutions (IFIs) such as the World Bank (WB) and the International Monetary Fund (IMF) responded to the debt crisis forcefully, insinuating that it was excessive government intervention that had driven economic stagnation. Guided by an ideological commitment to market economics and capitalism (Gibbon, 1993; Simon, 1992; Simon et al., 1995; Rapley, 1996; Briggs and Mwamfupe, 2000) these institutions enforced significant limitations on public spending as a cornerstone strategy for development policy. A central tenet of this process was the issuing of loans with punitive conditions, primarily adherence to provisions regarding government outlays and economic policy, two building blocks of national sovereignty and self-determination. Recipient countries had to agree to significant reforms on government intervention in the market, including shrinking public deficits, opening economies to free trade, and establishing rigid benchmarks for marcoeconomic policy. This also included the privatisation of parastatals and other nationalised industries; the introduction of competition within various economic sectors; trade liberalisation; the abolition of centrally fixed currency exchange rates; the deregulation of currency markets; active encouragement for the private sector, including both domestic and foreign capital; and a reduction in the size of the workforce in the public sector (Briggs and Mwamfupe, 2000). By adopting such measures, the IMF and others argued that conditions would be set in place to facilitate higher rates of economic growth (ibid). When the initial loans and the reforms they required failed to produce the type of growth envisaged, countries were generally left with no other option but to borrow additional funds from the only available lenders, the IMF and the World Bank, which added to their debt burden and further weakened their economies. The debt crisis thus ushered in cycles of borrowing and lending with severe conditions (Basilico et al., 2013).

President Nyerere brusquely refused IMF recommendations to retrench and devalue currency (in effecting reversing Tanzania's progress towards equality and socialism). However, after a period of prolonged discussions with the IMF, combined with mounting national debt, impact of the war with Uganda, collapse of the East African Community and persistent drought (Mpambije, 2016) Nyerere's successor, Ali Hassan Mwinyi signed Tanzania's first Standby Agreement with the IMF (Coulson, 2013), thus accepting the conditions of structural adjustment. By the early 1990s, macroeconomic reform had become a seemingly unstoppable force in Tanzania, a process reinforced with the election

of Benjamin Mkapa to the Presidency in 1995. Tanzania by now had moved a long way from the heady days of 'building socialism' in the 1970s (Briggs and Mwamfupe, 2000: 801) towards an increasing embrace of neoliberal governance. The economic position of the country gradually improved over the years but the cuts in government spending undermined many of the achievements of the Nyerere era, particularly in education, health, water supplies and availability of agricultural inputs (Coulson, 2013).

4.4 Health sector commercialisation

For many countries across the globe, meeting the conditions of structural adjustment loans generally entailed cutting funding to their health sectors, and Tanzania was no exception. This had significant impacts on health care delivery as, despite the advances made by Nyerere, the health sector still faced severe underfunding that affected the quality and provision of services. This included: shortages of drugs, equipment and medical supplies; overall deterioration of the physical health infrastructure, including electricity supply and water and sanitation at health care facilities; poor management and regulatory frameworks; and very low wages and other incentives for health care workers, resulting in low staff morale (Mujinja and Kida, 2014). During this period, the government was the key provider of free health care services with private provision nearly non-existent except for a few faith-based health care facilities (ibid).

The government of Tanzania (GoT) sought to address these problems by introducing a series of health sector reforms (as outlined in Appendix 5). In line with the prevailing neoliberal ideology at the time, these changes were informed by the World Bank's vision of a new type of health reform – one which rested on the notion that health care is a commodity, not a human right – and as such can be efficiently allocated by the market (Basilico el al., 2013). These market-oriented policies involved substantive deregulation and liberalisation within the health sector and had a significant impact on health care delivery. These included, but were not limited to, biased financing on vertical health programmes; commercialisation of the health sector through increased involvement of private health providers; and the introduction of a fee-based structure in public health care facilities (Mujinja and Kida, 2014). The World Bank reasoned that user fees would accomplish three main aims: generate revenues for health services; increase the efficiency

of health services by reducing 'over consumption' from patients and by encouraging people to seek care at low-cost primary care facilities instead of expensive hospitals; and subsidise rural health care with revenue collected from urban user fees (Yates, 2009). This was supported by the 1987 Bamako initiative, led by a number of African ministers for health, who proposed that universal access to primary health care would require 'substantial decentralisation of health decision-making to the district level' and 'user-financing under community control' to promote the sustainability of health care (McPake et al., 1993: 1383). Under advice of the Bamako initiative, the government of Tanzania introduced user-fees into its health care system in 1993, significantly altering people's ability to pursue effective and affordable health care.

Also central to the commodification of the health sector was a focus on privatisation. In 1991, the GoT overturned the 1977 Private Hospitals (Regulatory) Act where medical practitioners were allowed to open private, for-profit health facilities (previously prohibited by Nyerere). Nyerere had meticulously targeted the building of health facilities to regions and districts previously neglected by the colonial regimes or to areas that were not being served adequately. However, the rise of new private facilities meant these were primarily clustered in urban or highly populated rural areas where there was less of a 'true' need for them compared to underserved rural areas (Benson, 2001: 1914). The neoliberalisation of health brought about a segmented health care market that primarily catered to those who were able to pay (Tibandebage and Mackintosh, 2005; Mujinja and Kida, 2014) rather than being viewed as a service provided to individuals as citizens of a nation state (Willis and Khan, 2009). Thus began the long trajectory of viewing health and wellbeing as a commodity rather than human right and allowed disparities in equality of access to health services to emerge (Benson, 2001). The ways in which people navigate this altered health landscape is discussed at length in the ensuing chapters.

4.4.1 Privatisation of veterinary services

Despite being subject to increasing levels of privatisation, public health in Tanzania is still regarded as welfare issue. Accordingly, the GoT still has a prominent role in the provision of health services (albeit reduced). The livestock sector, on the other hand, was increasingly viewed as an economic issue (upon advice of IFIs) and almost completely dismantled from

the public realm and moved into the private sector. The rationale driving the privatisation of veterinary services throughout the structural adjustment era was the belief that the private sector would outperform the public sector and would produce numerous benefits. These included: reduction in inefficiencies/ disincentives within government bureaucracy; savings in the public budget as many public veterinarians/animal health assistants would no longer be employed as civil servants; and private animal health service providers would be expected to supply goods and services not otherwise offered to rural households (Riviere-Cinammond, 2000; Pica-Ciamarra et al., 2010). The gradual dismantling of public veterinary services from the public realm into the private was done through a series of agricultural reforms. The main objective of these reforms was to devise means for efficient utilization of both public and private sectors so that they could operate more efficiently under a changed macro-economic policy (Matthew et al., 2016). These are outlined in the Ministry of Agriculture and Cooperative's (MAC) Animal Health Strategy plan (1998) in Appendix 6. An important analytical framework to justify this approach was developed by Umali et al. (1994) who drew heavily from neoclassical economic ideology to determine the services for which a market for animal health services was expected to emerge, a market in which private veterinarians and other private service providers could flourish. They used concepts such as 'rivalry' and 'excludability', 'toll goods' and 'common pool goods' to identify how veterinary services should be divided. 'Excludability' applies when access to a good or a service is denied to those who have not paid for the good or service, while 'rivalry' (or subtractability) applies when one person's use or consumption of a good or service reduces its availability to others (Feldman, 1980; Umali and Schwartz, 1994). With private provision, the individual consumer may receive the benefit individually at the expense of others (strong rivalry and high excludability); whereas, with public provision, more than one consumer benefitted at the same time (low rivalry and low excludability). These lie at the opposite ends of a continuum as shown in Table 5 overleaf.

Rivalry (or subtractability)	Excludability: Low	Excludability: High
Low	**Public Goods** – Epidemic or zoonotic disease control (including surveillance, movement control, quarantine services) – Some extension – Some research – Control of food-borne diseases – Drugs quality control	**Toll Goods** – Vaccine production – Diagnostic services – Veterinary clinics – Dips
High	**Common pool goods** – Tsetse control on communal land using traps, targets or aerial spraying – Some research	**Private goods** – Endemic disease prevention and control – Sales of drugs and vaccines – Some extension

Table 5: Classification of veterinary services. Source: Holden (1999), after Umali et al., (1994)

An example of a 'toll good' is that of diagnostic services offered on a for-payment basis, which excludes the people who cannot pay for the service from benefitting from it, but an additional client does not diminish another's consumption. However, in the case of common pool goods or services, those who cannot pay are not excluded from the benefits of the good or the services. An example of this is tsetse fly control on communal land using areal spraying – where even those who are not paying for the service will still receive the benefits (Umali et al., 1994). Holden (1999) asserts that while it is useful to understand the logic that drove the classification of veterinary goods, in reality, few veterinary services are purely public or private and most contain elements of each. Sen et al. (2003) acknowledge that private provision alone is not optimal, and a blend of private and public sector veterinary services is required to utilise the virtues of both. This is reflected in the MAC's Animal Health Strategy plan (1998) and in the most recent National Livestock Policy (2006) where, although the control of endemic zoonoses is not believed to be a public good, the policy commits the GoT, in collaboration with other stakeholders, to strengthen infrastructure and facilities for veterinary public health and food safety services to combat such diseases (Matthew et al., 2016). More on this is discussed later in Chapter 6.

Cheneau et al. (2004) and Oruko and Ndung'u (2009) argue that while the privatisation of veterinary services has had some positive effects, particularly regarding the availability of veterinary remedies and cost recovery, this was primarily in urban and market-oriented livestock systems only. Kitandu (2013) asserts that private animal health services are difficult to implement in more remote areas where, due to economies of scale, such services failed to be provided by market-dependent private sector. This is because veterinary professionals are not willing to expand their practices in areas which they do not deem to be financially viable (due to low drug use and widely dispersed populations). As a result, the provision of veterinary services in remote villages by and large collapsed, as veterinarians saw practicing in these areas as unattractive (Mwakalile, 2004). Privatisation also saw the Ministry of Agriculture downsize its staffing. Melewas and Lengisugi (2001) cited by Silkin and Kasirye (2002) state that during the 1990s, government employment of professional veterinary staff was frozen and many public veterinarians were retrenched. Staffing levels fell from 15000 to 5000, the majority of redundancies being auxiliaries and paraprofessionals who had played an important role in delivering veterinary services to the rural poor. By 1994, the number of unemployed certificate and diploma holders stood at 516 and the Ministry of Agriculture ceased enrolling students in any of the Livestock Training Institutes (LITIs). The GoT also stopped providing free dipping services in 1983, abolished government veterinary stores, liberalised drug sales in 1994 and eliminated government veterinary clinics in 1997 (Melewas and Lengisugi, 2001). As such, much of the progress made throughout Nyerere's reign to provide public veterinary service to citizens was undermined by the application of neoliberal management techniques to the governance of animal health (Enticott, 2011).

4.5 Lasting effects of structural adjustment

Though it is difficult to determine the extent to which structural adjustment, rather than pre-existing economic and political conditions was responsible for declines in social service funding, the 'stabilise, liberalise, privatise' platform of the World Bank did little to strengthen public service delivery and accessibility of social services. Aggregate economic growth was negative across sub-Saharan Africa, Latin America, Eastern Europe or the Middle East and North Africa during the 1980s and 1990s (Easterly, 2002). IMF-supported

countries in Latin America and Southeast Asia experienced repeated crises, which may have been linked to the severe conditions imposed by structural adjustment loans. Countries like India and China who undertook economic reform independently of the IMF performed significantly better throughout this period (but there are complex historical, political and economic reasons for the growth of these emerging economies) (Stuckler et al., 2010). As such, it is now widely acknowledged that structural adjustment, as implemented, did little to achieve growth, reduce poverty, or improve health in many developing countries (Basilico et al., 2013).

Almost forty years after SAPs, the Tanzanian health system is still constrained. Most problems that were present before the health sector reforms still remain (albeit to a lesser extent in some areas). Primary health care facilities are still characterised by inadequately trained staff; frequent shortages of drugs and medical supplies and are poorly equipped (Tibandebage and Mackintosh, 2005; Mackintosh and Mujinja, 2010). Furthermore, there are still problems of inadequacy/underutilisation of skilled human resources in the health sector and, subsequently, the quality of healthcare delivered. There is also the failure to effectively implement the exemption and waiver system, thereby excluding very poor and vulnerable groups from effectively accessing health services (Mliga and Mwakilasa, 2005). Within the veterinary sector, retrenchment of public veterinarians and auxiliaries has also resulted in inadequate animal health care in rural areas. While publicly appointed paraprofessionals (livestock field officers – LFOs) are still present, they generally have limited funds, capacity and work on a user-fee basis. The donor community reasoned that, in the absence of private vets and LFOs in remote areas, the responsibility would fall to other animal health actors (particularly Community Animal Health Workers) to fill the gap. However, improvements in access to services via these individuals remains unclear (and is discussed at length in Chapter 6). As a result, people in rural areas requiring access to veterinary services remain largely underserved.

4.6 Conclusion

Throughout this chapter I have given a brief overview of the major structural and institutional changes that occurred within animal and human health systems in Tanzania. From socialism to SAPs, I detailed how shifting political and economic ideologies have

brought about significant changes in the governance of these systems. Most apparent is the overall commodification of public and veterinary health, primarily through liberalisation and privatisation. Neoliberal policies were thought to improve the efficiency of animal and human health systems while simultaneously reducing public expenditure, however, it is now widely accepted that the benefits have not been realized (Leonard, 2000; Okwiri et al., 2001; FAO, 2002). In reality, attempts to restructure already limited state capacities has led to amorphous and ill-defined mixtures of public and private health providers and the systematic weakening of health systems in general throughout sub-Saharan Africa, resulting in poor health service provision to citizens (Leonard, 2000). Not only does this have major implications on how the rural poor manage their livelihoods and protect themselves and their animals against diseases, but as seen in Jacob's story, it also impacts on how people feel valued by the state, and subsequently impacts their sense of agency and control over their own lives. Chapters 5 and 6 attempt to uncover the ways in which the people of Msitu navigate public and veterinary health systems in light of these structural changes. By taking a detailed look at lived experiences of human and livestock illness, I endeavour to uncover the ways in which structural and everyday violence permeate the health seeking process and how this impacts people's abilities to pursue good health and wellbeing for themselves, their families and their livestock.

Interstitial III
Maria's story

When Happy and I first spoke to Maria in April of 2017 she was suffering from fever (cause unknown at the time) and was experiencing headache and difficulty eating. In an attempt to treat the fever, Maria took paracetamol which she bought from a local drug store, in addition to drinking a solution of Neem leaves boiled in saltwater (referred to as mwarobaini[16] *in Swahili). It was not uncommon in Msitu to use herbal medicines and/or over the counter pills both before and after visiting a formal health service provider as a way to manage illness and thus avoid spending unnecessary costs on transport and user fees at hospitals or health centres.*

I returned to talk to Maria in September 2017 to find out how she was faring. It transpired that in June, after two months of self-treating with herbal and biomedical remedies, Maria made the decision to go to the local health centre which is seven kilometres away from Msitu. She decided to go there as she felt that, while she was not getting any better, her situation was not severe enough to warrant going to the larger district hospital. Moreover, because it was nearby, she could easily arrange a bodaboda (*motorcycle taxi) to take her there. Maria told us that upon arrival at the health centre she was admitted for five days and diagnosed with typhoid fever, malaria and amoebas. The total cost of her visit was 110,000 TSH (£34). When I asked Maria what she did in order to arrange for the finances she replied that they (she and her husband) tried to sell their crops, but because it was the harvest season, everyone was trying to sell which meant there was no market for them. Luckily, her children were able to contribute some cash. When asked if she would feel comfortable turning to neighbours or friends for financial assistance she replied:* 'Everyone is living and struggling in the same situation, no one has money so it is hard to ask other people.'

[16] Mwarobaini (*Azadirachta indica* or more commonly known as Neem or Indian lilac) is a well-known herbal medicinal plant and commonly believed among Tanzanians to heal up to 40 different health problems (stemming from the Swahili word for forty – '*arrobaini*' (Agyepong, 1992; Aikins et al.,1994).

After visiting the health centre, Maria returned home and felt slightly better for some time. However, two months later (in August) she collapsed on her doorstep and had to be taken in an emergency to the larger district hospital. Here she was admitted for three days and diagnosed with brucellosis, typhoid fever (again) and high blood pressure, an almost completely different diagnosis from the one given at the health centre just two months prior. The cost of this visit was 149,000 TSH (£46). This total did not include the medication she had to source and buy herself (because the hospital had run out of stock). When recounting this story, Maria described her frustration at the difficulties in being able to get her medicine:

> 'Sometimes you are tested and told to get medicine elsewhere but you don't have money and so you have to wait – and in those four days you have to wait by the time you get your medicine your illness has become worse and the dosage is no longer correct.' Maria, Interview, Ziwa, 06/09/17

Once Maria sourced her medication, she was able to go home and (re)start the healing process, until the next time she becomes unwell. Maria's experience is the norm rather than the exception in Msitu. Pluralistic healing practices, difficulties in mobilising financial resources, re- and co-infections and systemic failures in the health system were ubiquitous throughout all respondent's lived experience of illness. It is attention to these interrelated factors that shape health seeking strategies, as well as the struggle and suffering endured by people like Maria that I wish to pay explicit attention to throughout the ensuing chapter.

Chapter 5
Health seeking strategies for human febrile illness in Msitu

5.1 Introduction

Maria's story demonstrates how, despite her best efforts, a confluence of factors resulted in her prolonged and unnecessary suffering when seeking remedial actions for her illness(es). In this chapter I aim to investigate the ways in which individual agency to pursue effective health care is shaped by the wider historical and structural changes to health systems discussed in the previous chapter. I begin by outlining the current health landscape in Tanzania before going on to discuss the prevalence of febrile illness among respondents. Drawing from the conceptual framework proposed in Chapter 2, I then trace the health seeking trajectories people in Msitu take when dealing with ill health. I begin by considering perceptions of disease causation, followed by the first remedial actions taken to treat fever (with a specific focus on the use of local drug stores). Thereafter, I pay attention to the decision-making and resource mobilisation process that households must engage in before being able to travel to a health facility. This includes a discussion of the ways in which people negotiate access to health services and mobilise livelihood assets to secure the necessary finances. Finally, I end this chapter with respondents' lived experiences within the public health system. I focus on the ways in which understaffing, patient-doctor interactions and lack of medicines come to act as further barriers to effective treatment. Here I also consider the experience of health workers themselves and the constraints they face in being able to deliver health services effectively within prevailing circumstances. By considering health seeking behaviours within the wider social matrix, I aim to uncover the ways in which structural violence is present at every stage of the health seeking process, and the resultant avoidable suffering this causes. Identifying the more distal elements of health are at the essence of biosocial approaches and can offer a more critical understanding of health seeking behaviour, with significant implications for health interventions.

5.2 Current health landscape in Tanzania

The restructuring of the health system throughout the 80s and 90s, resulted in an increasingly pluralistic health landscape in Tanzania - with a mixture of public, private, NGO and faith-based organisations (FBOs) all involved in the delivery of health services. As of 2008, the public share was 56% and the private share 44% (Ministry of Health and Social Welfare (MoHSW), 2008). Thirty percent of the private share is constituted of FBOs and NGOs and the remaining 14% made up of private for-profit enterprises. The system works at four levels (as shown in Figure 15); the community, ward, division, district, regional and finally the zonal and national level.

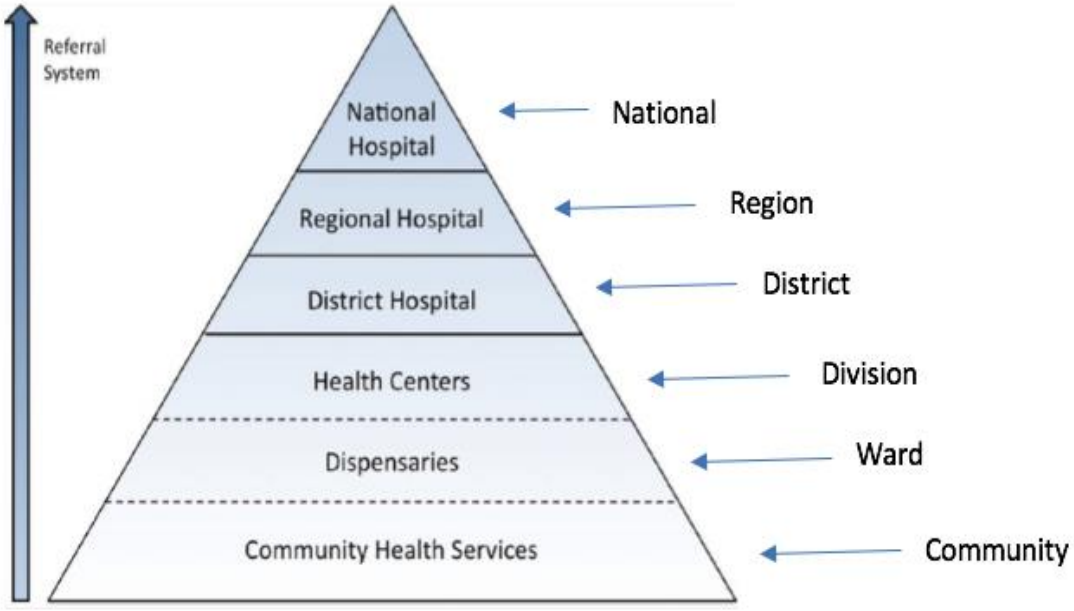


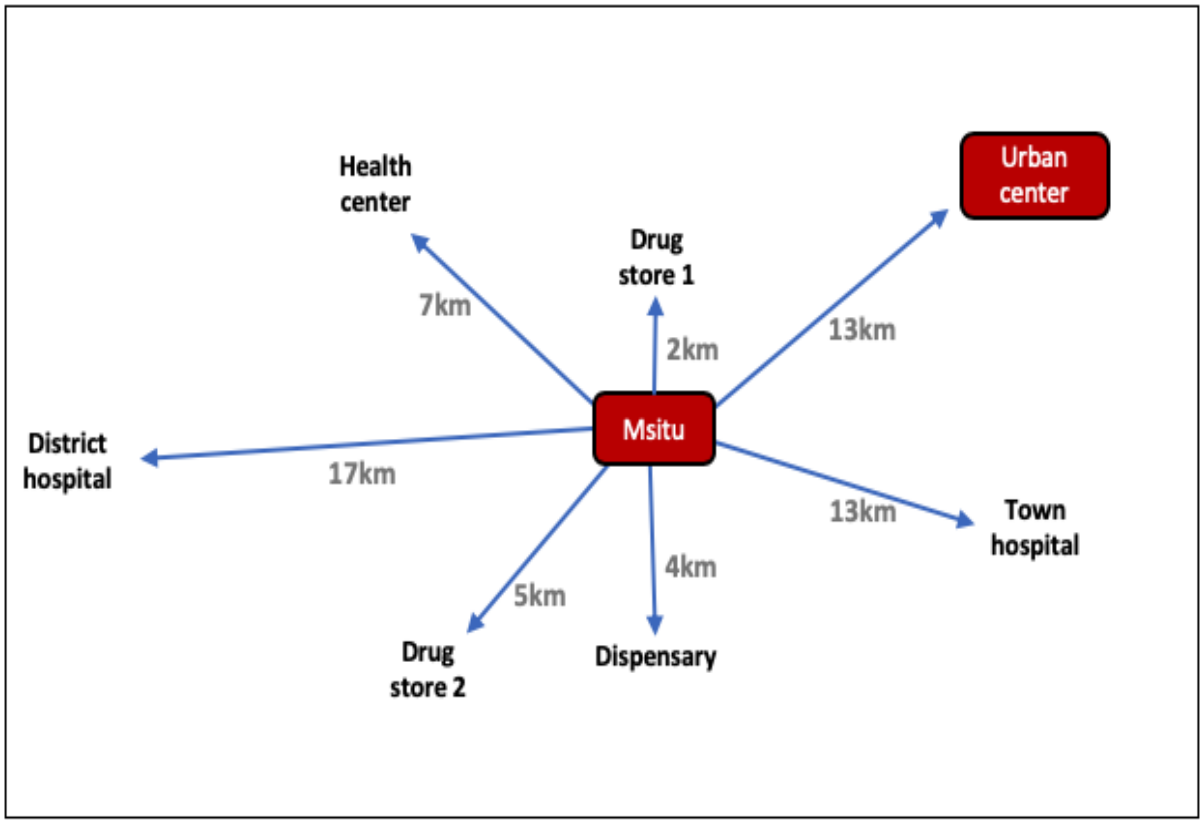
Figure 15: Organisational structure for health service delivery in Tanzania. Adapted from Boex et al. (2015)

Community level care includes: Community Health Workers (CHW), drug stores, herbal healers and the use of herbal and spiritual remedies. A dispensary is the first level of primary health care providing outpatient, maternal, child and community health services within its catchment area. There are 35 in Babati district, serving 21 wards, and each should have at least one clinical officer (CO) present. Health centres are the first referral service for dispensaries, providing both outpatient and inpatient facilities. There are eight of these in Babati and there should be at least one medical doctor present. District hospitals are the main referral service for health centres. There is one in Babati district and according to the District Medical Officer (DMO) there should be a minimum of eight doctors present.

Map 2 shows the range of health facilities located within a 20km radius from the centre of Msitu village. The district and town hospitals are situated 17km and 13km away, respectively, and closer to the village is a health centre, a dispensary and two drug stores or pharmacies (which I will henceforth refer to by their Swahili name: *duka la dawa*). As such, due to *Mwalimu* Nyerere's commitment to health for all, when people fall ill in Msitu it would appear that they have a range of facilities to choose from within a reasonable geographic distance from one another. Yet, physical proximity and availability of health services alone do not determine health seeking behaviour, as shown in the quote by the *Mwenyekiti* (village chairperson) of Ziwa subvillage below:

> 'In the past, these health services were not as available to people – nowadays there are so many drug stores and dispensaries but they are expensive, so people can't afford them.' Ziwa Village Chairperson, Interview, 10/03/17

Rather, a series of interconnected factors converge together to influence health seeking strategies, as will be demonstrated later in this chapter. For now, I give a brief overview of the prevalence and perceptions of febrile illness in Msitu.



Map 2: Schematic map showing relative distance to nearby health facilities from Msitu

5.3 Prevalence of febrile illness in Msitu village

Figure 16 details the types of febrile illnesses respondents experienced between 2015 and 2017. With the exception of those who reported typhoid, brucellosis and some cases of malaria, these were all self-diagnosed. The most common reported illness was malaria (26%), followed by respiratory infections (such as colds and flu, 22%), typhoid (16%), unspecified fever (10%), stomach pain (9%), and brucellosis (7%). This data was compiled through analysis of the health seeking behaviour surveys I undertook during my fieldwork period (one hundred in total across two sub villages).

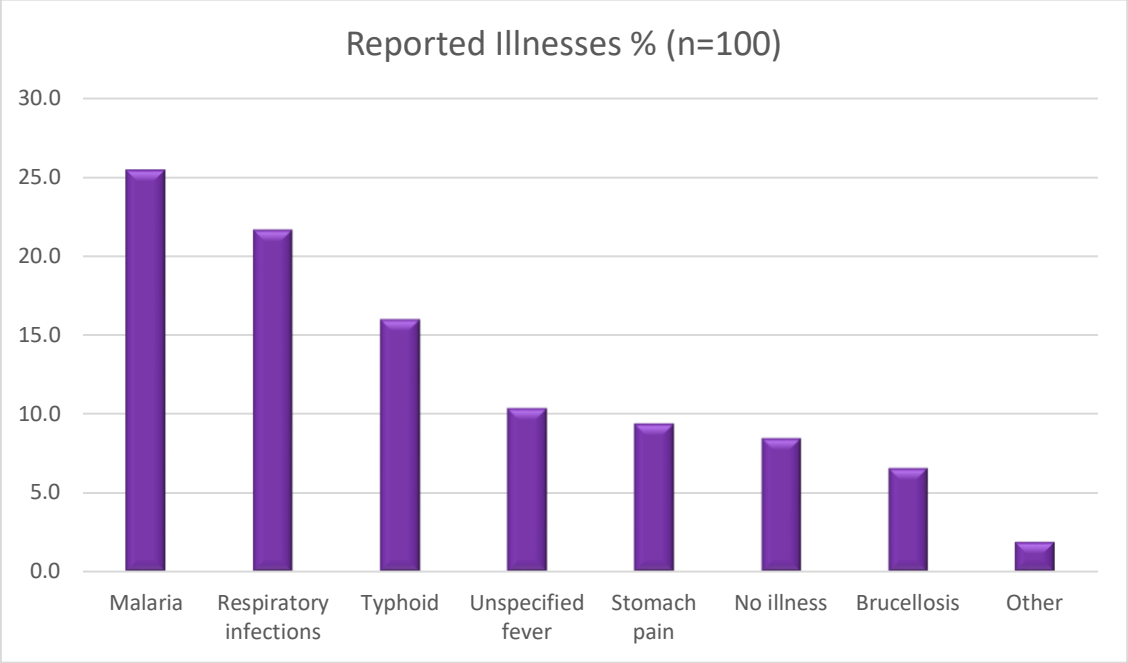


Figure 16: Reported illnesses in Msitu between 2015-2017.

5.3.1 Perceived causes of illness

Hausmann-Muela et al. (2012) assert that local aetiologies people hold about illness are one of the key factors guiding health seeking behaviour. Kleinman (1981) refers to these as 'explanatory models' and they provide emic perspectives on how peoples' understandings of illness are shaped by their social, cultural and environmental context (Kleinman, 1981). For example, in the Kilosa and Handeni district of Tanzania, aetiologies of convulsions are often attributed to both severe malaria and mystical attacks of a big moth (Makundi et al., 2006; Hausmann Muela et al., 2002). In order to treat the illness, people believe that they must first cool the body down with traditional remedies until the patient can be treated for malaria at hospital (Hausmann Muela et al., 2002). In this case, malaria is believed to be

the proximate cause of illness but attacks from a mystical moth are believed to be the ultimate cause and thus required more immediate attention. Despite literature commonly citing mystical or spiritual aetiologies for illness, particularly for malaria (see also Aikins et al., 1993; Bonnet, 1986; Kamat, 2006) I did not encounter this in my research. In Msitu, 86% of participants attributed their fever to a known illness such as colds, flus, malaria, typhoid or brucellosis. However, 47% were unsure of what the cause of this illness was. For those who did know, they most commonly cited aetiologies relating to the environment, as shown in Table 6.

Type of cause	**Example**	**Associated illness**	**N=53**
Environmental conditions	Rain, cold, heat, dust	Colds and flu, malaria	16
Diet	Increased intake of farm crops	Colds and flu	9
Consumption of contaminated food or water	Dirty water	Typhoid	12
	Uncooked meat and/or unboiled milk	Brucellosis	6
Natural pathogens	Malaria/mosquitoes/bacteria	Malaria, typhoid	10

Table 6: Perceived causes of illness

Causes relating to environmental conditions such as wetness/dryness or warm weather/cold weather are what Colvin et al. (2013) refer to as 'humoral' theories of disease causation, where illness results in an imbalance of these forces. For example, in Msitu, many respondents attributed fever from flus and colds to *baridi* (coldness). Similarly, *vumbi* (dust) was also believed to cause illness in the dry season. The onset of the rainy season was perceived as both a blessing and a curse. While it brought much needed moisture to parched soils in order to let crops germinate and grow, it was also known to bring an increased proliferation of viruses and bacteria in drinking water; increased mosquito populations (thus causing higher incidences of malaria) and changes in diet. People in Msitu believe that consuming crops from the harvest is a cause of illness for two reasons: firstly, crops are sometimes believed to have residual pesticides or dust on their surface, thus causing ill health, secondly; crops such as maize are believed to hold a high sugar content, which is subsequently attributed to illness. As the following respondent put:

> 'During the rainy season we eat new crops that have a lot of sugar, like maize, sugarcane and sweet potato. The change in weather conditions and new diet can make people sick.' Damian, Survey Respondent, Ziwa, 04/04/17

As such a range of interconnected factors come to determine how people interpret fever in Msitu, primarily relating to the rainy season due to cold weather, new diet, and increased vectors and pathogens. Six of seven respondents who suffered from brucellosis mentioned uncooked meat and unboiled milk as the cause of their illness, as they had been informed as such during their visit to a health facility.

5.4 Treating febrile illness

Table 7 below indicates the first actions respondents took in response to the latest episode of fever that they, or someone they were caring for, experienced. I have disaggregated this further by illness in Table 8.

First action taken or health provider visited	Number of people (n=90)
Local drug store *(duka la dawa)*	43
Dispensary	20
Hospital (includes town and district)	11
Health centre	8
Herbal medicine	3
No action taken	2
Diagnostic laboratory	2
Local healer	1

Table 7: First actions taken or health provider visited in response to fever

	Malaria (n=26)	Respiratory infections (n=22)	Typhoid (n=16)	Fever (n=10)	Stomach pain (n=9)	Brucellosis (n=7)	Total
Duka la dawa	13	12	3	7	5	3	43
Dispensary	5	7	4	1	1	2	20
Hospital	3	2	4	0	1	1	11
Health centre	4	0	3	0	0	1	8
Herbal medicine	0	1	0	1	1	0	3
No action	1	0	0	1	0	0	2
Diagnostic lab	0	0	2	0	0	0	2
Local healer	0	0	0	0	1	0	1

Table 8: First remedial actions taken disaggregated by illness (n=90)

5.4.1 *Duka la dawa[s]*

As can be seen in both tables, approximately half of respondents are opting to go to the *duka la dawa* as their first health seeking strategy for most illnesses. *Duka la dawa*[s] play a key role in health seeking behaviour for respondents in Msitu, and indeed throughout sub-Saharan Africa as a whole, and their contributions to the management of fevers has been widely recognised (Mwenesi et al., 1995, Molyneux et al., 1999, Attanyake et al., 2000; Nyamongo, 2002). In Tanzania, *duka la dawa[s]* constitute the largest and most popular private sector source of medicines, with over 5600 officially operating as of 2003 (and many more unofficially, (Embrey et al., 2016)). In the past, these retail drug stores were only permitted to sell non-prescription medicines, however, it became apparent that sales of illegal prescription only medicines, untrained and unqualified drug sellers and lack of regulatory monitoring and enforcement were increasing. In order to address this, the government of Tanzania rolled out an accredited drug dispensing outlet programme (ADDO). Shop owners and dispensing staff were provided with training, supervision and regulatory enforcement in order to help improve access to affordable, quality medicines and pharmaceutical services in rural and peri-urban parts of the country (Rutta et al., 2015). Shops that have been accredited can dispense some prescription only medicines such as: amoxicillin, cotrimoxazole, and erythromycin; the recommended first-line antimalarial - artemether-lumefantrine; and quinine for severe malaria. The ADDO program has now been rolled out in all mainland districts in Tanzania with more than 9,000 shops accredited and over 19,000 dispensers trained. This compares with about 8,000 public and private health facilities of all levels of care (Rutta et al., 2015).

In Msitu, there are two *duka la dawa*[s] located in close proximity to the village (as shown in Map 2) and they were both commonly cited as the places people attend when experiencing or caring for someone with fever. It is unclear whether they are ADDO accredited however, when enquiring about the qualifications and practices of the purveyors in these *dukas*, they informed me that they were required to undertake both dispenser training and a pharmaceutical course. They also informed me that they were registered and sell prescription only medicines such as cotrimoxazole, metronidazole, amoxicillin and erythromycin, as well as medicines for stomach issues, fevers and flu. In addition to the *duka la dawas*, there were also two local convenience stores within the

village centre which sold a limited supply of over the counter medications such as panadol. Of the 43 respondents who reported going to the *duka la dawa*, reasons given for doing so were mediated by several inter-related factors shown in Table 9. I now discuss these in more detail throughout this section.

Reasons for going to the *duka*	**% (n= 43)**
Previous positive experience	31
Perceived severity of the illness	25
Financial burdens	18
Flexibility	16
Previous negative experience with the health system	9

Table 9: Reasons given by respondents for going to the *duka la dawa*

Previous experience – '*tumezoea kufanya hivyo'*

'We are used to doing this' or 'It's what we prefer to do' were common responses among respondents when questioned on why they opted to go to the *duka la dawa* to treat fever. Hausmann-Muela et al. (2012) assert that previous experience with health resources makes people develop ideas on how a product or a system works, and they acquire a sense of familiarity with these resources. In Msitu, and indeed throughout sub-Saharan Africa as a whole, people are accustomed to going to the *duka la dawa* because it is the logical place to start when illness set in, and in most cases, it appears to work either by curing the illness or by providing temporary relief.

> 'People prefer to treat themselves by going to the *duka la dawa* if that doesn't work then they will go to hospital.' Khadijah, Group Discussion, Mlima, 07/06/17

> 'People will firstly go to the *duka la dawa* to state their symptoms. If you don't get better then you can go to the local dispensary or the hospital.' Michael, Interview, Mlima, 20/05/17

Previous experience also contributes to a satisfaction or dissatisfaction with a particular service and influences perceived quality of care. It also generates expectations and gives a frame of reference for the comparison between different health providers. Nine percent of respondents stated that the reason they go to the *duka la dawa* first and foremost is due to dissatisfaction with other health facilities, as shown in the quote below:

> ‘It was the easy way to get medicine because at [the district hospital] there is a queue and you have to go through so many procedures before you get treatment.’ Gabriella, Group Discussion, Ziwa, 12/06/17

Dissatisfaction with formal health facilities means that when people in Msitu go to the *duka la dawa* they are not just buying medicines but are also utilising the medical knowledge of the vendor to help them identify the correct treatment course. When asked, all respondents stated that they asked the seller for advice on which medication to buy, highlighting the important role these shops and shop owners/workers play in primary health care in the village. Part of the reason they are so heavily relied on compared to other health services at the community level can be traced back to the health system restructuring process that happened throughout the 80s and 90s. Under Nyerere, health provision was already decentralised in an attempt to reach more of the population with essential health and education services. However, dwindling economic performance and worsening health service provision throughout the structural adjustment era saw further decentralisation in an attempt to remedy this. This meant that Local Government Authorities (LGAs) were mandated to provide health services, leaving the central government as an overseer for the services provided (Mollel, 2010; Mzenzi, 2015). These authorities received sectoral block grants, financial resources and support for the provision of basic health services. However, a review of Tanzania’s health expenditure by Boex et al. (2015) found that funds are not reaching ‘the last mile’ i.e. village dispensaries and health centres. Their study found that, on average, the share of local health expenditures by the LGAs for dispensary level health services is just 37%. Considering that the vast majority of rural health services are delivered at the local level, this number suggests considerable underfunding of front-line health services. As such, suboptimal public health facilities at the village level (due to lack of funds) has resulted in residents preferring to turn to private vendors, such as drug stores, to access their required health needs. Often these *duka la dawas* have a more reliable and plentiful supply of medicines than local dispensaries and, as evidenced, are places where people can ask for health advice. In Msitu, one of the nurses working in the local dispensary also worked in the local *duka la dawa* as a way to supplement her income. As such, people trusted in her ability to provide them with medical advice due to her double role as both *duka* purveyor and qualified nurse.

Despite the significant role they play in community health, local drug stores were not created with the intention of replacing primary health care facilities. Often the vendors in the *duka la dawa* are asked to diagnose health conditions, yet, in recognising their limited capacity to do this, they can only refer people on to a formal health facility for testing:

> 'When people come with fever it is hard to know exactly what it is so I give them painkillers and advise them to get a blood test then come back with the result so I can give the correct medicine. People rarely come back.' Elizabeth, drug store vendor, Interview, 03/03/17

Inability to act on advice given by the drug store vendor means people will continue to take over the counter treatment until their condition worsens and they have no choice but to visit a health provider, often in worsened economic and physical condition. Thus, it is clear that lack of funding from LGAs filtering down to local dispensaries forces people to rely on lesser remedies from the *duka la dawa* which may not be as effective in treating or curing their condition.

Perceptions of severity of illness

As per the health seeking behaviour model outlined in Chapter 2, how individuals and primary caregivers perceive severity of illnesses is one of the key factors influencing health practices in Msitu. Weller et al. (1997) found that perceived severity of illness, together with economic resources and prior experience with illness were the main drivers of health seeking behaviour in a rural Guatemalan community. Similarly, a study by Kamat (2006) found that the perception of severity was one of the main factors influencing mothers to seek treatment for febrile children in Tanzania. Respondents in Msitu categorise illness severity as *homa ya kawaida* (normal fever) or *homa kali* (severe fever) and how people identify these determines the subsequent remedial actions they take.

Homa ya kawaida fevers are usually classified as 'small' illnesses and as such do not inhibit an individual from carrying on with their income and non-income generating activities, as Mary in a group discussion put: *'Homa ya kawaida* is when you are ill but you are still able to do your normal routine' (Mary, Group Discussion, Mlima, 29/05/17). People often cite respiratory issues such as colds and flu as *homa ya kawaida* and as such, are believed to be easily remedied through self-treatment or going to the *duka la dawa.* Malaria is also

sometimes considered a normal fever which can have serious health consequences. For example, Emmanuel from Mlima subvillage was ultimately diagnosed with typhoid at hospital but initially went to the *duka la dawa* because he thought he had malaria: 'when I had headache I thought it was malaria' (Emmanuel, Interview, Mlima, 12/04/17). Thus, the perception of malaria as a 'normal' fever delayed his ability to access vital treatment for a more serious condition.

Homa kali is usually classed as a fever that impedes an individual from carrying out their daily activities. When this occurs it is recognised that professional help from a treatment facility must be sought: 'When you have a severe fever it doesn't matter your situation you must go to hospital' (Rose, Group Discussion, Mlima, 19/06/17). When asked about symptomatic differences between normal and fierce fevers – people often alluded to differences in body temperature: *homa kali* is characterised by *joto juu sana* (high heat) and for *homa kawaida, joto ni kidogo* (heat is low). These local understandings of illness are consistent with biomedical explanations of disease, where temperatures of over 37 degrees Celsius usually indicate a serious condition which needs immediate medical attention. In addition to fever, other symptoms respondents associated with *homa kali* included night sweats, convulsions and vomiting. If a person exhibited any of these symptoms it was recognised that they had a severe fever and needed immediate professional help.

Throughout my fieldwork I observed that people tend to downplay the severity of their illness – which thus influences what they do or where they go first to take remedial action. For example, when I asked respondents if they had experienced any illness that resulted in fever recently they often replied '*homa ya kawaida tu*' meaning 'just regular fever.' The casual usage of the word 'tu' (or 'just' in English) suggests that people view febrile illness as part of everyday life here in Msitu (and throughout Tanzania as a whole) and therefore it is not taken as anything out of the ordinary when it occurs. Maria's story at the beginning of this chapter highlights this well, where she cycled between various 'small' remedies before eventually going to the health centre where she was diagnosed with a range of illnesses. Similarly, my research assistant Benny was complaining of stomach pain and general malaise for months before he eventually went to a clinic and got diagnosed with

typhoid. This normalisation of fever, and of illness in general, is a contributing factor as to why people will first choose to go to the *duka la dawa*. Perceiving a fever as 'small' often lends itself to 'small' remedies (such as herbal treatment or over the counter pills from the *duka*). While Kamat (2006) concluded that the perception of severity of illness was the main factor influencing the health seeking behaviour of mothers of febrile children, what this conclusion fails to account for is that downplaying fevers is largely borne out of financial need. A study by Chuma and Maina (2012a) found that, in Kenya, more affluent populations tended to self-report illnesses compared to the poorest quintiles. This supports findings from Sauerborn's (1996b) study in Burkina Faso who found that the poor are more likely to 'ignore' or downplay illness because they cannot afford to seek treatment or take time off work. As such, the tendency to normalise fever cannot solely be attributed to failure to recognise a more serious condition, but rather stems from determination to go on out of fear of utilising already limited financial resources to deal with the costs of treatment.

Cost-saving

Cost-saving was mentioned outrightly by 18% of respondents as one of the main reasons why they opted to go to the *duka la dawa* when faced with fever. As outlined in Chapter 4, health care was provided for free to all citizens in Tanzania until user fees were introduced into the health system in 1993. This has drastically altered the ways in which people design strategies to cope with illness. By going to the *duka,* people can often cut not only direct costs such as user fees, but also indirect costs such as transport and time costs. As one nurse working in a *duka la dawa* stated:

> 'Going to the dispensary can cost up to 5,000 TSH (£1.70) but people can come straight here and get the same medicine for a similar price or cheaper.' Mary, drug store vendor and nurse, Interview, 14/05/17

At formal hospitals the cost is considerably higher. Patients would normally have to pay around 20,000 TSH (£6.70), just to be admitted before they were given any care. This would ensure them a bed and open a file for them, with the costs of subsequent treatment paid upon discharge. Participants of this study were usually only able to pay for expenses up to 10,000 TSH (£3.35) without plunging the household into (further) economic insecurity. Healthcare costs are primarily funded through out of pocket payments which disproportionately affect the poor. The study by Chuma and Maina (2012) mentioned

previously found that, in Kenya, the poor often have the most difficulty in accessing health care and when they do access it, they spend proportionately more than wealthier groups. Their study revealed that those in the highest wealth quintiles spent 8% of their resources on health care costs, compared to the poorest who spent almost 70%. A further study by Chuma and Molyneux (2009) in Kenya similarly found that for the poorest households, the *duka la dawa* was the only available health care resource for most, if not all, illness. This is reinforced by the following quote from Malika, a Msitu resident who stated:

> 'People can be split into three groups: there are those who can afford to go to the *duka la dawa* only, those who can afford to go to the dispensary and those who can afford to go to hospital.' Malika, Group Discussion, Ziwa, 07/05/17

Similarly, Marcelina stated: 'If I had money I would take a *bodaboda* and go to hospital but if my situation stays the same I will go to the *duka* again' (Marcelina, Ziwa, Interview, 14/03/17). Malika and Marcelina's words not only reemphasise the importance of local *duka la dawas* as providers of community health care, especially for the poor, but they also highlight inequities in access, where those belonging to higher socioeconomic status are able to afford more advanced treatment. Going to the *duka la dawa* is the only option for some of the poorest groups thus highlighting poverty as a constraint to agency when seeking remedial actions for illness. In recognising the importance of drug stores for the poorest populations, studies have increasingly explored their role in not only providing primary health care, but also as sources of financial support (see Sharma and Zeller, 2000). Many households in Msitu already had relationships with vendors which enabled them to acquire medicine on credit at times of cash shortages, as shown in an interview with Hassani below:

> HAPPY: Why did you want medicine from this specific drug store and not Singu (the place people usually go to for medication)?
> HASSANI: Because a person I know from before works there. She was a nurse and after she retired she opened her own drug store, I can get credit there to buy medicine. (Hassani, Interview, Ziwa, 01/03/17).

While not the most common reason for opting to go to a pharmacy for treatment, credit was mentioned by 11% of respondents as an incentive for going there over other health

facilities. Those who did so most often knew the vendor in a personal capacity, thus felt more comfortable asking for medication on loan.

Flexibility

There were various aspects about going to the *duka* that made it more convenient for participants to seek treatment here first. As seen in the interview excerpt above, people could often delay financial costs by getting medication on credit. Furthermore, most drug stores were located in close proximity to households and business hours were flexible, meaning that they were often more available and accessible than other health facilities in the surrounding area. The health centre and dispensary, for example, usually operated within specific hours (8am-5pm) and were closed on weekends. This increased availability over other treatment options is thus more suited to agropastoralists' lifestyles. For people in Msitu, livelihoods are contingent upon work on the farm and keeping livestock. This type of work means timing is important e.g. when to plant seeds, when to harvest, when to take livestock to pasture and for water. As such, when illness occurs individuals will consider what actions will incur the least amount of time spent away from both income and non-income generating activities. Thus, the convenience of going to the *duka la dawa* allows individuals to carry on with their day-to-day activities with minimal disruption. Additionally, because the drug stores were located close to the village, people often knew the purveyors in a personal capacity, meaning they felt comfortable calling them for help outwith office hours. Staff in the *duka* supported this sentiment but admitted they are not always in a position to help when called outside of business hours. Proximity, flexibility and affordability is particularly important for women as when they are the primary caregivers for a sick person (as is most often the case in Msitu) it means they have more agency in being able to make health-related decisions. Going to the *duka la dawa* (as well as undertaking other remedial actions within the community) is something they can do independently without having to involve other decision makers (Molyneux et al., 2007).

5.5 Beyond the *Duka*

Throughout this section I have attempted to illustrate the reasons behind why almost half of respondents are opting to go to the *duka la dawa* as their first health seeking strategy in response to febrile illness. This is mediated through a range of inter-related factors

including previous experience, perception of illness severity, financial burdens and convenience for rural livelihoods. A deeper insight into these factors reveals that people's actions to seek other types of treatment are largely constrained by poverty, compounded by previous negative experiences with health systems. This combination leaves individuals with little choice to do anything different, making them more vulnerable to illness and exposing then to suboptimal health care. Given that this confluence of factors disproportionately affects the poorest populations, it is apparent gross inequities exist in access to health care. As Whitehead (1992: 425) asserts: 'Any regressive differences between the poor and less poor in cost burdens, coping strategies and negative consequences represent inequities in health care that are both unacceptable and avoidable.' Thus, the people of Msitu experience and embody violence when forced to rely on treatment from the *duka* due to inability to pursue other, more advanced, health care.

Almost half of respondents who visited the *duka la dawa* in response to fever had to seek further action due to recurrence or persistence of the illness. Many fevers are symptomatic of an underlying disease that needs more advanced treatment (such as many zoonoses) that cannot be accessed at the *duka*. In the case of brucellosis, for example, when a person becomes infected the body's internal immunological response presents itself externally as common febrile symptoms (such as high fever, joint pain, headache and night sweats) (Gomes et al., 2012). In the initial stages an individual will likely perceive it as a 'small' fever and hence would logically go to the *duka* to buy painkillers or use herbal remedies. While this may abate symptoms, it does not target the underlying cause i.e. infection of the *Brucella* bacterium which has evolved to evade the body's immunological response, thus resulting in transmission (Gomes et al., 2012). Indeed, this is exactly what three of the seven respondents who reported contracting brucellosis in this study did. Due to the temporary relief they experienced from the painkillers or antibiotics they bought at the *duka* they believed the action they took had some curative effect. It was not until the later stages of the infection, where diagnostic ability is lower (WHO et al., 2006) that they presented to hospital. Thus people who contract similar diseases in the future will likely repeat the same actions when the fever arises until it becomes severe and they have no choice but to visit a hospital or health centre, often in an increased vulnerable economic and physical condition. The very general manifestations of many zoonoses makes it

impossible for individuals to recognise which fevers can be treated at the *duka* and which need more advanced help, thus constraining agency and delaying access to vital treatment.

5.6 Preparing for the health system (decision-making and resource mobilisation)

As Maria's story in Interstitial III demonstrates, people tend to cycle between various modes of self-treatment until the illness subsides or symptoms get worse. Help was only sought from a formal health care provider when the illness persisted or it was perceived to be serious enough to warrant the additional time and money required. In conjunction with fever, participants also reported headaches, night sweats, vomiting and generalised body ache as the key symptoms for which they decided they needed to visit a health facility. As outlined previously, respondents usually had the required resources to seek out treatment from the *duka la dawa*, however, there is considerably more decision-making and resource mobilisation required when going to a formal healthcare provider, as will now be discussed.

5.6.1 Decision-making

A pluralistic health landscape, coupled with an unclear system of referral, complicates how and where people decide to seek care at health facilities. If user fees were intended to discourage frivolous attendance at hospitals and health centres, it should follow that more people are seeking care at the local level i.e. at dispensaries, with fewer visiting health centres and even less going to hospitals. However, while my results show that twenty people reported going to a dispensary first (as shown in Table 7), eight opted to go the health centre and eleven opted to go straight to a hospital (usually the district hospital). In effect, the latter two are used quite interchangeably. This is further supported by group discussions where participants tended to view both the hospital and health centre as being viable options for treating fever.

Hausmann-Muela et al. (2012: 21) assert that a useful concept for understanding how individuals decide which health care provider to visit is the 'medical division of labour' i.e. which medicines/facilities are considered competent for treating different symptoms and diseases. Table 10 represents respondents' perceptions of the functioning of different facilities, supplemented by the information I gathered from each place.

Health Facility	Respondents' perceptions	My observations
Ward Dispensary	Nearby (in neighbouring village) Can treat colds, flu, coughs, some fever Primarily for women and children	Child vaccination and antenatal care Some malaria testing via MRDT Outpatient only
Divisional Health Centre	Nearby (7kms from village centre) Expensive Good service (i.e. treatment and results received in a timely manner)	In-patient and out-patient facilities Some diagnostic tests Labour unit
District Hospital	Far (17kms from village centre) Cheaper Long waiting times Well established institution in the area	Inpatient and outpatient facilities Some diagnostic tests X-Ray and surgical facilities

Table 10: Perceived functions of commonly used health facilities

The most common reason respondents gave for going to the ward dispensary (the lowest level of public healthcare within a district) was because of its proximity to Msitu. As Map 2 demonstrates, it is located 4km from the centre of the village and is easily reachable by foot, bicycle or motorbike. Throughout group discussions some participants expressed the opinion that going to the dispensary was the most logical step after the visiting the *duka la dawa:*

> 'First you go to the *duka la dawa*, if you see no change you go to the dispensary, if it gets worse then you go to hospital.' Halima, Interview, Ziwa, 20/03/17

However, others noted that the dispensary was only useful for 'small fevers' (due to lack of adequate supplies and diagnostic tests) or for issues to do with women and children. Indeed, this was where most mothers went to get their children vaccinated and therefore it was not widely regarded as a place people could go to treat more serious fever.

> 'I always go to the hospital before the dispensary as I know there are no [diagnostic] tests there.' John, Group Discussion, 16/04/17

For those who opted to go to a hospital or health centre, people would most commonly cite waiting times and costs as the main deciding factor. The health centre close to Msitu was cited as providing good service but had higher treatment costs while the district hospital was less expensive but further away and had longer waiting times:

> '[The district hospital] does not provide fast treatment, you will wait for so long if you go there.' Amsi, Survey, Mlima, 01/03/17

> 'I prefer to go to [the health centre] because it is near, but it is expensive. The district hospital is far but cheap.' Aziza, Survey, Mlima, 14/03/17

> '[At] the health centre it is easy to get treatment, you get tests and results on time.' Juma, Survey, Ziwa, 02/04/17

Respondents often stated that the health centre had 'good' or 'easy' treatment - referring to the *amount of time* it took to be seen. This again reinforces how time-cost is an important influencing factor in health seeking strategies. I also encountered two instances where religious/ethnic discrimination factored into people's decision about which facility to visit. In an interview with Shabani, a livestock keeper from Ziwa subvillage, he told us that when he last experienced a severe fever he opted to go to the town hospital. The majority of respondents who had visited a facility outside of the village had either gone to the district hospital or the nearby health centre so it was interesting to me that Shabani had gone to this particular place. When we asked him about this, he replied that he went for the service – that if you go to the district hospital you might not even get seen that day because of the long waiting times. He then explained further that he preferred the service at the town hospital because he felt more considered. When asked to elaborate he said he has in the past felt discriminated against at the district hospital due to his tribe/ethnicity and religion. Upon arrival at this facility, patients are asked to provide their names, which, according to Shabani, means the staff can tell which patients are Christian or Muslim and, therefore, which are Iraqw/other. He felt certain that more Christian sounding names were given preferential treatment. In Msitu, the Iraqw population are predominantly Christian whereas the Nyaturu and remaining tribes are largely Muslim. Shabani, a Muslim, told us that this does not happen at the town hospital because, upon arrival, they are given a number, not a name and so staff cannot discriminate against them based on how 'Christian' sounding their name is. *Mzee* Mussa, a Muslim shopkeeper, also outrightly referred to ethnic discrimination within the district hospital. In an interview with him he stated: 'At [the district hospital] most staff are Iraqw so they take care of their fellow Iraqw people first' (*Mzee* Mussa, Interview, Ziwa, 20/09/17).

Both the health centre and the district hospital and indeed numerous other health facilities throughout Tanzania are, to varying degrees, funded by the Christian church and its various denominations (district - Catholic and the health centre - Lutheran). While the Ministry of Health has mandate over government health facilities in Tanzania, in some areas it subcontracts the church to provide services, sometimes even within district hospitals (as is the case in Babati). In this case, it is the church that has administrative control of the health facility but receives grants from the government. The government contributes personnel and pays salaries and the church is responsible for purchase of medicines and other operating expenses (Mliga, 2000). While discrimination along religious/tribal lines was not commonly mentioned throughout study respondents, it is not unimaginable that religious bias permeates through health systems, denying (or at the very least delaying) care that patients such as Shabani and *Mzee* Mussa need, not to mention instilling a lack of trust. While everyone in Msitu is living in poverty and face inequalities there are other 'axes of oppression' (Farmer, 2010: 340) which provide a lens to view how the intersection of poverty *and* these other factors can, in some cases, lead to extreme violence and suffering. In Shabani and *Mzee* Mussa's case, their ability to pursue effective remedial actions was constrained firstly by poverty and compounded by their ethnicity. This is also consistent with McCollum et al's. (2018) study in Kenya who found that, in addition to poverty, other social forces such as age, gender and geographic location intersect to produce different vulnerabilities for specific groups in specific contexts.

5.6.2 Resource seeking

Once households have decided which facility they can feasibly visit within existing financial, temporal and social constraints, the next step is to secure the necessary resources (such as money and transport) in order to get there. As discussed in Chapter 2, ability to secure additional funds to pay for treatment and to cope with illness costs is vital for households in resource-poor settings. People can mobilise a wide range of assets in order to do this including: natural, physical, human, financial and social (Obrist et al., 2007). Hausmann-Muela et al. (2012) describe resource-seeking as a race, the length of which depends on ability to sell assets, borrow or ask relatives and neighbours for cash. As will be demonstrated throughout this section, this part of the health seeking process can take time

and is often a source of delay of getting to a health service provider, thus constraining people's ability to access timely and vital treatment.

Selling assets

In agricultural communities where income is infrequent due to reliance on harvests, the possession and storing of assets is particularly important (Brockington et al., 2018a). Despite residents in Msitu having an abundance of natural assets (in the form of livestock and crops) that they could potentially liquidise, this was not the most common strategy used among respondents to secure cash in order to go to hospital. This is similar to studies carried out by Chuma et al., (2007) who found that sale of assets in Kenya was rarely reported during times of illness due to limited markets. Ability to sell crops is highly dependent on the agricultural cycle (Brockington et al., 2018b); if it is the harvest season, everyone is selling crops and so there is little demand for them. Indeed, this was one of the main reasons given by respondents (such as Maria) as to why they had difficulty in selling these types of assets in times of need. Inability to sell crops may also have been due to the drought that occurred just before this study began. As discussed in Chapter 3, harvests failed for many households, resulting in hunger and stress. These debilitating circumstances meant any surviving crops would likely have been kept for sustaining the family rather than for selling. Other households would opt to sell small stock such as sheep and goats as this is not perceived as damaging to household security as selling larger stock (such as cows) and is precisely the reason why they are kept:

> 'What's the use in keeping goats if you are in a problem and can't sell them.' Mwanaidi, Interview, Mlima, 07/10/17

The social network - *'Only if someone has the fear of God can they help you'*

When sale of assets was not a viable option for securing cash, people would most often turn to their family, friends or neighbours for financial assistance. In their study on health seeking behaviour in Tanzania, Ribera and Hausmann-Muela (2011:108) assert that to be 'rich in people' is indispensable in case of illness. Persons of the social network not only give money, advice and emotional support but also help look after children or take on domestic and other tasks that an individual cannot carry out while attending the hospital.

The social network includes people who live in the same household and neighbours, but also friends and relatives who, even though they live relatively far away, can come to live for some time in the illness-affected household or contribute cash. Twenty-one respondents reported borrowing from friends or family as the main mechanism by which they managed to secure the necessary finances in order to go to hospital. Many respondents mentioned their children who often lived and worked elsewhere (usually in urban areas) as being the main providers of financial assistance. While asking others for help is a commonly deployed strategy among respondents, it is not a decision taken lightly and was often a last resort. There was a distinct sense of not wanting to burden other people as Maria stated at the beginning of this chapter:

> 'Everyone is living and struggling in the same situation, no one has money so it is hard to ask other people [for help].' Maria, Ziwa, Interview, 06/09/2017

As well as the fear of burdening others, there was a distinct sense of the demise of social cooperation within the community, not only in Msitu but in Tanzania as a whole which made it difficult to turn to other people for help. In the earlier stages of my research I wanted to find out how much of a role social networks played in the health seeking process – through evaluating the different support mechanisms the network provides (such as financial, emotional, instrumental and so on) (Berkman, 2000). However, through exploring these questions within my survey, not only did people struggle to think of anyone who could provide them with such support, but many people then went on to say that such social cooperation does not exist anymore. As seen in Jacob's story in Interstitial II, this sentiment was especially apparent among the older generations within the village where there is the sense that social cohesion and reciprocity does not exist nowadays like it did in the past. The older generations in general (>50 years) in Msitu seemed to share a common nostalgia for the old days under *Ujamaa* – where there was more social cooperation amongst one another in the village. People had less but were willing to give more and conditions in general were just better. While it can be argued that their longing may be for a socialism that never really existed (Pitcher and Askew, 2006), it is more prudent to recognise that nostalgia for an idealised, rose-tinted past is essentially a critical moral commentary on the present. This commentary implies a life out of balance and a culture that has drastically changed for the worse (Bissel, 2005, Quintero, 2002). Using work on

the farm as an example, *Mzee* Loya recalled a time when cooperation amongst neighbours was more common:

> 'In the past you could ask people to help you harvest and you could just brew some local alcohol or cook some food to say thanks; but nowadays you have to give people money if you want help to harvest.' *Mzee* Loya, Interview, Mlima, 29/05/17

Increasing economic hardship has meant that cash has become central to survival while family and community reciprocity, mutual aid and gratitude are significantly less available. Accordingly, people believe their friends and neighbours are becoming more selfish (Kamat, 2008). The *Ujamaa* philosophy emphasized a culture of social cohesion, social consideration and the sharing of communal resources in the spirit of reciprocity (ibid). Moreover, *Mwalimu* Nyerere, explicitly indicated in the Arusha declaration that the policy of socialism is 'socialism in belief' i.e. that socialism is a way of life and a society can only be built by those who adhere to ideology as such (Jonsson, 1986). In contrast, the pervasive neoliberal ideology that drove the subsequent structural adjustment era has instilled a sense of individualism among people, thus resulting in an increased preoccupation with one's own survival. This is felt in Msitu, where *wazee* (elders) perceive *vijana* (youths) as selfish and more concerned with money than cooperating with their neighbours: '*hawapendani*' (they don't love each other) as *Mzee* Kastuli put in an interview. With many particpants feeling uneasy when turning to others for help, it is clear that these structurally induced changes have had material consequences on people's ability to cope during times of illness.

When lending goes wrong

The demise of social cohesion has resulted in a shift in local moral and social boundaries, wherein people increasingly lend to others money based on their ability to pay it back, rather than in the spirit of reciprocity (Laurie, 2014). Loans were also increasingly associated with large amounts of interest, meaning people often had difficulty in paying them back. I witnessed the fallout of this one day in September 2017 while waiting to undertake an interview with the ward *Diwani* (member of ward council):

*One day while driving to our interview location, we encountered a commotion at '*Kona*' (the transliteration of 'corner') in Mlima subvillage, where a cluster of shops and settlements makes it the main hub of the subvillage). A crowd of people had gathered outside one of the stores, and as we approached closer we could see that three people, two women and one man, were having a heated argument. The* Diwani *who we planned to interview was amongst the group and seemed to be acting as role of mediator. We were travelling with* the Mwenyekiti *of Mlima subvillage and as it is his duty to attend to situations such as this, he exited the car and approached the group in an attempt to try and de-escalate the situation.*

Benny and I opted to wait in the car until things died down, not wanting to add extra bodies to the spectacle. I questioned whether it was still appropriate for us to go through with the interview with the Diwani *as she obviously had other more pressing issues to attend to. However, as the* Mwenyekiti *had left us, we had no one of authority to defer to on the matter. As such, we had no choice but to wait and observe the situation. While a crowd of people had gathered, the main conflict seemed to be between the two women, with the man appearing to be the husband or close relation of one them, advocating on her behalf. The crowd of bystanders grew steadily as the argument escalated, either watching or trying to intervene. It ended by one of the women hailing* a bodaboda *and driving off, still shouting angrily at the crowd of people she was leaving behind as she did so. After that, the crowd began to disperse and the* Mwenyekiti *and* Diwani *came over to greet us, both looking exasperated. Once we had settled into the* Diwani's *house, she explained that the situation arose because one of the women believed she was owed money by the other, who had denied such allegations, until it reached breaking point and resulted in a public argument, the point at which we had entered. This incident set the tone for the rest of the interview with the* Diwani*, where she and the* Mwenyekiti *tried to surmise what conditions could lead to such an incident:*

> 'Women get loans to help in life but the problem is that the interest is too big and it results in difficulties for them to pay it back.' *Diwani,* Interview, 17/05/17

Lending with substantial interest rates further increases precarity at a time when individuals and families are already at their most vulnerable. Breakdowns in trust, jealousy

and 'unknown intentions' are some reasons given for why people who do have the ability to lend financial assistance are reticent to do so. One interviewee, Saidi, stated: 'Someone might come to you for help but you don't know their intention towards you' (Saidi, Interview, Mlima, 11/11/17). When I asked him to elaborate on this he explained that they might return money that has been bewitched and thus incur misfortune and bad luck on the lender and/or household. Suspicions and jealousy were often cited reasons as to why people might not want to help others in life, for fear of seeing them have greater success than themselves[17]. Demise of social cohesion, together with the incident at *Kona* led to the Diwani having a generally poor outlook on the state of social cooperation within Msitu village, stating: 'Only if someone has the fear of God can they help you' (*Diwani,* Interview, 17/05/17).

Health insurance

Increasingly precarious social relations means that people have to turn to other, more formal methods for coping with the costs of illness. Cut backs in funding to public health services were supposed to be couched within a range of formalised safety nets, including third-party insurance schemes, sickness funds and social security systems. However, such schemes have yet to gain traction in Tanzania, especially in rural areas. This means people must rely on their own livelihood assets to accommodate treatment costs. In an attempt to consider other health financing mechanisms that help the poor cope with health care costs, the government of Tanzania launched the Improved Community Health Fund (ICHF) in 2014. This is a public-private partnership between the PharmAccess Foundation[18], the Tanzanian National Health Insurance Fund (NHIF), the district councils (local government), and public and private healthcare facilities. The aim of the fund is to increase access to quality healthcare for people in the informal sector, and in mostly rural and low-income groups throughout Tanzania.

[17] Persons of the Iraqw tribe in particular seemed to be more wary of suspicions, jealousies and ill intentions than other groups in Msitu.
[18] A Dutch NGO focused on mobile health technologies in sub Saharan Africa

According to PharmAccess, under the scheme, a household can enrol up to six family members and thereby access outpatient services including chronic conditions management, basic dental cover and in-patient services including minor surgeries. The scheme costs 60,000 TSH (£20) per household per year and the government provides 50% premium subsidy (provided through NHIF). Enrollees contribute the remaining half (30,000 TSH) of the premium themselves. PharmAccess assert that this element of local ownership, combined with the capacity building that they provide, ensures long-term sustainability of the scheme. In Babati district currently 10% (7,000/68,000) of households are enrolled, with the majority of respondents not having heard of it at all. Those who had enrolled with the scheme primarily had negative experiences, as *Bibi* Elizabeth in a group discussion told us:

> 'It's a big problem, I have it but every time I go to hospital I have to pay. I get tested but I'm told they don't have the medicine and I have to go elsewhere.' Elizabeth, Group Discussion, Mlima, 18/04/17

Having to pay despite being registered with the insurance was a common grievance among respondents who were familiar with the plan. In a group discussion, *Mzee* Mohammed told us that after being diagnosed with malaria, typhoid and brucellosis (all at once) at the district hospital, his bill came to 57,000 TSH (£18). He was not able to obtain the medication he was entitled to on the plan at the hospital and had to search for other vendors in the nearest town, before travelling further afield to Arusha and eventually back to Magugu before he was able to find a place that would acknowledge the insurance and give him the medication he needed. Mohammed and Elizabeth's experience demonstrates how the ICHF may actually work to *worsen* the burden of illness for the rural poor, through prolonging the time it takes to access vital medication, rather than alleviating it.

Aside from the additional financial costs incurred, there was also the perception that health facilities do not provide as good a service to those who have the insurance, as Daniel put: 'If you have health insurance they won't give good service – they value people who pay cash/money more' (Daniel, Group Discussion, Mlima, 02/05/17). I raised this issue with various health professionals who all seemed as discontented and frustrated with the insurance scheme as the study participants. A nurse at a district hospital stated that

medicine supply in general is a big problem in Tanzania (discussed later in this chapter) – they themselves do not get the quota they are supposed to receive from the Medical Store Department (MSD) in order to deal with non-insured patients, let alone give it out 'for free' to those who have the insurance.

> 'The whole country has a lack of medicine. The Ministry of Health doesn't have enough money. Medicine is supplied every 1 or 2 months only – so if we have no medicine, we can't give it to people who are expecting to get it under the ICHF. And sometimes we even get the wrong medicine from MSD.' Katherine, local dispensary nurse, Interview, 14/05/17

Katherine further stated that it can take 3-6 months for them to recuperate the money for the drugs they gave out as part of the plan, essentially giving out medicines for free until the costs are recovered. This also runs the risk of running out of stock. Additionally, another nurse at the local health centre showed us a folder of all the official procedures to be followed, stating that the lengthy bureaucratic process involved in dealing with the insurance is a deterrent. She stipulated that she would rather deal with a patient who is in critical condition than spend time filling out all the paperwork required for a patient enrolled with the scheme. Moreover, a doctor at the same health centre told us people are insured to visit two health providers – the primary health care provider (such as the health centre) and the referral (like the district hospital) – therefore if people were to go straight to district without first visiting health centre they would violate the terms of the insurance and would not get the free services/medicines they were entitled to. Another particularly concerning issue brought up by the clinical officer in the ward dispensary was that, in some cases, people had paid for the insurance but had not yet received their ICHF card, thus preventing them from accessing the free services.

Most respondents had not heard enough information about the scheme to be able to judge whether it was something they would invest in and others said it sounded too complicated. Indeed, talking to key informants in various health facilities highlighted confusion concerning where and when it can be used and what treatments and medication people are entitled to. There were also personal beliefs surrounding this insurance - with *Mzee* Eli stating that some people believe that to enroll while you are healthy would be akin to

inviting ill health into your life, like tempting fate, and therefore would rather avoid it and deal with the illness themselves when it comes. This demonstrates how non-biomedical beliefs about health may misalign with mechanisms set in place (like the ICHF) by the GoT to help the poor cope with illness.

Thus, there seems to be a myriad of issues surrounding the implementation of the ICHF in Babati. While these experiences are not representative of the 10% of residents in the district who enrolled with the scheme, for those living in Msitu village it seems to be an obstacle in accessing affordable health care rather than the aid it was intended to be.

Transport

The final step that must be taken before attending a health facility is to organise transport. This part of the health seeking process can further act as a source of delay as not only do people have to firstly find available transport but they also have to decide on a price beforehand:

> 'There are a few people who have cars and you can negotiate a price with them to take you to hospital. It depends on the situation and distance, but you always have to negotiate the price first before they will take you.' Hadijah, Group Discussion, Ziwa, 19/06/17

The only transport in and out of the village is through privately owned motorcycles, otherwise residents would have to walk the 40 or so minutes it takes to get to the main road and then find a *daladala* (local bus). The health centre is 7kms away from Msitu and not accessible via car or bus due to poor infrastructure. Respondents who opted to go to there usually got a *bodaboda* (motorcycle taxi) from the village direct to the health centre – costing between 4,000-6,000 TSH (£1 - £2). Those who went to the district hospital were normally required to walk from their house or get a *bodaboda* to the main road and then wait for a *daladala* to take them to there. It would be too expensive to take a *bodaboda* all the way to the district hospital, whereas a bus costs around 500 TSH (17p). Poor infrastructure and transport links to the nearest health centre further deepens inequities in access to care as only those who can afford to take a *bodaboda* can get there. Those who cannot have to travel further to the district hospital where the services are reportedly poorer and waiting times are longer.

Throughout this section I have highlighted the logistical and economic challenges respondents faced when attempting to secure the necessary resources required to reach a health facility. People struggled to sell crops (due to the agricultural cycle) as a means for coping with the costs of illness, as such they are forced to turn to increasingly precarious social networks. Health insurance schemes appear to be prohibitive in helping the poor secure the costs of illness, rather than facilitative and poor infrastructure may at times inhibit the most vulnerable groups from receiving better quality care. The convergence of these factors are what Ribera and Hausmann-Muela (2011: 109) refer to as 'conjunctures of vulnerability' which they describe as 'the moments or periods more or less delimited in time, and often cyclical, characterised by the syndemic confluence of adverse circumstances.' While the people in Msitu find ways to cope with these conjunctures, strategies undertaken to do so often delay access to vital care and deepen poverty among those who are already poor (Chuma and Maina, 2012).

5.7 Lived experiences of the public health system

The steps taken throughout the previous section can be described as only the first set of hurdles a person must clear in their health seeking journey. Once a patient arrives at the health facility, a series of systemic shortcomings often result in prolonged and unnecessary suffering for individuals when attempting to seek curative treatment. Indeed, recalling the health seeking behaviour framework proposed in Chapter 2, I highlighted how the health system itself factors significantly in determining health outcomes. Drawing on respondent experiences (as well as my own) within Tanzanian health facilities, I will now discuss these barriers to care in more detail, namely: understaffed health facilities; lack of trust in health care staff and lack of medicines.

5.7.1 Understaffed health facilities

The number of people working in health services in Tanzania has struggled to recover since the systematic retrenchment of public sector staff throughout the SAPs era. A human resources for health report undertaken by Sikika (a health advocacy NGO in Tanzania) in 2010 found that there was a dire shortage of staff in all public health facilities, with the reported human resources gap standing at 54% (Sikika, 2010). There was a particular

shortage of clinical officers, nurses and medical attendants. Furthermore, according to the MoHSW's Health Sector Strategic Plan III (2009-2015) estimates, the public sector is losing approximately 300 staff per year. Understaffing was mentioned ubiquitously throughout the six interviews I conducted with clinical staff as one of the main constraints to their work. Living within Msitu, I was able to visit the local dispensary on several occasions where I witnessed the toll insufficient staffing can have on staff and patients, as I illustrate in Rizwan's story below:

Rizwan's journey to the dispensary

After spending the weekend in Babati, Benny and I arrived back in Msitu to find Rizwan (the eldest son of the Hamisi household, age 10) had developed a chest cough. Ma'Rizwan had told us that over the weekend she had been giving him medicine from the duka *and some garlic to try and help, but three days later it still persisted. Both she and Ali had decided to keep him off school but by Wednesday he was still unwell. This particular day he had two compulsory examinations, one in the morning and one in the afternoon and so had to attend, despite his illness. Ma'Rizwan said she would take him to the dispensary in between his morning and afternoon exam.*

The local dispensary is at least a 30-minute walk or five-minute bodaboda *ride away from kijiweni* (village centre) *and as Ma'Rizwan had four other children to look after (including a newborn) and Ali was working, I offered for Benny and I to take Rizwan to the dispensary. She agreed and asked if we could also ask the nurse there to give him a tetanus injection, as a couple of weeks ago he had cut his foot on a stray piece of metal. Upon arrival at the clinic I saw that there were at least 20 other patients waiting to be seen – with only one young nurse working (neither of the two more senior nurses or the clinical officer (CO) who I had seen in previous visits were around). During our consultation we described Rizwan's condition and asked for the tetanus injection. The nurse asked him some questions and wrote some notes. She went to check her supply and informed us that they had none but was hopeful that the CO will have brought more by Friday. After this she took us into a different room where she prepared an injection to treat the chest cough. Rizwan's anxiety at watching her methodically prepare the shot was palpable. After putting a tourniquet around his arm, the nurse proceeded to extract the dose from the vial into the syringe. She*

then started to administer the drug. As she injected, blood started to flow back into the syringe. She stopped what she was doing and turned to look at us: 'has he eaten?' she asked, concerned, to which we replied no. She sighed and removed the needle, saying that this particular medicine can only be given on a full stomach so she would have to give us it in pill form instead. We left the vaccination room and made our way past the queue of waiting patients to the front desk where she began preparing various different pills and folded them up in some newspaper. Rizwan remained quiet throughout the whole ordeal, undoubtedly upset that he had been injected with a needle unnecessarily. Noticing that he seemed quiet, the nurse paused what she was doing and asked if he was ok, he nodded but she clearly could tell something was wrong 'do you feel like you want to be sick?' she asked, he gave a feeble nod, to which she replied 'ok it's best you go outside.' Rizwan ran outside and vomited – after which he then had to sit down on the grass, visibly shaken. 'That injection is very strong' she informed Benny and I as we checked on Rizwan, 'that's why it can only be taken after a meal.' She gave us instructions for the medication and told us to come back on Friday for the tetanus injection and for further action if the pills did not help. Once Rizwan felt well enough to stand, we promptly left the dispensary and made the rough journey back to the homestead. We went back on Friday as instructed and were met again with long queues, the same nurse and still no clinical officer and no tetanus injection. The nurse gave us more pills and Rizwan started to get better a few days later.

My time at the dispensary was limited yet it was enough to deter me from going back there. All village dispensaries are run by a clinical officer (CO) who is required to have at least three years of applied medical training. At the end of their training they receive a diploma from the Ministry of Health (Kwesigabo et al., 2012). Yet both times I went to the dispensary with Rizwan, the CO was not around and had instead left the younger, less experienced nurse in her stead. Indeed, according to Kwesigabo et al. (2012) it is not uncommon for staff in primary health care facilities in Tanzania to go for months unsupervised. During my short visits there I could see that she was overworked and had very limited resources, not to mention no line manger to defer to. Under these working conditions is it easy to see how neglecting to ask if Rizwan had eaten before administering the injection occurred. My experience at the dispensary would make me think twice about returning there, yet for many people, especially women who are often restricted to

treatments within the village, it is their only option when dealing with these types of illnesses. Understaffing also has impacts on staff morale which subsequently affects patients. *Mzee* Jacob stated that because the dispensary nurse does not get paid enough, he has the perception that she is not dedicated to her work:

> 'Now there is a dispensary but the nurse doesn't get enough salary so isn't serious about giving people help. She needs support to improve her income so she can fully concentrate on her nursing work.' *Mzee* Jacob, Group Discussion, Mlima, 16/04/17

Thus, it is clear that concerns regarding the commitment of health care staff, stemming from increased work pressures and low salaries, can act as a barrier to seeking help at community health facilities.

5.7.2 Patient-doctor interactions in KCMC medical wards one and two

Gilson (2003) asserts that at the heart of healthcare provision is the patient/provider interaction. A trusting relationship between provider and patient can have a direct therapeutic effect (Mechanic, 1998). It also heightens the quality of their interaction; facilitates disclosure by the patient; enables the provider to encourage necessary behavioural changes and may permit the patient greater autonomy in decision-making about treatment (Mechanic, 1996, 1998). In his study in Sri Lanka, Russell (2004), distinguishes between two different types of trust: trust at the inter-personal level and trust based on the perceived technical competency of the provider. Gilson (2003) asserts that interpersonal trust is paramount as poor staff attitudes towards patients can cause dissatisfaction with services, which even good technical care may not offset. During my time in the medical wards at the Kilimanjaro Christian Medical Centre (KCMC)[19] I observed one instance where a lack of concern or empathy for patient dignity had clear implications on the overall wellbeing of the patient. I describe one such instance below:

[19] Between May and June 2018 I spent four weeks undertaking observation in the medical wards of the Kilimanjaro Christian Medical Centre, Moshi, Tanzania. This experience allowed me to witness the experiences of patients as they travel through a large zonal hospital in Northern Tanzania, as well as noting how health care staff undertake their daily work within existing system constraints.

On the 14th of May 2018 I was in medical ward one at KCMC accompanying an intern[20] on his ward rounds. Rounds can sometimes involve up to 20 people, depending on the popularity of the doctor leading the round as they are usually used as a teaching opportunity for more junior members of staff. This particular day, however, it was just Dr Sengua and myself which gave me the opportunity to observe more closely and to freely ask questions about his work. We had finished one ward and were moving onto the next. Upon entering I could see that it was quite crowded – with at least one other round occurring, as well as nurses and health care assistants going about their daily tasks. My attention was drawn to an elderly woman in the middle of the ward getting an ECG done by a nurse. The nature of an ECG means that the patient's chest needs to be uncovered in order to attach the nodes. This was a busy ward with both men and women coming and going (medical staff and patients) and so while I thought it odd that this procedure was not being undertaken with more discretion, I put it down to lack of resources to ensure privacy. Once the nurse performing the ECG had left, I noticed the patient had started crying. When it was time for Dr Sengua to attend to her he asked her what the matter was. He later translated to me that she was upset because the nurse doing her procedure had just exposed her to everyone in the ward, without taking any measures to ensure her privacy. He then informed me that he apologised to the patient and would also ask the nurse to do so as well.

This incident allowed me to witness first-hand how poor staff attitudes can come to result in embarrassment or shame felt by the patient. Interactions such as this influence how patients perceive medical staff and the health system in general, which removes their sense of dignity and self-respect. Moreover, it results in lack of trust in health systems and may lead to people avoiding formal health providers in the future, thus acting as a barrier to treatment.

While trust in healthcare staff is clearly a concern for patients, it is important to acknowledge that patient-provider relationships do not exist in a vacuum, but rather are shaped by the institutions embedded within the health system (Gilson, 2003). During my

[20] Junior doctors are referred to as interns in Tanzania

time at the village dispensary and shadowing the interns at KCMC I saw the immense pressure doctors and nurses are under to provide round the clock treatment to very sick and deteriorating patients. At KCMC every day starts with a meeting at 7:30 am for all doctors on medical wards one and two where the serious and fatal cases of the night before are discussed and the actions of the medical staff are subject to intense scrutiny from the chief of medicine. This usually lasted forty minutes, thereafter the interns disperse and all set about their daily tasks before the ward round starts. This includes following up on notes, taking bloods, arranging x-rays and so on. During and after the ward round is when interns are questioned extensively on the history of each patient they oversee and are either advised on what subsequent action to take or are asked for their opinion on the best course of action. Rounds could sometimes take up to three hours during which time the interns have to ensure they recite patient histories quickly and concisely to the senior doctor and accurately record their directives. Immediately after rounds is when I saw the most activity – more bloods taken, more tests sent for, lots of conferring between each other and endless paperwork to complete. At times I felt guilty about interrupting their work to ask questions as they never seemed to have a moment respite. Under these working conditions, it is easy to see how patient-oriented care and polite bedside manner may not be a priority for them, yet are all too important for the patient. The lady receiving the ECG was suffering from heart failure and hypertension, yet the issue that brought her to tears was the impersonal nature of the member of staff treating her who appeared to have no concern for her dignity or self-respect. As Scheper-Hughes and Bourgois (2004) state:

> 'Violence can never be understood solely in terms of its physicality – force, assault or the infliction of pain alone. Violence also includes assaults on the personhood, dignity and sense of worth or value of the victim.'

5.7.3 Lack of medicines

NATIONAL MEDICINE SHORTAGE; Magufuli urged to intervene

- *According to a local health advocacy NGO, a key reason for why the nation is running low on some essential drugs is the government's failure to commit sufficient funds to addressing the problem*

PRESIDENT John Magufuli has been asked to order the release of emergency government funding for the purchase of essential medicines in a bid to ease the current national drugs shortage and avert a looming public health crisis.

Figure 17: Clip from a newspaper article highlighting shortage of drugs in Tanzania. Source: IPP Media, 2016

Difficulty in accessing essential medication was one of the biggest concerns for both patients and health care staff alike. Drug shortages throughout public health facilities in Tanzania is a persistent problem believed to now have reached 'critical level' (Sikika executive director Irenei Kiria, 2016). A survey conducted in 2013 by local NGO TWAWEZA found that 41% of patients were not able to get the medicines they needed directly from a public health facility and often had to turn to private pharmacies and health facilities. This often meant that people had to pay premium prices for medication which are often available for free or at discounted prices within the public health system (Wales et al., 2014).

In principle, all drugs and medical supplies used by public health facilities in Tanzania must be purchased through the Medical Stores Department (MSD). This was created in 1993 under the Medical Store Department Act and charged with the responsibility to 'develop, maintain and manage an efficient and cost-effective logistics system of procurement, storage and distribution of approved essential medicines and medical supplies for public health facilities' (MSD) with its main mission being: 'to make available, at all times, medicines and medical supplies of acceptable quality at affordable prices to all Tanzanians.' (MSD). MSD is an autonomous government department under the Ministry of Health and Social Welfare (MoHSW) and as such has its own financial accounts and its operations are supervised by a board, including representatives from the MoHSW and other ministries and health agencies.

Lack of medicines was mentioned frequently throughout interviews and group discussions with residents of Msitu as being one of the main barriers to treatment they experienced when engaging with the public health system. This is highlighted at the beginning of this chapter in Maria's story who, among a myriad of health seeking complications, was unable to source her prescribed medicines from the district hospital after being admitted for three days. Instead she had to search for four days to find a place that sold her medication:

> 'Sometimes you are tested and told to get medicine elsewhere but you don't have money and so you have to wait… and in those four days you have to wait, by the time you get your medicine your illness is worse and your dosage is no longer correct.' Maria, Interview, Ziwa, 06/09/17

In those four days Maria was not waiting but searching; firstly, for the necessary funds to buy the medication and, secondly, for a pharmacy that sold the drugs she needed (at premium prices). Meanwhile, without the medication her illness is getting worse and access to vital treatment is delayed. Furthermore, people reported adopting risky strategies in order to be able to afford more expensive drugs at private pharmacies. For example, one respondent informed me that in order to cope with premium costs of antibiotics at the pharmacy she opted to buy half a dose until she could find the necessary funds to buy the rest. This has serious implications for recovery and is especially salient for many zoonotic febrile illnesses which can only be cured through a combination of antibiotics (which are only effective if the full dose is taken correctly). Incorrect adherence to antibiotic drug regimens also has serious implications for the spread of antimicrobial resistance.

Failure to source medication at the public health facility also gave rise to notions of mistrust among respondents. *Mzee* Michel in particular questioned whether there really are medicine stock-outs or they are purposefully being redirected to private pharmacies who sell the same medication but at marked up prices. These private pharmacies are believed to be owned by the very same nurses and doctors who told them to go there in the first place:

> '[The service] is not sufficient because most pharmacies belong to doctors and nurses so hospitals purposefully don't give drugs so that people will buy them from their shops.' *Mzee* Michel, Group Discussion, Mlima, 02/06/17

While difficult to determine if there is any truth in this, lack of medicines was also a clear concern to health workers throughout all health facilities I visited in Babati. MSD stock-outs were a common occurrence, and even when they did come with supplies – the amount brought was meagre:

> 'You see MSD come in their big fancy trucks and they only bring two boxes – one of paracetamol and one of gloves.' Dr Boay, district hospital, Interview, 13/06/17

All public health facilities are expected to source their medical supplies and drugs from MSD, yet it now seems to be more commonly recognised that due to drug stock outs, such facilities should start to seek supplies elsewhere. When speaking to the Babati District Medical Officer (DMO) and the head doctor at the town hospital, both were of the opinion that this is what surrounding health facilities should be doing. Indeed, the DMO stated that while MSD can provide a proportion of the supply, it is down to individual facilities themselves to fill the deficit. The head doctor at the town hospital also alluded to this, stating that it is the expectation that MSD supply *some* medicines but ultimately it is the responsibility of hospital management to seek out other avenues for getting medical supplies in the event of stock outs. However, it is unclear where exactly hospitals and health centres are supposed to source these from. Dr Boay at the district hospital stated that in the event of stock outs they indeed are expected to source their own supplies, but usually these are from private firms which end up being much more expensive than MSD.

A study by Kigume et al. (2018) found that there are significant constraints local health facilities experience when attempting to order medical supplies from MSD. According to the study, the Ministry of Health allocates funds for medical supplies to each health facility and deposits it directly into MSD's account. The authors found that health facilities have *no control* and often no knowledge of the amount of funds which they are allocated. This implies facilities order supplies without knowing how much funds they have available leading to delays in deliveries of essential medications. In some cases, health facilities have authority to mobilise and use locally generated funds (created through user fees and health insurance) to purchase medical supplies. However, Kigume et al. reported central government bureaucracy as a major constraint to this. They found that if health facilities were purchasing medicines using these funds they are required to deposit the money to

MSD *before* being assured of the availability of medicines. As a result, health facilities often deposited funds to the MSD account while they had no medicines to deliver. Additionally, it was found that when MSD was out of stock they did not return the funds to the health facilities to enable them to purchase medicines from other vendors. Kigume et al's. study coupled with interviews with health care staff reveal deep rooted problems with the procurement of essential medicines throughout Tanzania. As the seemingly last hurdle to clear on the way to recovery, inability to access medicines has serious implications on health and wellbeing. It pushes households into further economic and physical vulnerability while they re-engage resource seeking strategies to search and pay for medicine elsewhere, as well as giving rise to notions of mistrust in health providers.

5.8 Re-infection, co-infection and confusion

Even if people manage to get to a hospital and source the medications they need, there is a high likelihood of ill health returning and the health seeking process having to be re-engaged. The reality for people in Msitu is that life is often punctuated by periods of recurring illness for which they must decide whether they are ill enough (and have enough financial support) to go to hospital again or whether they should try to treat themselves at home with simple biomedical and herbal treatments. Ribera and Hausmann-Muela (2011) assert that the cycle usually takes the form of: symptoms → treatment → temporary improvement → recurrence of symptoms → treatment → temporary improvement and so on which is what I found exactly characterises health and illness in Msitu (shown in Figure 18 overleaf).

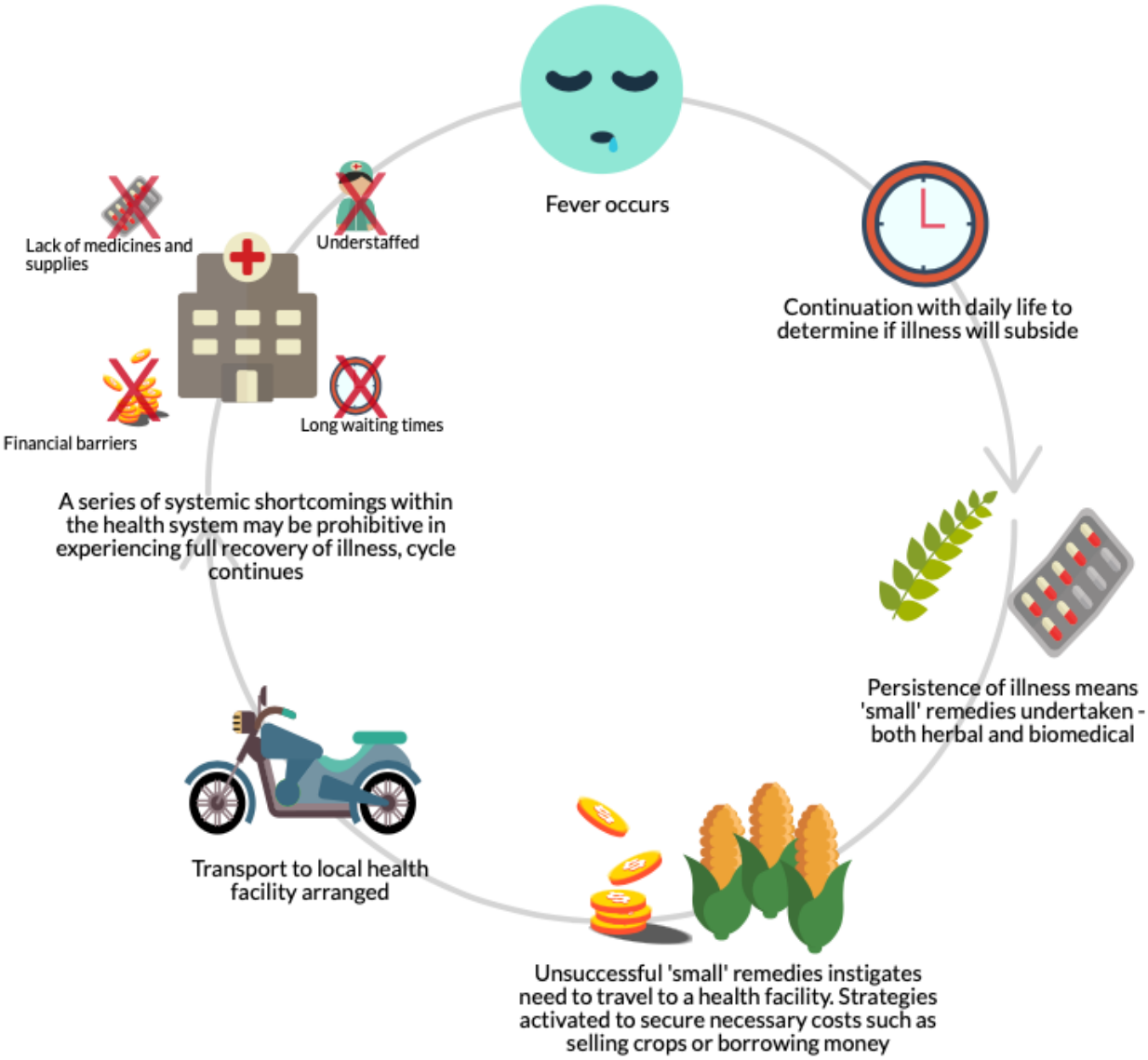


Figure 18: The cyclical nature of febrile illness in Msitu. Source: Author's own

In September 2017 I conducted follow up interviews with 20 respondents and all reported that they were still suffering from either the same or different illness, or that the last illness was just the latest in a string of episodes of ill health. In addition to repeated sickness, one of the most surprising things about my research was the number of people claiming to suffer from multiple diseases at once –a combination of malaria, typhoid and/or brucellosis[21]. Six of 100 respondents mentioned having a combination of brucellosis, typhoid and/or malaria concurrently. They were either diagnosed with all illnesses during

[21] Discussions with epidemiologists in Glasgow informed me that, while co-infection is possible, it is rare, and likely more to do with misdiagnosis at the health care provider.

one visit to a health provider or through subsequent different visits. Co-infections and re-infections substantially increase the burden of illness due to increased treatment costs, multiple visits to health providers, management of complex drug regimens as well the increased physical and psychological toll it takes on individuals. This is highlighted through Paulo and Wilfreda and Sebastian's stories below:

Paulo's story

Sitting in his homestead as the sun was setting, Paulo recounted the time he was diagnosed with typhoid and malaria at the town hospital in Babati. He had begun feeling unwell two weeks prior to this – reporting headaches and stomach pain. As with most people in Msitu, work on the shamba *was his highest priority and he could not afford to take any time out to get his illness seen to. As such, he opted to try and manage the fever himself by taking paracetamol – which abated his symptoms and meant he could continue with his daily responsibilities. However, as time went on, Paulo's illness got progressively worse, to the point where he was physically unable to go about his daily work, and so he decided he needed further help.*

At the town hospital, Paulo was given a blood test and diagnosed with typhoid, malaria and fungus and was given medication. The total costs amounted to 55,000 TSH (equivalent to £17). As he is a farmer, he managed to sell some beans in order to arrange for the costs. Upon returning home he started to feel slightly better but at the time of the interview he had become unwell again. When asked if he felt he was given the right medication he responded that, in his opinion, he was given too much and that the combination of pills for the typhoid, malaria and fungus had a negative effect on his body. When asked what he plans to do next for the recurring illness he told us he will try to use herbal medicine – a solution of aloe vera boiled with water.

It is clear in Paulo's case that his lack of confidence in his prescribed treatment and already exhausted financial resources has only incentivised him to revert back to treating himself. This is an option he will most likely continue to choose due to lack of trust in the health system to cure him effectively.

Sebastian and Wilfreda's story

I visited the elderly couple – Sebastian and Wilfreda – twice. The first time we spoke to Sebastian he told us about the last time he had gotten malaria (self-diagnosed) and how, due to his previous experience of the disease and lack of money, he opted to go to the local duka la dawa *to buy Malafin for treatment. Wilfreda was present for the interview but did not speak much during this particular time. The second time we visited it was different. Again, both husband and wife were there but this time it was Wilfreda who was doing most of the talking. She seemed more comfortable with our presence and was more animated as she was retelling her story of a myriad of seemingly incurable ailments that both she and her husband suffered from. This time Sebastian was happy to sit in the corner and give his wife the floor, only interjecting to corroborate or disagree with what she was saying. It transpired that both Wilfreda and Sebastian were suffering from brucellosis, malaria, typhoid, nose bleeds and fatigue, for which they had been prescribed a cocktail of pills – septrin, doxycycline, ciproflaxin and others. These illnesses were diagnosed at varying health facilities over a long period of time, thus resulting in multiple different diagnoses and drug regimens. If it was not for my limited knowledge on brucellosis treatment it would be hard to determine which drugs were for which illness. They had been prescribed so many that it seemed they themselves did not know or had lost track of which pill was meant to treat what illness. The crux of the matter was that despite being on a mixture of various kinds of medication – neither of them (Wilfreda in particular) reported to be feeling any better. The physical toll that illness was taking on Wilfreda was quite visible, she was very thin with watery eyes and had a very weak voice. Both of them seemed to be reaching breaking point, sincerely asking us for our opinion on what they should do. After this encounter I learnt from a colleague that ciproflaxin (her prescribed antibiotic for brucellosis) has quite a severe effect on the body and is generally not the recommended drug of choice for brucellosis treatment for this very reason. In hindsight, the physical discomfort possibly caused by the ciproflaxin may have been a contributing factor towards her perceptions that her prescribed medication was having no curative effects.*

Paulo, Wilfreda, Sebastian and Maria's stories highlight how re-infection, co-infection and multiple diagnoses can lead to multiple therapy paths; switching between biomedical and traditional care; to depletion of resources; increased vulnerability as well as to material,

emotional and physical exhaustion from the repeated health seeking process. For most people I spoke to suffering from repeated and multiple illnesses, most resources had been exhausted in the hurdle race to get to hospital, which severely limits their ability to (re)activate strategies if previous strategies have worn down the social network and/or have precipitated the household into a spiral of debt (Ribera and Hausmann-Muela, 2011). These experiences highlight why health related behaviours must be situated within the wider context of people's lives, as previous experiences condition subsequent therapeutic paths. It also reinforces the need to view health seeking behaviour as an ongoing, complex, dynamic, reiterative process rather than an isolated, one-off event that is independent of people's subjective realities.

5.9 Conclusion

Farmer (2010: 146) asserts that those who understand the underlying causes of illness in the developing world to be poverty and social inequality 'make a terrible error by failing to honour the experiences and views of the poor in designing strategies to respond to the disease.' Throughout this chapter I have attempted to honour those in Msitu by bringing to light their lived experiences when responding to human febrile illness. I have traced the trajectories individuals and families must take in order to pursue effective treatment; from perceptions of illness through to lived experiences with the health system. Throughout doing this I have tried to bring attention to the wider structural and systemic processes that shape individual experience as well as the resultant violence and suffering people experience. The liberalisation of health systems throughout the structural adjustment era has set the backdrop against which health and illness in Msitu play out in the present day. This is most notable through the reliance on *duka la dawas* as providers of primary health care. Recognising the importance of community drug stores can have significant implications for health interventions, as for many the health seeking process starts and ends with these actors. Seeking care beyond the *duka* triggers a series of events that individuals must undertake in order to secure the necessary resources in order to travel to a health faclity. Depending on the individual's ability to access and mobilise resources, this step has the potential to plunge households further into vulnerability and to delay the health seeking process. Once at the hospital, disenfranchised staff, assaults on dignity and self-worth and medicine stock outs have rendered formal health services as places where

people try to avoid when experiencing illness rather than a place they can be healed. Finally, through Maria's, Paulo's, Sebastian and Wilfreda's stories, I have attempted to demonstrate the toll repeated and multiple illness takes, through prolonged and unnecessary material, emotional and physical exhaustion. The suffering and injustices people face when seeking health care has led to the widely accepted notion that fever caused by zoonoses is best controlled in the animal host, as a more effective and equitable approach than control in human hosts alone (Cleaveland et al., 2017). However, much of this is dependent on robust veterinary care systems in place to assume such a role. A more thorough discussion on this is the focus of my next chapter.

Interstitial IV
Amina' Story

Amina is 27 years old and lives with her five children in Mlima subvillage. She previously owned a six acre farm, however, when her husband died of tuberculosis three years prior, his family took back what they believed to be his share of the land, leaving Amina with little over 1.75 acres. On this she grows maize, beans and peas throughout the year to sustain her family, as well as keeping five cows, five goats and four sheep. To supplement her income, she also sells vegetables with her mother to gain extra cash. Amina's mother, Bibi *Elizabeth, also lives in Msitu, and, as is common practice in Tanzania, one of Amina's children lives with her, to lessen the pressure on her daughter of raising five children as a single mother.*

*In January 2017, two of Amina's cattle started to show symptoms of joint swelling, lameness, lack of coordination, bloating and difficulty eating. Amina was not sure what was wrong and decided to observe the cows for two to three days to see how they fared. After three days with no changes, she decided she needed help. Amina did not have the mobile number of the official government Livestock Field Officer (LFO) for the ward and so opted to call Festo – one of the private veterinary paraprofessionals working in the village. He came promptly, assessed the animals and gave them both an oral and intravenous medication. According to Amina, he did not articulate what he thought the problem was, or the exact medication he gave. Festo left and, despite the treatment, both cattle died four days later. Amina still had to pay the full cost of Festo's services - 12,000 TSH (£4) but she did not have this to hand. As such, she took half of the money from her business and asked him if she could pay the rest in instalments. When recounting this story, Amina expressed her frustration about her experience with Festo: '*He never cares about the animal that died, just the money he spent to treat it.'

With five young children who all need schooling, the loss of these cattle had a huge impact on Amina's family. Not only were they sources of food, sustenance and draught power, but

they were also insurance for the future, an asset that would help secure upcoming prospects:

> 'If you raise a cow since its small you expect benefits from it - such as paying school fees. So when it dies the hope of doing this also dies.' Amina, Mlima, Interview, 22/09/17

Amina's experience with Festo has resulted in her mistrust in his ability to treat her livestock again in the future. Consequently, whenever any of her livestock become sick, she now opts to go to the livestock drug store (or agrovet) herself, where she regularly buys antibiotics and worm medication, or she asks her neighbour – Daudi - to help her instead.

Difficulties in accessing adequate support to maintain livestock health and wellbeing was a common finding among participants. Generalised symptoms, perceived lack of animal health knowledge and a pluralistic veterinary landscape characterised respondents' lived experiences with livestock illness in Msitu. Particularly apparent was the dissatisfaction with paraprofessionals like Festo, yet these actors themselves face considerable institutional constraints which inhibit their abilities to deliver effective veterinary services to the community. It is attention to these interrelated factors that shape health seeking strategies for livestock illness, as well as the resultant suffering embodied by people like Amina that I pay explicit attention to in the ensuing chapter.

Chapter 6
Health seeking strategies for livestock illness in Msitu

6.1. Introduction

Access to effective animal healthcare is important in Msitu for three main reasons. Firstly, as shown in Interstitial I, farming is the backbone of people's livelihoods and thus rearing healthy livestock is integral to support that. Secondly, mobilising livestock is an important strategy for allowing households to plan for the future (such as sending children to school), and for coping during times of stress and shock, such as illness. Thirdly; some livestock illnesses, such as zoonoses, can pose a direct threat to humans (Cleaveland et al., 2017). Therefore, being able to access effective veterinary care is integral for securing future health and wellbeing in individuals, families and communities like Msitu and throughout Tanzania. Yet Amina's story demonstrates the ways in which her agency to secure the health of her cattle was restricted, resulting in unnecessary suffering and mistrust in the animal expert who came to help. In taking forward the biosocial approach posited in Chapter 2, I aim to investigate the ways in which lived experiences of livestock illness are shaped by the wider historical and structural changes to animal health systems outlined in Chapter 4. I begin by discussing the types of livestock health issues participants encountered throughout this study, before going on to discuss the actions people took to remedy these illnesses. Much of this chapter focuses on the use of animal health experts, as such, I pay considerable attention to these actors themselves to identify the structures and processes in place that enable or inhibit them from providing effective animal health services to their community. Finally, this chapter will conclude with the implications this has for One Health interventions, with specific reference to zoonotic vaccination. By tracing the remedial actions livestock keepers undertake, I aim to uncover the ways in which individual agency to pursue livestock health and wellbeing is constrained by wider distal forces, and the resultant suffering and violence this causes to people like Amina and in Msitu more widely.

6.2 Livestock health and illness in Msitu village

Of the 100 participants included in this study, 71% reported dealing with a livestock health issue between 2015 and 2017 (wherein 27% [n=19] resulted in the death of one or more of their animals). Group discussions with respondents and interviews with animal health experts revealed the main diseases of concern to the community to be East Coast Fever (ECF), trypanosomiasis, worms, skin diseases, Contagious Bovine Pleuropneumonia (CBPP), Contagious Caprine Pleuropneumonia (CCPP), black quarter and hoof rot. While group discussion and interview participants were able to name specific diseases, the majority of survey respondents reported the symptoms they observed, rather than names of diseases when recalling a recent episode of livestock illness. This is highlighted in Figure 19 below:

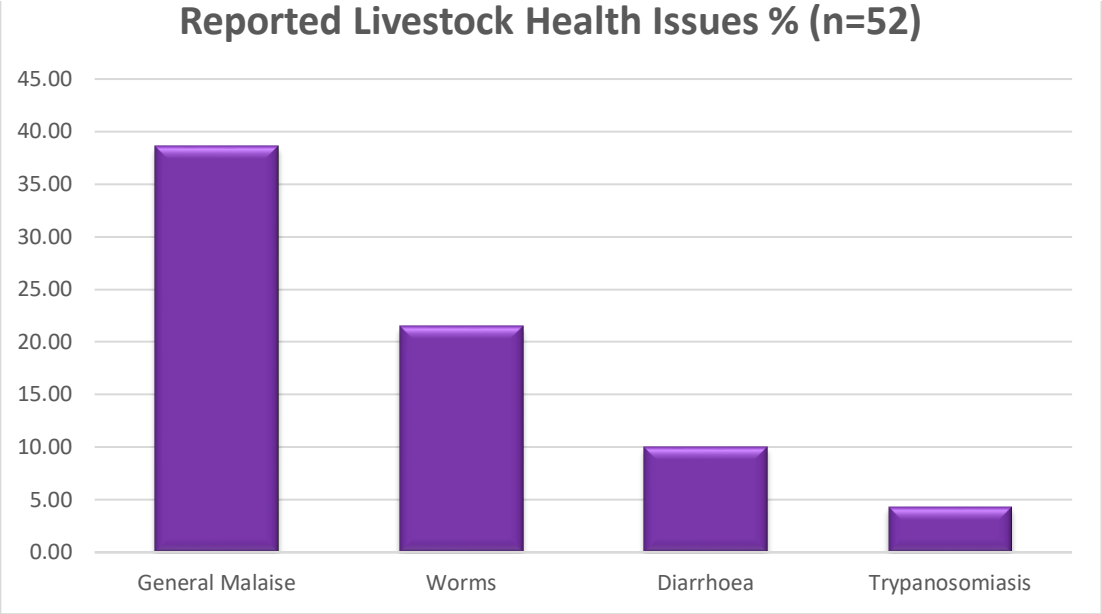


Figure 19: Breakdown of livestock health issues

Common symptoms observed (in what I have termed the 'general malaise' category) include: bloating, loss of appetite, piloerection (hairs standing up), shivering, swollen glands and swollen joints. While diarrhoea is also a symptom rather than a cause of illness, it was mentioned with such frequency that it warranted its own categorisation. Twenty one percent attributed overall illnesses to worms, and 4% to trypanosomiasis. Of the 19 respondents whose animal(s) died, 10 did not know the reason why. For those who did, possible causes offered included: liver issues (n=2), being stung by bees (n=1), drinking too much milk (n=2) and issues relating to weather and grasses (n=4). As with human illness, livestock keepers often attribute the cause of animal disease to the environment, such as:

rains, cold weather and eating of specific types of grasses/crops as shown in the following quote:

> 'We do not really understand this problem but it started after the rain when they started eating grass.' Ramadhani, Survey, Ziwa, 17/05/17

Excessive grass consumption soon after the onset of the rainy season is perceived to be a cause of ill health for animals as it is believed that, after a prolonged diet of dried crop residues and vegetable shavings, the newly growing grasses upset the animal's stomach and cause bloating[22] (and death in some scenarios). The prevalence of worms is also attributed to the rains, and *baridi* (cold) is believed to cause general malaise amongst animals.

6.2.1 Still birth/abortion

Still birth or abortion in livestock is a common symptom for many zoonotic diseases such as brucellosis, Q-fever and leptospirosis (Halliday et al., 2015). As such, in order to ascertain whether such diseases may be a common threat in Msitu, I asked respondents about their experiences with these symptoms. No participants had witnessed either of these phenomena within their herds in the past two years, and even throughout interviews and group discussions it was not perceived to be a problem within the community. This correlates with the findings of the SEEDZ study where prevalence of brucellosis, Q-fever and leptospirosis in Msitu was negligible (<2% out of 100 animals tested). Given the low occurrence, I opted to ask if respondents had had *any* experience *at all* with abortion or still birth, irrespective of time – to which 13 replied that they had – some dating as far back as 10 years prior. Of these 13 responses, the causes attributed to the abortion/still birth were as follows: worms (4), God's plan (2), and eating maize (3). Others took it as a 'normal thing' or did not know the cause. This reveals that for these 13 people, zoonoses did not factor as a possible cause of still birth. Six of these 13 respondents reported not having witnessed any symptoms of illness at all in the animal before the event, and seven reported observing symptoms of general malaise such as: excess salivation, shivering, diarrhoea,

[22] This phenomenon was confirmed by veterinary colleagues who informed me that bloating is a seasonal problem among livestock, caused primarily by consumption of lush legume plant species following heavy rains (Chaters and Kibona, 2017 personal communication).

swollen glands and swollen joints. Absence of symptoms, or very generalised symptoms makes identification of these type of zoonoses difficult compared to other diseases such as *taenia multiceps*[23] in sheep and goats (locally referred to as *kizunguzungu*) which is more clearly identifiable due to abnormal circling behaviour.

6.3 Treating livestock illness

As seen in Figure 19, respondents predominantly mention the symptoms they observed in their animals, rather than specific diseases. Throughout my discussions with the *wanakijiji* I came to realise that this is because livestock illness in general is unspecific and difficult to interpret. Faced with this uncertainty, participants are primarily opting to call upon the help of an animal expert (as shown in Table 11 below). While there were some issues which respondents felt comfortable treating themselves, like bloating, people are primarily relying on the knowledge and experience of others (a further breakdown on the types of experts participants use is provided later in this chapter). Indeed, in recalling the health seeking behaviour framework proposed in Chapter 2, knowledge about the disease, and, subsequently, belief in one's own ability to treat the disease directly influences the remedial actions people choose to undertake to deal with illness (Hausmann-Muela et al., 2012) or symptom (as it often is).

First Action Taken to Treat Livetock Illness	Number (n=71)
Called an animal expert	46
Observation	11
Livestock drug store (agrovet)	6
Self administered treatment – herbal	4
Self administered treatment – biomedical	4

Table 11: First actions taken in response to livestock illness

Table 12 overleaf reveals that participants often called an expert in the event of general, non-specific manifestation of symptoms, again reinforcing the difficulties in interpreting livestock illness.

[23] A neurological syndrome of small ruminants (Hughes et al., 2019)

Illness/Issue	N=46
General malaise *(loss of appetite, bloating, mucus, shivering coughing, weakness, diarrhoea, piloerection or 'hair standing up,' swollen glands, excessive salivation, difficulties breathing)*	17
After death of animal	11
Worms	9
Still birth	7
Diarrhoea	2

Table 12: Health issues for which respondents called an expert

6.3.1 Knowledge

This reliance on other actors to fulfil animal health care needs contrasts with what I observed in preliminary fieldwork undertaken with the SEEDZ field team in Maasai pastoral communities. Participants here often believed that they have adequate knowledge and expertise to treat animals themselves should the need arise. The findings in Msitu correlate more with those of the recent Bacterial Zoonoses (BACZOO) project which was undertaken in peri-urban areas in northern Tanzania where reliance on other actors is higher. As noted earlier, a common sentiment echoed throughout Msitu was that residents are primarily crop cultivators first and foremost: '*sisi ni wakulima*' and are therefore not as adept to tending to livestock matters. During a group discussion *Bibi* Rabia said: 'we don't have enough knowledge on how to keep livestock' (Rabia, Group Discussion, Ziwa, 03/06/17) while lamenting at her inability to manage both her farm and her livestock on her own. This perceived lack of knowledge leaves livestock keepers in Msitu with little choice about what to do when facing animal illness. As Augustina put: 'there is no choice but to call the animal expert' (Augustina, Group Discussion, Ziwa, 03/06/17). When asked to comment on the level of knowledge about livestock health among the *wanakijiji,* the *Mwenyekiti* of Mlima said:

> 'Very few people have [this kind of] knowledge. Only those who have modern cows[24] have some knowledge.' Mlima subvillage Chairperson, Interview, 13/03/2017

[24] Modern (hybrid) cattle breeds are deemed as being higher maintenance than indigenous cattle (such as Zebu) and therefore require higher levels of expertise to maintain. However, most livestock keepers in Msitu keep indigenous breeds.

The chairperson of Ziwa echoed a similar sentiment by stating: 'If you have knowledge you can go to the agrovet and buy medicine but if you don't have its better to call the expert.' (Ziwa subvillage Chairperson, Interview, 14/04/2017) As such, it is out of necessity that people in Msitu are left to rely on other actors who they believe have more knowledge about animal health issues to make up for the deficit in their own.

Maasai pastoralists, on the other hand, consider themselves experts in livestock keeping (Ole-Miaron et al., 2004). This is due to the high importance of livestock to livelihoods and cultural identity, and also because of the prevalence of ethnoveterinary indigenous knowledge passed down through generations. A working definition of indigenous knowledge given by Ole-Miaron et al (2004) is: 'The body of knowledge that evolves within a community over time and is orally communicated from one generation to the next with the ultimate aim of moulding its thought for the sole purpose of ensuring survival and progress' (Ole-Miaron et al., 2004: 43). Indigenous knowledge among the Maasai is accumulated through observation and real life experiences and is particularly utilised in the practice of human and animal health care. Ole-Miaron et al's. study found that Maasai pastoralists could identify more diseases compared to Maasai agropastoralists (67% vs 33%, respectively); that pastoralists used more traditional remedies than agropastoralists (71% vs 29 %) and they were able to associate new drugs with known livestock diseases than pastoralists (55 vs 45 %). Also of particular interest was that the reliance on modern veterinary pharmaceutical products was found to be higher in Maasai agropastoralists than Maasai pastoralists (55% vs 45%). The authors concluded that the higher reliance on modern veterinary products among agropastoralists is due to breakdowns in cultural organisational structure (including indigenous knowledge) as a result of livelihood diversification.

While Ole-Miaron et al's. study focussed on Maasai pastoralists and agropastoralists, the effects of livelihood diversification and modernisation are widespread throughout rural communities and may be a key contributing factor as to why those in Msitu feel like they lack knowledge in treating livestock themselves. Briggs (2005) asserts that cultivation of indigenous knowledge (or lackthereof) is deeply embedded within the society in which it

has been developed, and it must therefore be seen in its economic, political and cultural contexts. Msitu is a prime example of Nyerere's villagisation experiment whereby citizens were relocated to live on previously 'unoccupied[25]' (Davis, 2010) settlements in the spirit of cooperative living. Farmers would be given land on condition that they followed rules and regulations that 'defined' modern agricultural techniques (Coulson, 2013). The basic idea was to combine the 'good' of the past with the 'good' of the present and future i.e. to create villages where the cooperative living that takes place in the 'traditional' extended family was combined with the adoption and use of 'modern' technology (Jonsson, 1986). It was believed that through hard work and the benefits of larger sale operations, production would increase and income would be shared among all who worked instead of being enjoyed by a few (ibid). As such, these efforts were undertaken in an attempt to reduce inequalities and stem the effects of capitalism from the previous colonial powers.

However, Nyerere's modernisation efforts were met with mixed success. Farmers did not initially embrace the villagisation scheme because its manner of implementation was out of tune with the social and cultural realities of the rural economy (Ibhawoh and Dibua, 2003). According to Scott (1999: 239):

> 'The modern planned village in Tanzania was essentially a point-by-point negation of existing rural practice, which included shifting cultivation and pastoralism; polycropping; living well off the main roads; kinship and lineage authority; small scattered settlements with houses built higgledy-piggledy; and production that was dispersed and opaque to the state.'

Given the fact that *Ujamaa* was not only at odds with the prevailing realities, but equally negated the time-tested ecological practice of smallholder farmers, they saw the scheme as not relevant to them. For Iraqw communities in particular, Snyder (2005) asserts that the incorporation of traditional *aya*[26] communities into state structures resulted in new

[25] Much of the unoccupied land was used by pastoralists and hence started the long trajectory of viewing pastoral lands as unproductive, unused, and open for settlement and farming (Davis, 2018, personal communication).

[26] The Iraqw term used to describe the formation of Iraqw communities outwith the *Irqwa Da'aw* homeland, bounded together by mutual ties of descent and kinship, as well as shared cultural and moral values (Snyder, 2005).

structures of authority that did much to undermine the position of male elders. Male elders in the precolonial era had moral authority in the community based on their knowledge of tradition and customary practice (ibid) including health practices. As such, critics of *Ujamaa* state that it was more utopian than practical where mixing of different ethnicities and widespread condemnation of tribalism resulted in muddled cultural identities[27] (Greco, 2016; Ibhawoh and Dibua, 2003). As seen in Ole-Miaron et al's. (2004) study, the erosion of traditional cultural organisation has resulted in reliance on modern veterinary pharmaceuticals over indigenous ethnoveterinary practices. While the study pertained to only Maasai agropastoralists, it can be seen how the bringing together of different ethnicities and cultures in Msitu may have worked to dismantle traditional knowledge systems that were inherently deeply embedded before Nyerere's modernisation initiatives occurred. This, coupled with availability of animal health workers, may explain why people in Msitu rely on other experts to treat their livestock.

Throughout this section I have attempted to provide some insight that perhaps explains why those in Msitu feel they lack knowledge in treating livestock illness. The drive for development meant all viable land was used for agriculture, resulting in the privileging of agricultural knowledge over that relating to livestock. Furthermore, in the absence of indigenous knowledge passed down through long standing communities, people are left to turn to modern biomedicine when treating animals, including the use of local animal health workers. Attention now turns to how people access these actors through discussion on the state of animal health service provision in Msitu.

6.4 Animal health service provision in Msitu

[27] To make this point however, is not to deny the legitimate intentions and aspirations that informed *Ujamaa* as a development strategy. Despite the wide agreement on the failure of Nyerere's economic policies, several writers have identified Tanzania's most notable national achievement as its ability to create a strong sense of national identity among Tanzanians and in the substantial advances made in terms of social welfare. Few sub-Saharan African countries have achieved the level of national unification that Tanzania did under the leadership of Nyerere (Ibhawoh and Dibua, 2003).

> ‘Munisi [the livestock field officer (LFO) is employed by the government but he never comes here. Mabenga [the Agricultural Field Officer] is left in his stead but knows more about farming than livestock keeping. Festo (the paraprofessional assistant] is not qualified to treat animals. If animals are sick I would advise people to talk to the LFO but he is never available.’ Ziwa, Subvillage Chairperson, Interview, 05/03/17

The quote above by the chairperson of Ziwa subvillage succinctly sums up the complexity of accessing veterinary services in Msitu. Unavailable government extension officers and dissatisfaction with available paraprofessionals complicates the ways in which livestock keepers pursue effective remedial actions in response to animal illness. I now discuss this in more detail, specifically focussing on the availability of animal health experts, their knowledge and treatment capabilities and interpersonal trust. I then pay considerable attention to these experts themselves and the constraints they face when attempting to deliver effective veterinary care in Msitu.

6.4.1 Availability of animal health experts

As alluded to earlier, when asking what respondents did in response to a recent episode of livestock illness ‘*tulimwita mtaalumu*’ (‘we called the expert’) was a common response. *Mtaalumu* means ‘expert’ in Swahili and was often used to describe *anyone* who people perceived to have authority on livestock matters, regardless of their qualifications. The retrenchment of government veterinarians and auxiliaries throughout the 1980s has led to a proliferation of actors all involved in the provision of animal health services (albeit with varying levels of expertise and legal standing). As a result, veterinary health services in Tanzania are extremely pluralistic. Some of these actors are highlighted in Table 13 overleaf.

‘Expert’	**Definition**

Veterinarians (public and/or private)	Individuals who hold a degree in veterinary medicine from an internationally recognised university, are enrolled with the veterinary council (VCT) and hold a veterinary state diploma (OIE, 2018).
Veterinary Paraprofessional (VPP)	VPPs should receive formal training at either the diploma or degree level from training institutions accredited by the appropriate government agency or the veterinary statutory body and the activities that they are permitted to conduct will reflect their level of formal training (OIE, 2018).
Veterinary Paraprofessional Assistant (VPPA)	VPPAs should receive formal training at certificate level from training institutions accredited by the appropriate government agency or the veterinary statutory body and the activities that they are permitted to conduct will reflect their level of formal training (OIE, 2018).
Community Animal Health Workers (CAWH)	Can be considered as distinct from VPPs/VPPAs as they generally do not have a certificate from a government accredited training institution. They are mainly livestock keepers who are trained (by government officials, NGOs or farmer organisations) in basic animal health techniques (such as vaccination and deworming for instance) and who deliver a limited range of veterinary services to their communities.
Livestock Field Officers (LFO)	Individuals appointed by the government to provide livestock extension and advisory services at the ward level. Reports to the District Veterinary Officer
Local experts	Those without any governmentally recognised qualifications but are known by others in their community as having knowledge through experience.
Agrovet purveyors	Individuals working in livestock drug stores who dispense medication as well as knowledge and advice when sought by livestock keepers
Traditional Healers	An umbrella term used to describe healers who call upon divination and spirituality among other remedies to solve disequilibrium among afflicted individuals (Mokgobi, 2014)
Situational experts	Those who have knowledge about particular animal health issues such as birthing, or specific diseases.

Table 13: Key animal health actors in Tanzania

This common nomenclature – *mtaalamu* - used to describe a wide range of individuals with varying levels of qualifications and experience made it difficult at times to ascertain what type of expertise participants were using. In order to clarify, it was necessary to start asking respondents who they called, by name, in order to help me establish who they were referring to. The breakdown of animal experts used by survey respondents is shown in Figure 20 overleaf, where a Community Animal Health Worker (CAWH), John, and Veterinary Paraprofessional Assistant (VPPA), Festo, were reported to be the most commonly used individuals in response to a recent episode of livestock illness. While these two actors differ in their experience and qualifications, for ease I will henceforth be referring to them collectively as paraprofessionals. The official Livestock Field Officer for

the ward was only used in three instances and an official veterinarian used only once. Those in the 'other' category are individuals located outside of Msitu – mainly from larger neighbouring villages. People call these 'other' experts when they cannot access the LFO but need more knowledge and experience than the available paraprofessionals.

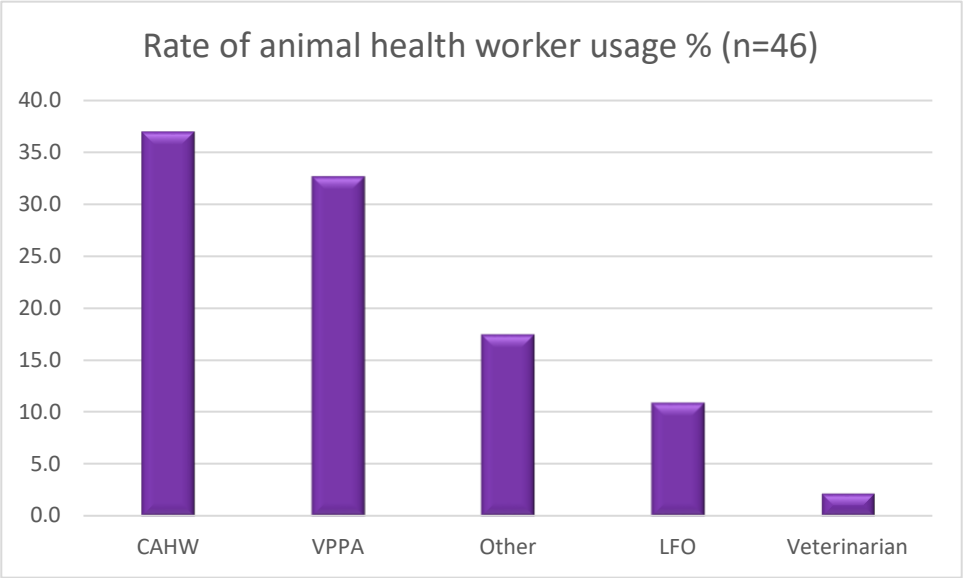


Figure 20: Rate of Animal Health Worker Utilisation

This 'other' category also includes unqualified experts who were also sometimes involved in providing basic animal health services within the community. These were normally untrained individuals but had some basic knowledge on animal health care. For example, one youth, Paskal, mentioned gaining knowledge from the CAHW on how to treat animals, as such he now feels he can assist his neighbours should the need arise: 'I learnt from John (the CAHW) how to treat animals so now I know about antibiotics and can treat animals myself.' Other 'situational experts' are also present such as those who are proficient in helping to birth animals when problems arise. I interviewed *Mzee* Emmanuel who people proclaimed to be an expert on livestock issues. While he himself did not feel he was an expert, he did admit to being able to assist livestock keepers birth animals if they were experiencing difficulties. Factors influencing respondents use of each of these actors will be discussed throughout this section.

<u>Livestock Field Officers</u>

At the village level, animal healthcare provision is usually under the remit of a publicly appointed Livestock Field Officer (LFO) who is responsible for providing animal extension services for the ward. As discussed in Chapter 4, extension services were instated by Nyerere and were defined as:

> 'The entire set of organizations that support and facilitate people engaged in agricultural production to solve problems and to obtain information, skills, and technologies to improve their livelihoods and wellbeing' (Birner et al., 2009).

However, the structural adjustment era saw the curtailment of extension services and retrenchment of field auxiliaries. This, coupled with professional veterinarians unable (or unwilling) to provide services in remote areas, left many communities without adequate provision of veterinary services (Leonard et al., 2003). A study by Chipman and Blum (2016) revealed that while most rural wards in Tanzania have been assigned a public service provider, 80% of livestock rearing households report not having access to them. This is also the case in Msitu where there was an appointed LFO (for some time) however people reported not being able to access him due to his lack of availability. As Petro and Shadrick in a group discussion stated:

> 'It is difficult to get him [the LFO] nowadays so we rely on those trained by Farm Africa such as John [the CAHW].' Petro, Group Discussion, Mlima, 19/04/17

> 'It is very rare to get the LFO because he is the agricultural extension officer, the livestock field officer and the village executive officer.' Shadrick, Group Discussion, 10/10/17

The situation (as I understood it to be) in Msitu was that the appointed LFO, Munisi, had vacated his role in order to take further training. In his stead he left Mabenga - the Agricultural Field Officer (AFO), who was also incidentally the Village Executive Officer. This is who Petro and Shadrick (and most other respondents) were referring to as the LFO. My attempts to interview either of these individuals were unsuccessful as they were often too busy with work commitments. Around four months into my fieldwork period, the AFO also vacated his role to undertake further training, leaving Msitu without any discernible public official to provide curative or advisory services for animals. The use of a professional veterinarian was even lower, where only one instance was reported. This was the ward *Diwani* (member of ward council) mentioned in Chapter 5. She informed us that when any

of her livestock get sick she calls a private vet from Babati town. The *Diwani* further explained that she recognizes that, as a member of the ward council, she is in a considerably privileged position to do this, compared to the rest of the *wanakijiji* who cannot afford to do so.

Veterinary Paraprofessionals

The absence of LFOs coupled with private vets unwilling to work in rural areas left an institutional vacuum in the provision of veterinary services throughout Tanzania, and paraprofessionals were thought to be the solution to fill this gap. The creation of CAWHs in particular was driven by the World Bank, NGOs and the donor community throughout the 1980s and was based on new thinking on rural development strategies for resource-poor people living in complex and diverse environments (Silkin and Kasirye, 2002). This thinking built on the experiences and lessons from farming systems research in the 1970s (Cohen and Uphoff, 1980) and became known as the 'Farmer First' approach. Over time, participatory approaches emerged, with an emphasis on learning from indigenous knowledge and systems, 'bottom up' development, and working in partnership with communities rather than delivering 'top down' technical solutions (Chambers et al., 1989). NGOs such as Intermediate Technology Development Group (ITDG), Oxfam, Heifer Project International, and Farm Africa spearheaded the training of Community Animal Health Workers – where they were believed to be a way to target services towards the poor specifically and to improve community health overall. Services would be local (thus reducing transaction costs) and affordable as they would have lower income expectations than professional veterinarians. CAHWs were usually members of the community and often livestock keepers themselves. They generally received training in basic animal health care and provide a limited range of veterinary tasks to the members of their community, often in association with or supervised by a graduated veterinarian (Vétérinarians San Frontières, 2018). CAHWs were known by various names at that time, e.g., 'Village Animal Health Workers' were first trained in Nepal in 1981 (Stoufer et al., 2002), 'Vet Scouts' were first trained in Kenya in 1980 (Young et al., 2003), and 'Nomadic Animal Health Auxiliaries' were trained by a German development agency in Somalia in the 1980s (Baumann, 1990). The CAHW project was believed to be a success, where a study by Leyland et al. (2014) found that livelihood impacts of cattle, small ruminants and cattle diseases were all

significantly reduced for diseases handled by a CAHW compared to areas where a CAHW was not present. Similarly, a study by Catley et al. (2004) found that in villages where a CAHW was present – livestock keepers sought out the services from this person more than any other service provider (including government officials or agrovets).

In 1995, Farm Africa trained forty-seven CAHWs in Babati to provide services to twenty-two villages within the district (Peeling and Holden, 2004). At least two of these CAHWs were from Msitu village, John Fausta and Augustina Qamara. However, only John is currently operating in the present day. He was nominated by the village to undertake one week of community animal health training at the Tengeru Livestock Training Institute (LITI) in Arusha and, in addition to his role as village pastor, still provides basic animal health services to the *wanakijiji*. In addition to John, there is a veterinary paraprofessional assistant, Festo, another Msitu resident who elected to train and study independently at the Tengeru livestock training institute[28]. Festo informed us that he studied for two years at Tengeru and, upon completion, received his certificate in animal health and production. According to the 2003 Veterinary Act this would classify him as a veterinary paraprofessional assistant. The next level of qualification is a diploma in animal health and production which requires an additional year of study – and thus promotion to veterinary paraprofessional. In the absence of veterinarians or any LFOs in Msitu, it is primarily John and Festo who are providing basic animal health care needs for the community. Indeed, their wide availability was mentioned by 22 respondents (61%) as the main reason why they opted to use these actors for their animal health needs (shown in Table 14 below)

Reasons given for calling a paraprofessional	**Number (n=36)**
Availability	22
Have knowledge/expertise	9
Proximity	4
Previous experience	1

Table 14: Reasons given by respondents for calling a paraprofessional

[28] Currently, there are six Livestock Training Institutes (LITIs) in Tanzania - Tengeru, Mpwapwa, Morogoro, Madaba, Buhuri and Temeke, five of which offer long courses at certificate and diploma level (NLP, 2006).

6.4.2 Knowledge and treatment capability of experts

Aside from their availability, one of the reasons respondents called John or Festo was because they often had a supply of medication. Respondents liked that they had their own package of drugs that they brought when coming to treat the animal, rather than asking them to go to the agrovet themselves and source medication on their own.

> 'Festo has his package of medicines and mostly other experts don't have this - they ask you to buy. Now we are only using Festo.' Michael, Interview, Ziwa, 17/11/17

> 'John has medicine that's why I called him.' Mwanaidi, Interview, 23/09/17

While there was one agrovet located in the neighbouring village, both John and Festo reported travelling further afield to visit the larger agrovets to buy their supplies of medication. 77% of respondents who called John or Festo reported that he 'gave the animal an injection.' This 'injection' was normally referred to as such, but in some cases people were able to specify that it was *dawa ya magonjwa mengi* (medicine for many diseases) or the antibiotic oxytetracycline (OTC). Use of antibiotics are pervasive throughout Tanzania and are used to treat any symptoms that manifest themselves among animals. Ole-Miaron et al. (2004) assert that the introduction of modern pharmaceuticals has had significant impacts on veterinary health provision, especially among agropastoralists. The authors state that not only is the reliance on modern drugs such as terramcyine (a variant of OTC) a symptom of cultural breakdown among ethnoveterinary knowledge in pastoral Maasai communities but also contributes to increasing resistance to terramycine resistant organisms. The common name for antibiotics as *dawa ya magonja mengi* suggests they are used as *omnium panaceum* (a solution for everything), as evidenced by their high usage among livestock experts. There is also evidence in Msitu that people administer OTC to their animals *pre-emptively* e.g. before the rainy season (when they are more at risk of disease) or the harvest season (when they need more strength for ploughing) which is a cause for concern, particularly relating to antimicrobial resistance. As such, while biomedicine has brought veterinary services closer to the poor, high rates of use may contribute to the mismanagement of antibiotics and to the demise of traditional ethnoveterinary forms of healing, as well as impairing the physical wellbeing of the animals treated.

Respondents also expressed preference for John and Festo because of their proximity – both live within the village and so respondents know that they will be able to attend to their animals in a timely fashion: 'he is always available and lives near us' was a common sentiment among respondents when questioned on why they chose to call them. Their proximity also means they do not have to pay as much for fuel costs. This was a common criticism of the LFO, as one participant stated: 'Nowadays if you call him the first thing he wants to know is if you will pay for his transport' (Leandre, Interview, Mlima, 05/86/17). The upfront fuel costs discourages people from using his services, without even knowing if he can treat the animal or not.

While the importance of John and Festo's services for animal health service provision in the community cannot be denied, there were common grievances about the levels of knowledge and expertise they have. *Mzee* Jumanne in a group discussion noted:

> 'They [John and Festo] can *treat* the cow but in terms of *knowledge* on what is the cause of the illness they always refer us to someone else.' Jumanne, Group Discussion, Mlima, 01/11/17

Similarly, another respondent reported that he *only* calls John or Festo to administer injection for his livestock, for other issues (like deworming medication) he goes to the agrovet. This is reinforced by the 77% of respondents who stated that both experts injected their animals when dealing with a recent episode of livestock illness. This suggests that John and Festo's treatment capabilities do not extend much beyond administering injections to animals. Limited treatment capabilities of paraprofessionals cannot be attributed to them alone but rather must be situated with the wider veterinary health system in Tanzania. These actors were intended to fill the gap left in public sector provision of animal health services, yet they are given only very basic training that is not comparable to the advanced degrees veterinarians or other paraprofessionals receive. Thus, there still remains a considerable gap in knowledge, experience and qualifications between those who are needed to provide essential animal health services and those who are available to provide them (like John and Festo). The specific challenges paraprofessionals face in their work is discussed later in this chapter.

As seen in Figure 20, respondents sometimes had to turn to 'other' people for help. These other experts were usually not from Msitu but rather from larger neighbouring towns or villages and were called as an intermediary between when the LFO was unavailable and when John or Festo were unable to treat the animal:

> 'I called Festo but he did not understand the symptoms so I am thinking of calling another expert - I hope he will be able to help because he is more experienced and has been practising for a long time.' Mussa, Survey, Ziwa, 12/10/17

> 'Sometimes when we ask John and Festo they will not know the answer and will refer us to another expert who also is not able to help.' Jamali, Survey, 21/09/17

Referral to other experts outwith Msitu increases the costs of services as, again, livestock keepers are expected to pay the higher fuel costs, which may act as a barrier in accessing treatment. The absence of an LFO and limited treatment capabilities of paraprofessionals within the village means livestock keepers are often left without adequate health care provision for their animals. This results in loss of productivity, and, in some cases, death - severely impinging on the livelihoods of the families affected.

6.4.3 Competition with the past

Festo and John are independent, self-employed animal health workers who operate on an as-needed basis and therefore do not provide any extension or advisory services (as typically required of LFOs). This has led to some disparities between what services they are *expected* to provide by livestock keepers and what they can *actually* provide (legally and by ability). The role of the CAWH in Tanzania, as highlighted by Peeling and Holden (2004), was to provide limited, basic health services to livestock keeping communities including:

- Diagnosis and treatment of common diseases and conditions, including worms, wounds, foot rot, abscesses, bloat, diarrhoea and retained placenta;
- Facilitate disease prevention through regular deworming and spraying of acaricides;
- Improve animal husbandry, including dehorning, disbudding and hoof trimming;
- Improve animal management skills such as farm hygiene, bedding, ventilation, quality of feed and forage and stocking rates.

Livestock extension services in the past would include: regular training and visits, livestock farmer field schools, livestock product promotion, study tours, farmer field days, mass media, agricultural shows, residential training and demonstration units (National Livestock Policy, 2006). As such, there was a tendency (especially among older generations) to express dissatisfaction with John and Festo's services because they were comparing them to previous extension services.

> 'Experts do not put any thought into reaching farmers nowadays. [Generally] in the past, they would put on seminars and they were available even though the means was hard. Now they [experts] get motorbikes for free and still can't offer knowledge.' *Mzee,* Jacob, Group Discussion, Mlima, 15/03/17

> 'People of 1st/2nd government can't compare with successors. Nowadays if you call them the first thing they want to know is if you will pay for their transport.' Eli, Group Discussion, Mlima, 15/03/17

> 'Nowadays experts are just after their own needs more than providing services. Also they are far so when they are needed they are not always available – they are more business minded.' Saidi, Group Discussion, Mlima, 15/03/17

It is evident that nostalgia for the past was pervasive among older members of the village who lamented the demise of the provision of public veterinary services. Kamat (2008) asserts that remembering the past is a jointly social and cultural process as well as a cognitive one; it is best understood as a process that typically is reconstructive rather than simply reproductive (see Garro, 2000; Kratz, 2001). In this regard, Garro and Mattingly (2000:72) have noted that: 'as persons talk about their experiences, past events are reconstructed in a manner congruent with current understanding; the present is explained with reference to the reconstructed past; and both are used to generate expectations about the future.' Experts being more 'business minded' is a direct result of the neoliberal ideology which promotes the needs of the individual over others. As discussed in Chapter 4, this way of thinking is at odds with the socialist values instilled by Nyerere where cooperation, cohesion and reciprocity were integral to the *Ujamaa* vision.

Nostalgia is always rose-tinted, but while listening to the elders lament about the demise of veterinary health service provision there were elements to their stories that, to me, were

told with an appropriate sense of loss. For example, *Mzee* Eli informed me that in addition to the regular training provided by past extension services, there also used to be a centre close to the district hospital which provided people with free knowledge and advice on farming, livestock matters and public health. *Mzee* Eli said: 'people could use this knowledge to help others but now it doesn't exist.' Other services which used to be provided free of charge included dipping services to protect against tick-borne diseases. However, these gradually moved to a cost-sharing scheme (congruent with privatisation) and uptake declined. As such, respondents are perhaps not mistaken when comparing extension services of the past to the services to those of the present. The difficulty lies in that people are comparing previous services to that of John and Festo, neither of whom are an LFO and therefore would not in any case be expected to provide such services. This is complicated by the fact that respondents refer to *all* animal health workers as *mtaalamu* i.e. CAHWs, VPPAs and LFOs are all perceived as having the same level of knowledge and expertise. This means livestock keepers are unable to discern which experts have what qualifications and thus what services they can and should be providing. While there are two animal health experts in the village, neither can supplement the knowledge and expertise of an LFO or professional veterinarian, resulting in discrepancies in expected levels of service; sup-optimal provision of animal health care and subsequently loss of livelihood assets and future prospects. Nostalgia for past public health service provision also suggests veterinary service is still regarded as a public good and therefore is not something that can be fully privatised (Sen and Chander, 2003). This is especially relevant for control of endemic zoonoses. It is currently considered by the GoT to fall under the remit of the individual livestock keeper, yet if people still view veterinary services as a public good, there is clear tension over who should be responsible for controlling such diseases. I will return to this at the end of this chapter.

6.4.4 Interpersonal Trust

As discussed in Chapter 4, Russell (2004) distinguishes between two types of trust: trust in technical ability relating to knowledge and treatment capabilities of available experts and interpersonal trust relating to the characteristics of experts themselves. Having discussed knowledge and treatment capability, I now move on to interpersonal trust. In a study on the effectiveness of extension services in Uganda, Willy and Edson (2016) assert that

interpersonal trust involves integrity, reliability, commitment, and benevolence and is a significant contributing factor to the uptake of animal health services. Livestock health experts carry authority which, as Ribot and Peluso (2003) assert is inherently imbued with uneven power relations, and therefore may be a source of mistrust. To illustrate this, Akerloff (1970) argues parties to a potential transaction are unequal in the knowledge needed to make an informed decision. In this case, livestock keepers are not able to judge the quality of inputs from experts, which leaves them vulnerable to those who may wish to exploit this information deficit to their advantage. As stated earlier, 77% of those who called John or Festo reported that they 'gave the animal an injection' implying that they were not informed what the exact medication was (also highlighted in Amina's story) or how much was given. I am not implying that John or Festo withheld this information as a means to exploit respondents, however not being informed reduces the level of involvement and ownership livestock keepers have over the therapy plan of her or his animal. As seen in Amina's story, this lack of transparency was a contributing factor leading to her mistrust in Festo when he came to treat her cows.

I also observed differences in how some members of the community perceived John and Festo. On the whole, participants looked upon both equally in terms of knowledge and experience. Yet members of the village council tended to disregard Festo's credentials more frequently than John's, despite him being more qualified. During initial conversations concerning what health services were available in the community, the village chairperson of Mlima stated that there is 'just' John and Festo. The chairperson of Ziwa went as far as to say that Festo was not qualified to treat animals. This suggests that he is not readily considered among the village council as a viable provider of animal health care for the *wanakijiji* but can be used if necessary. In an attempt to determine why John was better perceived as a source of help by the village council than Festo, I decided to pay closer attention to the individuals themselves. John is an older, long standing member of the community and has been practising as a CAHW for almost three decades. This, along with his additional role of village pastor, means he has garnered a certain amount of respect and recognition among the village council as a key member of the community. Festo is younger and his more recent qualifications are perhaps not necessarily as quickly recognised. This suggests certificates alone are not enough to engender trust within a

community, but rather, as Russell (2004) asserts, the inherent characteristics of individuals themselves such as age and social position are also vital in building trusting relationships between locals and experts.

Amina's story demonstrates that trust in an expert's ability to treat animals, as well as in their inherent integrity and reliability is integral to the uptake of animal health services in rural communities. Festo's perceived inability to cure Amina's animals, coupled with his seemingly uncaring attitude towards her situation has resulted in her refusing to use his services again. It is impossible to predict what the outcome will be the next time Amina's livestock become sick, but feeling unable to rely on the only available experts erodes her sense of agency in accessing quality animal health services, inhibiting her ability to plan for the future wellbeing of her family.

6.5 Institutional constraints on animal health workers

As with human health systems, animal health service provision does not exist in a vacuum but rather is a reflection of wider institutional structures and processes within the health system. To only focus on individual respondents' perceptions of John and Festo would be to ignore the wider conditions in place that result in limited health service provision from these individuals. As mentioned earlier, the absence of an LFO or other qualified professionals places an increasing amount of pressure on John and Festo to fulfil the majority of primary animal healthcare needs in the community, not to mention they are often overworked without adequate resources to meet the needs of their clientele. I conducted in depth interviews with both paraprofessionals in an effort to understand the prevailing circumstances that inhibit them from providing effective animal health services to the Msitu community.

6.5.1 Underappreciation of paraprofessionals

John and Festo both mentioned not being 'in the system' and therefore not recognised in any official capacity as a provider of primary animal healthcare as one of the main impediments to their work. This meant that both felt they have a lack of economic capital to practice, referring specifically to motorbikes which are provided at a subsidised priced to LFOs. They also both need to supplement their income they get from treating livestock

with other activities (mainly farming). Under recognition also means that they must build up their own client base through reputation and word of mouth, rather than having the benefit of being referred from officials such as LFOs or village leaders. As discussed, this is more of an issue for Festo than it is for John, who is not acknowledged in in any capacity by the village leaders as a provider of animal health services.

Lack of acceptance at the village level is, in part, influenced by lack of recognition at the national level. Despite the important roles John and Festo play in providing livestock health services to the *wanakijiji*, this has not been reflected in any veterinary policy acts. In Kenya the 2011 Veterinary Surgeons and Veterinary Paraprofessionals Act strengthens the Kenya Veterinary Board's capacity to regulate the profession. However, it does not allow any further CAHWs to be trained and existing CAHWs have been largely unsupported since 2011 due to lack of political will to define their roles (Leyland et al. 2014). Similarly, in Tanzania, while the 2003 Veterinary Act makes reference to paraprofessionals and paraprofessional assistants, it does not explicitly refer to any legal inclusion of CAHWs. According to the Act, the qualification for a paraprofessional assistant is a certificate in animal health, requiring two years of study at a livestock training institute (URT, 2003). Given that most CAWHs only received very limited training (2-4 weeks) means it is unlikely they can be classified as a paraprofessional assistant, thus excluding them from any legal framework and rendering them as informal (and illegal) workers. In Festo's case – the act only refers to paraprofessionals who have enlisted with the veterinary council, as such, because he is not registered, he is also excluded from the benefits of being included in any legal framework. Where policy does mention CAHWs is in the Ministry of Livestock and Fisheries 'Livestock Modernisation Initiative' (TLMI, 2015). This document makes reference to 'community animal health technicians' however it does so within the context of 'inadequate' veterinary systems and 'deficiencies' in the quality and quantity of services provided by such actors. As such, even when CAHWs (or similar) are mentioned in policy literature, it is usually within the context of critical and disparaging language.

The codification of laws is in part influenced by the World Organization for Animal Health (OIE), the global body in charge of setting the international standards and regulations for animal health related subjects. The OIE – through its Terrestrial Code and its recently

published 'Competency Guidelines for Veterinary Paraprofessionals' (OIE, 2018) recognises the category of veterinary paraprofessionals (VPP) but also does not make any explicit reference to CAHWs. This exclusion of CAHWs within legal frameworks is damaging to such actors in rural areas who readily engage in primary animal health care provision, where more qualified professionals would choose not to. I conducted an interview with the District Veterinary Officer (DVO) for Babati where I raised the issue concerning CAHWs. He informed me that it is largely the decision of each district official to decide whether they will allow such workers to operate within their jurisdiction. The DVO for Babati was clear that he did *not* allow CAHWs to operate. When questioned on his reasoning behind this decision he stated:

> 'Sometimes you get a call from them saying that they have helped to birth an animal but they need help, and when you get there you find they have made an incision which is beyond repair.' Babati DVO, Interview, 12/11/17

Furthermore, an informal conversation with a private veterinarian from Arusha revealed that the profession soon hopes to phase out CAHWs because 'they cause more problems than what we expected, they always go beyond what they are trained for' (Private Veterinarian, Arusha, Personal Communication, 05/09/18). The vet explained: 'They are now on the top list of fuelling antimicrobial resistance problems.' This type of thinking is also reflected in the National Livestock Policy (2006) which states that regulation of the veterinary profession is constrained by inadequate capacity to monitor and advise 'insufficient expertise' i.e. indirectly referring to CAHWs. While the DVO, private vet and wording of the NLP reflect legitimate concerns about the regulation of the profession, there is also a sense of elitism. A study by Rutabanzibwa (2003) found that those who advocate for the exclusion of CAHWs from the VCT do so out of 'fear of dilution' of the profession, without any consideration to the animal health care needs of the rural poor. As a workshop attendant in the study stated:

> 'The proliferation of unskilled labour to practice veterinary medicine needs to be stopped and promote only services provided by semi-skilled and skilled personnel, because the veterinary profession requires highly skilled personnel normally obtained through rigorous training at universities.' Workshop Attendant (from Rutabanzibwa, 2003: 6)

In the study, this group of respondents supported total exclusion of CAWHs in the legal framework for veterinary health service delivery and claimed that their implementation was temporary. They believed that emerging livestock training institutions would produce qualified veterinary or paraprofessionals who would soon fill the gap. Yet this argument is somewhat flawed, as evidenced by the case of John and Festo. John is a CAHW who was trained for 1 week in the 1990s by an NGO, whereas Festo studied for 2 years at a livestock training institute (and therefore, should legally be classed as a paraprofessional assistant). Yet both experts are regarded in exactly the same way by livestock keepers, i.e. both are '*mtaalamu*' regardless of their training and qualifications. As such, while training and background is influential in determining who livestock keepers choose to treat their animals, there are other factors such as familiarity, trust and experience that are equally as relevant.

There appears to be a discordance between policies and structures in place to govern animal health systems and how these actually operate within rural communities. The National Livestock Policy (2006) states that the objective of Tanzanian veterinary services is: 'To improve animal health services delivery in order to control and eradicate diseases, minimise losses and improve livestock productivity.' Yet at the same time it actively excludes and vilifies those who are the most willing and able to meet this objective. Similarly, veterinary professionals who are not willing or able to provide services to remote areas simultaneously oppose efforts to sanction CAHWs and unofficial paraprofessionals who could provide such services (Sherman, 2010). As a result, people throughout Msitu and other similar communities will continue to suffer from suboptimal levels of animal health care, thus putting their animals' health, their families' health and their livelihoods at risk.

6.5.2 Lack of support or referral networks for paraprofessionals

During the time CAHWs were implemented in Tanzania, Catley et al. (2004) assert there was a mutual understanding between local government veterinary officers and CAHWs that the latter would operate under the supervision of the former. At the time of the study the authors stated that in Simanjiro, Monduli and Babati districts, CAHWs provide monthly reports to LFOs. The LFOs then report to their respective DVOs who in turn, report to the

regional Veterinary Investigation Centre (VIC). The CAHW reports are checked by the LFOs and they are also subject to possible spot-visits by a veterinarian from the VIC (Catley et al., 2004). While this chain of command may have occurred in the past (or in places outwith the study area), I found no evidence of this type of communication to exist among animal health workers in Msitu. Indeed, when talking to the DVO for Babati he informed me that LFOs only contact him when they have a problem, as opposed to regular reporting. Part IV, article 32 of The Veterinary Act 2003 states that all paraprofessionals should be assigned a registered veterinarian for regular supervision:

> 'A Paraprofessional or Paraprofessional Assistant enrolled or enlisted pursuant to this Act shall at all times practice under the supervision of a registered Veterinarian or Veterinary Specialist.' (URT, 2003)

However, as discussed, it excludes CAWHs and non-affiliated paraprofessionals such as John and Festo, meaning they do not benefit from any professional supervision from the LFO or any other veterinarians. In practical terms, this means that they have no official actor to refer to when dealing with difficult cases, or to advise of any outbreaks.

A study by Ilukor et al. (2015) on provision of veterinary services in Uganda found that the relationship between paraprofessionals and government veterinarians is poor because government veterinarians perceive paraprofessionals as subordinates who are less qualified and, therefore, they tend not to cooperate with them when consulted. In addition, government veterinarians have no incentive to build good professional relationships with paraprofessionals since they have an assured government salary. However, the study also found that the relationship between paraprofessionals and *private* veterinarians is good because paraprofessionals often consult them and consider them as colleagues irrespective of the level of training. This is because private veterinarians need to generate sufficient business to prosper, which is mainly done through networks with paraprofessionals. This is also the case in Msitu, as highlighted by Figure 20. When John and Festo encounter an illness which they feel is beyond their level of expertise, they will often refer the case to a different, more experienced animal health expert outwith the village (they are not always necessarily veterinarians). Thus it is clear that in the absence of a formalised chain of command, expert are constructing their own, informal referral networks.

John and Festo also discussed other issues that affected their ability to 'practice' including access to trustworthy medicines and high workload. There are many agrovets in Babati town, however, Festo alleges that the medicines they sell are either out of date or diluted meaning he must travel further to obtain drugs manufactured outside of Tanzania – such as those from Europe, Kenya, China or India which he deems to be of higher quality. In addition, both experts expressed that their high workload impedes their ability to provide treatment to livestock keepers in a timely manner. Festo explained that he can receive calls from up to 30 people per day, not only from Msitu but also from people in the surrounding villages. Finally, John stated that he needs more support in identifying whether slaughtered animals are safe for consumption, something that legally comes under the remit of the LFO and which has direct implications for control of zoonoses.

It is evident that there is increasing pressure on people like John and Festo to meet animal health care needs that were previously under control of the government. This has important implications for the quality of the services they are able to provide and has direct consequences for the health and wellbeing for people who depend on livestock for livelihood security. Thus, the people in Msitu have their capabilities to maintain animal wellbeing constrained through deep-rooted structural barriers in veterinary health systems that prevent people like John and Festo from being able to carry out animal health services effectively.

6.6 Implications for prevention of zoonoses

Highlighting how access to animal health provision is constrained in Msitu, as well as bringing attention to the constraints of John and Festo has significant implications for control of zoonoses and One Health interventions strategies throughout northern Tanzania. Chapter 5 discussed in depth the ways in which individuals in Msitu embody violence and social inequalities in their struggle to gain access to vital treatment in the event of fever. This has led to the widely held belief that control of zoonoses is best maintained at the point of the animal host, as a more effective and equitable intervention strategy than control in human hosts alone (Cleaveland et al., 2017). This is particularly salient not only for those living in Msitu but throughout Africa where 83% of people are

not covered by essential public health services (Cleaveland et al., 2017). Thus, considerable responsibility lies within the veterinary sector for control, surveillance and prevention of zoonotic diseases as a means to not only protecting animal health but also for buffering against the social inequalities in access to human health care. The final section of this chapter will discuss public perceptions of various zoonoses, followed by discussion on factors influencing livestock vaccination uptake, with specific reference to the role of animal health actors.

In line with Umali et al's. (1994) classification of public and private veterinary services discussed in Chapter 4, the GoT believes that control of endemic zoonoses is the responsibility of the private sector (albeit with public sector collaboration) thus leaving a significant burden of the control of zoonoses to livestock keepers. According to the 2006 National Livestock Policy, the role of the government is to: 'control, eradicate and prevent the introduction of animal diseases.' The specific diseases the policy refers to are Trans-boundary Animal Diseases (TADs), vector and vector-borne diseases and other diseases of 'economic importance.' TADs are described as 'notifiable,' 'urgent' and require 'national, regional and international cooperation' in their control (NLP, 2006). Common TADs in Tanzania include: CBPP, rabies, foot and mouth disease (FMD), and CCPP. Vector and vector-borne diseases are believed to be 'widespread' and 'among the most important constraints limiting livestock production in the country' and include East Coast Fever (ECF), tsetse and trypanosomes. Other diseases of economic importance include: mastitis, Black Quarter, Haemorrhagic septicaemia and Malignant Catarrhal Fever (MCF). The GoT believes that control of these diseases are beyond farmers' capacity and impact heavily on the livestock sector in terms of production, product processing and livestock commodities trade, and should therefore be the responsibility of the government to control. The policy asserts that 'control of non-TADs is the responsibility of the private sector and other stakeholders.' According to the policy, then, zoonoses would appear to fall under 'non-TADs' and are therefore deemed to be the responsibility of the individual livestock keeper.

If livestock owners are perceived to be responsible for controlling endemic zoonoses in their own herds then there must first be an appreciation of these diseases and, secondly, of the risks posed by them. This is particularly a problem for brucellosis and other endemic

zoonoses, where common symptoms such as livestock still birth/abortion cannot be easily attributed to specific diseases (Zhang et al., 2016). Cleaveland et al. (2017) assert that this low appreciability is likely to affect the investments that individuals, communities and the state are willing to make in zoonotic interventions. This is in contrast to mass dog vaccination strategies against rabies, which result in rapid and tangible benefits that are recognized quickly by communities (i.e. the distinctive and visible cases of rabies disappear) (Cleaveland et al., 2017). Throughout my fieldwork period, I conducted fifty semi-structured interviews with livestock keepers concerning their attitudes, experience and perceptions towards zoonoses and animal vaccinations. Eighty five percent (n=47) of respondents were aware of diseases that can pass from animals to humans. Of this 47, 40 mentioned brucellosis specifically. I believe this high awareness is in part due to previous research done by SEEDZ in the area in addition to awareness raising campaigns carried out in local health facilities. Other diseases mentioned include tuberculosis (n=30) and RVF (n=20). Subsequently, I asked respondents about activities associated with the prevention of zoonotic diseases. These results are presented in Table 15 overleaf. The 'volunteered' column refers to the preventative measures respondents gave without prompt. Subsequent columns refer to whether respondents thought the activities were preventative after being prompted, if they did not think they were preventative and lastly, if they were unsure if the activity was preventative or not.

Preventative measures	Volunteered response (%)	Yes (when prompted, %)	No (%)	Unsure (%)
Making sure meat is cooked thoroughly	70	22	0	8
Boiling milk before drinking	59	33	0	7
Using boiled milk to make *mtindi* (fermented milk)	11	70	4	15
Wearing protective gear e.g. gloves when dealing with animal abortion/still birth	11	70	11	8
Not drinking blood	4	89	0	7
Burying any birthing materials	0	81	0	19
Washing hands after dealing with birthing materials	0	81	4	15
Separating pregnant/newly born animals	0	56	37	7
Separating sick animals	0	59	26	15
Vaccinating HUMANS against such diseases	0	63	26	11
Vaccinating ANIMALS against such diseases	0	88	0	12

Table 15: Awareness of different preventative measures for zoonoses

As the table shows, the highest volunteered preventative measures were boiling milk, not drinking blood and ensuring meat is cooked thoroughly. Separating pregnant and newly born animals from the rest of the herd had the highest percentage of those who did *not* believe this was a protective measure, and vaccinating animals had the fourth highest percentage of people who thought this was a protective measure against zoonoses (with more people believing animal vaccination is more protective than human vaccination). These results suggest that people are largely aware of zoonoses[29] and know about certain activities which increase risk of transmission (and subsequently what they can do to mitigate this).

I was particularly interested in participant's attitudes and perceptions towards livestock vaccination as, according to Miller and Sentz (2006) when implemented on a national level,

[29] This is likely in part due to the educational component of the SEEDZ study which disseminated knowledge on various zoonoses and ways in which they can be mitigated.

vaccination has been one of the most equitable low-cost, high-impact public health measures, saving millions of lives annually in LMICs. It is less embraced, however, when the public health intervention is targeted at the animal population, even when the intervention has shown to be feasible and cost effective, as in the case of mass vaccination of dogs against rabies (Cleaveland et al., 2017). This is reflected in the difference in vaccination uptake between human and animal vaccination in Msitu, where 77% of people reported having been vaccinated for at least one human disease and only 30% reported having vaccinated any of their livestock before. The high uptake in human vaccination is due to the nation-wide drive to reduce infant mortality and achieve a 'high quality of life for all citizens' (MoHSW Expanded Programme on Immunization, 2011). Currently, routine immunisation services are provided free of charge in both public and private health facilities throughout the country. Local dispensaries are particularly focused on antenatal care, bringing the mandatory childhood vaccinations and vitamins closer to rural areas (MoHSW, 2011). Furthermore, health professionals throughout my study specifically pointed to the expanded programme for immunisation and regular outreach activities as the reason for the high uptake of childhood vaccination among new mothers.

Implementation of livestock vaccination, on the other hand, is still largely devolved to LGAs and is therefore under the remit of the district council to implement and manage. This divergence of local health priorities from national priorities can lead to individualised, sporadic and inadequate responses, rather than a coherent population-level response (Wentworth et al., 2019; Kitandu, 2013). When speaking to the DVO for Babati he cited limited funds from the central government as the main challenge to implementing vaccination within his district. The last vaccination event in Babati was in 2011 for Pestes des Petits Ruminants (PPR), as such, lack of availability is a contributing factor to low uptake. Despite this, I found that almost all (98%) respondents had positive and accepting attitudes towards vaccination and would take their livestock to get vaccinated should the opportunity arise. However, this was mostly said within the context of government provision, whereby the vaccine is brought to the area and administered by vaccinators free of charge. Of the 30% who had vaccinated previously, the majority of those did so as part of a widespread campaign. Thus, it is clear higher rates of uptake are associated with government provision. This was also reinforced by the fact that very few (15%) of

respondents reported sourcing vaccination independently (mainly for ECF). Indeed, Festo told me that he does not stock any vaccinations because 'people are not ready, I don't want to buy vaccinations then incur a [financial] loss' (Festo, Msitu, Interview, 05/06/17). This indicates that livestock keepers view the government as being responsible for the provision of vaccination, which is true for transboundary diseases such as PPR and FMD and other diseases of 'economic importance' (NLP, 2006) yet not the case for endemic zoonoses. Such diseases are thought to be financed through public-private-partnerships wherein the livestock keeper may still bear some, if not all, the costs of the vaccine. As this research has shown, people are ready and willing to have their livestock vaccinated but financial barriers prevent them from being able to access them independently, thus impeding their ability to protect their animals and themselves from zoonotic diseases.

Another contributing factor to low uptake of private vaccination is due to lack of belief in self-efficacy to administer independently. While 100% respondents knew what a vaccination was and how it worked, 94% stated that they would not feel confident administering it themselves and would prefer an animal health expert to do so instead. Reasons given for this are that people perceive they do not have adequate knowledge or experience with vaccination to be capable of giving it themselves:

> 'Vaccination requires more knowledge than treatment, it requires the expert to come and give it.' Julias, Interview, 15/10/17

There were also notions of the potential to harm animals if livestock keepers were to inject the animal themselves without the help of an expert.

The absence of government vaccination campaigns coupled with the reluctance for livestock keepers to administer vaccination themselves makes the roles of paraprofessionals abundantly clear. Both John and Festo play an important role in provision of curative treatments to the community and so there is potential for this to extend to delivery of preventative measures also, alongside other interventions such as awareness raising workshops and active surveillance. However, as discussed throughout this chapter, wider institutional barriers within the veterinary sector, as they currently stand, limit the ways in which key animal health actors can make significant One Health contributions to livestock-keeping communities. This then means people like Amina have their capabilities

to safeguard the wellbeing of their livestock and, subsequently, their livelihoods, restricted. Such structural constraints are important to consider in the implementation of zoonotic intervention programmes.

6.7 Conclusion

In chapter 4 I discussed the widespread structural changes that occurred in the veterinary sector since independence, as they provide the context in which animal health and illness is experienced by those in Msitu in the present day. Privatisation was one of the World Bank and the IMF's panaceas to dwindling economic performance, rationalising that privatising government services would yield numerous benefits. Yet, as seen throughout this chapter, the expected benefits were not realised, leaving a significant gap in the provision of veterinary services in rural areas. The World Bank and international donor community turned their attention to the role of CAHWs and paraprofessionals as a means to fill this gap. An assessment of health seeking strategies reveals that individuals rely heavily on these actors to fulfil their primary animal health care needs. Yet, their knowledge and treatment capability is perceived as limited. This, compounded by their exclusion and lack of recognition within national policy means their ability to provide effective animal health care to the community is restricted. Highlighting these constraints is especially salient for One Health. The potential for paraprofessionals to facilitate interventions is clear, yet systemic and institutional barriers within the veterinary sector may impede their ability to do this. The case of vaccination is especially relevant for Msitu where, in the absence of confidence to administer vaccination themselves, respondents would prefer animal experts, like John and Festo, to do so. This chapter underscores the need to consider the deep-rooted structural constraints animal health actors face in order to design contextually appropriate zoonotic interventions for communities like Msitu throughout Tanzania.

Chapter 7

Navigating a One Health landscape: A summary of access to human and livestock health systems in Msitu

7.1 Introduction

Chapters 5 and 6 highlighted how people's ability to effectively strategize against human and livestock febrile illness is constrained by a series of interconnecting agential and structural factors. Particularly apparent was the role of the health system and ways in structural violence is conferred through these systems onto the most vulnerable. Before concluding this thesis, I briefly draw together the animal and human components of this research, with a specific focus on health systems themselves and health care access. As per the health seeking behaviour model I proposed in Chapter 2, discussion will centre on the five As of health services utilisation: availability, accessibility, affordability, adequacy and acceptability (Obrist et al., 2007), as these are widely believed to be the main parameters which influence use of health facilities. The ability to maintain good individual health, livestock health and overall wellbeing is contingent on having access to these systems, thus by bringing them together now I hope to give insight into the ways in which access converges or diverges across both. This is particularly salient for One Health which, by focussing on the integration of public veterinary health sectors tends to elide the difference in governance and lived experiences of these health systems and the implications this has for those who are most marginalised.

7.2 Availability: negotiating a pluralistic health landscape

As demonstrated throughout the empirical chapters, the available animal and human health service providers located in and around Msitu consists of: two independent animal health actors, a government-run dispensary, two privately owned drug stores, a faith-based health centre and two hospitals. As such, it would appear that residents have a wide range of health services to choose from when either they or their livestock become sick.

Yet, as revealed throughout this research, wide availability of services does not necessarily translate into better health outcomes.

This composition of health service availability can be directly traced back to the historical changes made throughout the livestock and public health sector since independence. President Nyerere's commitment to universal health care left a legacy of wide public provision, where 90% of the population lived within 10km of a health facility and government (para)veterinarians were deployed in rural parts of the country. However, years of health system liberalisation (as enforced by SAPs) throughout the 1980s resulted in the retrenchment of thousands of civil servants, including animal and human health workers – resulting in a significant decline in absolute numbers during the 1990s (Maestad, 2006). This left government health facilities in rural areas understaffed and overburdened and 80% of livestock keeping communities without any public provision of veterinary services (Chipman and Blum, 2016). These cuts to public services are evident in Msitu, where there is no discernible publicly appointed livestock field officer and, while there is a dispensary, it is often understaffed and underfunded. This leaves residents to look elsewhere to fulfil their primary health care needs, such as going to local drug stores or calling paraprofessionals like John and Festo to tend to their livestock.

Proponents of neoclassical economics rationalised that the private sector would naturally emerge to fill the gap left behind by reduced public sector presence, yet this has not been fully realised in Tanzania. While the number of private (human) health service providers increased, these were largely concentrated in urban areas where there was less need for them (Benson, 2001). Moreover, private veterinarians saw working in rural areas as undesirable and unviable. In response to this the donor community reasoned that paraprofessionals (particularly CAHWs) would be instrumental in filling this gap. These actors play an important role in the provision of animal health services in Msitu, however, they face considerable institutional constraints (such as the denying of their legitimacy to practice) which limits their effectiveness. As such, despite wide availability of services, there are still significant gaps in health care delivery, meaning people in Msitu remain underserved.

7.3 Affordability: Coping with the financial costs of illness

Increasing commodification of public services (through privatisation and the introduction of user fees) has had significant impacts on the ways in which people in Msitu strategize against illness. Where services were once free or highly subsidised now have to be bought and paid for. In the case of human illness, participants primarily avoided travelling to a health facility when fever onsets, in part due to the anticipated costs of doing so. For many respondents seeking treatment from the *duka la dawa* was the only financially feasible option available to them. People tended to only engage with the formal health system when the illness persisted or was perceived to be serious enough to warrant the additional time and money required. Affordability varied between health facilities and heavily impacted respondents' decision on where to seek treatment. In general, participants stated that the nearby health centre was expensive yet provided good (i.e. quick) service, whereas the district hospital was cheaper but had long waiting times and was further away. As such, when deciding which facility to visit, respondents had to choose between paying more for faster service at the health centre or paying less at the district hospital at the risk of slower service. From Table 7 it is clear that slightly more participants opted to go to the latter, suggesting that people are willing to wait longer for more affordable treatment. This disproportionately affects the poorest groups who, out of financial necessity, would have little choice to do otherwise. If the illness is serious, it is easy to see how the longer journey to the district hospital, compounded by long waiting times can be fatal. Thus price differences between institutions can exacerbate inequalities in access to health care where the poor, who spend proportionately more of their income on health suffer the most. To reiterate Whitehead (1992: 425): 'Any regressive differences between the poor and less poor in cost burdens, coping strategies and negative consequences represent inequities in health care that are both unacceptable and avoidable.'

In terms of affordability of livestock services - limited treatment options and availability of experts, coupled with lack of confidence to treat animals themselves means respondents have no choice but to pay for the services of John and Festo. Those who were comfortable stating how much they paid for the paraprofessional to come and treat their animals reported paying between a minimum of 3000 TSH (£1) to a maximum 20,000 TSH (£6.80).

Respondents usually had funds available for any costs up to 10,000 TSH (£3.40). For anything more than this they had to engage other strategies to arrange finances, much like for human illness. This included: borrowing from friends or family or taking from other businesses. As John and Festo are from Msitu, they often knew livestock keepers in a personal capacity and therefore were able to sometimes agree to a more flexible payment plan (as shown in Amina's story who paid John in instalments). This is also common practice for drug store vendors. As such it is clear that for both human and livestock illness seeking treatment within the community was usually the most financially viable option.

7.4 Physical Accessibility: Sourcing close-to-community care

A preference for care within the community is unsurprising as people save not only on the direct costs of care but also indirect costs such transport and time costs. This is also important for certain groups who are restricted to the confines of the village such as women, children and the elderly. If treatment is sought outside of the community then people must consider the expenses required to travel there. As stated earlier, the health centre is the closest formal health facility to Msitu (7km), yet, poor infrastructure means the only way people can travel there is via *bodaboda*. As discussed in Chapter 5 – this usually costs around 6,000 TSH (£2). The district hospital which is 17km away can be reached by bus and costs significantly less at 500 TSH (17p). Cheaper transport and treatment costs makes travelling to the district hospital a generally more affordable option for people, despite the longer travelling and wait times. Even if the health centre was of comparable affordability to the hospital, it is clear that poor infrastructure (resulting in higher transport costs) would be a barrier for the poorest groups in seeking care from this facility. Thus, it is clear that poor physical accessibility to health facilities can exacerbate inequalities in access to care. Moreover, the health centre is closed on weekends, meaning if an emergency arises people are forced to travel the longer distance to the district hospital, which can be especially fatal depending on the severity of their condition.

In term of accessibility to livestock services, John and Festo's close proximity to residents is one of the main reasons participants gave for calling either of them when their animals became sick. Common complaints when calling other experts outside of the village were

the upfront fuel costs required before these individuals would even consider travelling to Msitu to treat their animals. As such, it was more convenient for residents to call the available experts within the village.

7.5 Adequacy and acceptability: Local perceptions of health services

Perhaps the most important factor in determining the degree of access to health systems is whether the services provided are deemed adequate and acceptable by the public. In the case of livestock illness, paraprofessionals are evidently widely used by members of the community, yet the general perception among respondents is that their treatment capabilities are limited. They are primarily called upon to administer antibiotics to livestock and to provide basic treatment, yet chapter 6 highlighted that certain members of the community (particularly older generations) perceive that their services should extend beyond this. In theory, animal health services in villages and wards should be provided by publicly appointed livestock field officers who, in addition to veterinary services are also expected to carry out meat inspections, community education on livestock care as well as data compilation from livestock keepers on diseases and vaccination (Zhang et al., 2016). However, limited resources and capacity has affected their ability to do this. As such, dissatisfaction with the work of John and Festo stems from the expectation that they should also be providing the full remit of extension services previously provided by LFOs, despite it not being their job to do so. This reflects problems within the wider institutional capacity of veterinary services in Tanzania where paraprofessionals are often left with the responsibility of providing front line animal health services in communities despite not being equipped with the appropriate resources, knowledge or supervision.

Similar sentiments also extend to public health services in Msitu, particularly regarding the government-run dispensary. Residents cited low staff morale and lack of medical supplies (including medicines and diagnostic tests) to be the main deterrents from seeking care here. For this reason, people saw going to the local drug store to buy medication as a more viable option for treating fever. Issues with the dispensary were symptomatic of wider problems within the public health system as a whole in Tanzania, where respondents reported understaffing, poor patient/staff interactions, lack of medications, high costs and long waiting times to be the main barriers to accessing effective care.

Most apparent throughout respondents' experience with both the human and livestock health system was the feeling of being undervalued by health service providers. Participants often cited 'they don't care' or 'they are not serious' when recalling their experiences seeking both human and livestock health treatment. This was usually followed by a remark regarding how services these days cannot compare to how they were in the past. Throughout this thesis I have offered insight into the conditions under which health care staff must operate (such as understaffing, overburdened and lack of supervision) which may give rise to seemingly uncaring attitudes. This then filters down to those on the receiving end of these services, subsequently affecting how they feel appreciated by health care staff and the state in general. Feeling undervalued has significant implications for health seeking strategies as it can impact an individual's sense of agency in being able to take control of their own health outcomes.

7.6 Conclusion

Throughout this section I have summarised the similarities in differences in access to animal and human health services, as demonstrated through availability, affordability, (physical accessibility), acceptability and adequacy. By bringing the animal and human components of this research together here, I have shown how people navigate public and veterinary health systems when encountering illness. Services that were once provided by the state and either free or highly subsidised now must be paid for and accessed from the private sector. The overall commodification of health has created significant financial barriers for the rural poor, exacerbated inequalities in access to care and has resulted in avoidable suffering for many residents in Msitu. This is pertinent for One Health as it demonstrates the ways in which wider structural processes overlap to result in constrained access to *both* human and animal health systems, impacting people's ability to safeguard health and wellbeing and to maintain livelihoods. A fuller discussion on this is included in the next (and final) chapter of this thesis.

Chapter 8
Conclusion and policy recommendations

Throughout this thesis I have sought to provide a detailed investigation into the health seeking strategies livestock keepers undertake in response to both livestock and human febrile illness. In doing so I have attempted to uncover the constraints to agency that inhibit people from being able to safeguard animal and human health, wellbeing and livelihoods. This was achieved through the following objectives:

- To determine, in detail, the health seeking strategies undertaken in response to human febrile illness - from recognition of symptoms to experiences within the health system.

- To establish, in detail, the health seeking strategies undertaken in response to livestock illness, from recognition of illness to experiences with various livestock health providers.

- To ascertain the constraints on individual agency that limits the ways in which people can act to effectively treat livestock and human febrile illness.

In this final chapter, I reflect on the main findings of this research followed by the theoretical contributions this research has made. I finish by considering the policy implications these findings raise for a One Health agenda that focuses on integration of veterinary and human health sectors as a means to reducing the burden of zoonoses on vulnerable communities.

8.1 Contextualising health seeking strategies

Farmer laments the erasure of history as the 'central problematic' in robust studies of structural violence (Farmer, 2004: 308). In taking forward the biosocial approach discussed in Chapter 2 of this thesis, I deemed it necessary to precede the empirical chapters with an outline of the historic changes in the human and veterinary health landscape in Tanzania. This was done as a means to contextualise the ways in which health systems currently

operate. For both human and veterinary care, Mwalimu Nyerere's *Ujamaa* vision left a legacy of wide public provision, where the number of health centres reaching the poor increased substantially and government (para)veterinarians were deployed in rural parts of the country and provided free or highly subsidised services to citizens. However, mounting sovereign debt and global economic recession saw successor governments accept the conditions of structural adjustment. Tanzania was forced to adopt an increasingly neoliberal approach to the governance of animal and human health systems, primarily resulting in: the introduction of user fees; major cuts to public services; and encouragement of the private sector to fill the gaps. Thus began the long trajectory of viewing healthcare as a commodity rather than human right and disparities in equality of access began to emerge (Benson, 2001). Throughout this thesis, I uncovered the manifold ways in which health systems bear the legacies of these structural changes, and the subsequent material impacts this has on health seeking strategies.

8.2 Characterising health seeking strategies for human febrile illness

8.2.1 Reliance on close-to-community care

This research found that participants largely avoid travelling to health facilities when fever set in, in part due to the anticipated costs of engaging with formal health systems. As a result, people are opting to source health care within the community first and foremost. For human illness, this means going to the local *duka la dawa* and buying painkillers (or, in some cases, broad spectrum antibiotics). For livestock, this means calling a local community animal health worker (CAHW) or paraprofessional assistant (PPA) who, in most cases, administers an antibiotic to the sick animal(s). As such, given that most health seeking strategies start (and usually end) within the community, the value of interventions at this level and in this sector cannot be understated.

Duka la dawas are instrumental in providing health care to the community as, in the absence of adequate public health facilities, people turn to these private vendors to fulfil their primary health care needs. This is evidenced by the number of people who not only go to drug stores to buy medication but also call upon the advice of the drug store purveyor to help diagnose their illness and provide them with advice on the therapy path. Other reasons people reported going to the *duka* for include: perception of the severity of illness,

previous experience, proximity, financially feasibility and flexible opening hours. While some of these factors appear to be down to individual preference, a deeper analysis reveals that these are widely influenced by prevailing social circumstances. For example, people downplay illness as *homa ya kawaida tu* (just ordinary fever) due to financial inability to cope with the costs of illness.

While staff working within *duka la dawas* have some degree of professional training, their skills and expertise cannot substitute for those of trained health professionals (such as technicians or clinical staff within village dispensaries). As such, if the illness needs professional help (as is the case with many zoonoses) then sole reliance on the *duka* for treatment can be fatal. Drug store staff report referring people to primary or secondary health facilities to seek more advanced health care yet acknowledge that people can not always take their advice. The importance of drug stores in providing accessible drugs in low income countries has been well documented (see Mwenesi et al., 1995; Molyneux et al., 1999; Attanyake et al., 2000; Nyamongo, 2002). In Chapter 5 I discussed the accredited drug dispensing outlet (ADDO) programme the GoT launched in 2003 as a means to improve access to affordable, quality medicines and pharmaceutical services in rural and peri-urban parts of the country. The programme provided staff with dispenser training so that they may administer certain prescription-only medications alongside over the counter drugs (Embrey et al., 2016). There is potential for this programme to be rolled out universally across the country to lessen the burden on primary health care systems by providing local actors with the skills to treat common cases of fever. This would empower them to recognise when further treatment/diagnosis is needed and emphasise that individuals need to visit a health facility. This is especially pertinent for zoonoses which can only be cured with targeted treatment from a hospital or health centre. With so few people attending health facilities, it is clear that improving treatment capabilities at the local level, and particularly in drug stores, can have significant impacts on community health and wellbeing.

8.2.2 The hurdle race to the health system

For those who engaged with the formal health system, a series of obstacles had to be overcome before people were able to reach a health facility. This included: deciding which

facility to visit, (where people had to consider costs, distance, waiting times and, in some cases, religious prejudice); securing finances – such as selling crops, livestock, or reaching out to diminishing social safety nets; and organising sparsely available transport. Each step taken to prepare for the health system prolongs access to vital treatment, meanwhile plunging the individual (and household) into further physical and economic vulnerability. Various health insurance schemes exist in Tanzania in order to help families cope with the increasing costs of health care. The Improved Community Health Fund (as discussed in Chapter 5) is specifically designed for the rural poor yet has not had its intended effect. People in Msitu viewed the scheme as complex and counterproductive. Testimonies from those who did have insurance revealed struggles to find facilities that would accept the scheme, and in some cases people even travelling hundreds of kilometres to do so. Similarly, health professionals had their own concerns, citing overly long bureaucratic processes and financial losses as their main impediments to implementing it within their facilities. The ICHF and other insurance schemes were designed to cushion the blow of increasingly unaffordable health care, yet, as this research has shown, instead of helping the rural poor access affordable treatment, in some cases it seems to be making it worse. This, compounded by diminishing social relations means the poor have little safety net to fall on when coping with the costs of illness, relying instead on out-of-pocket expenditures and limited livelihood assets.

8.3 Characterising health seeking strategies for livestock illness

8.3.1 Community livestock health

In the case of livestock illness, respondents are also primarily seeking out care within the community via animal health workers. The push towards privatisation saw the retrenchment of thousands of public veterinarians with private vets unable or unwilling to fill the gap in rural areas. This left an institutional vacuum in the provision of veterinary services, especially in rural areas. In order to remedy this, the attention of the international donor community, NGOs and the World Bank turned to paraprofessionals, especially Community Animal Health Workers as the panacea to fill this gap. The findings of this research show that the paraprofessionals, John and Festo, play an integral role in the delivery of essential animal health services in Msitu (primarily through administering

medication) yet their treatment capabilities are perceived as limited. Participants voiced a desire for more comprehensive livestock services within the community, reminiscent of the wider remit of extension services provided by LFOs in the past. As discussed in Chapter 6, shortcomings in the provision of animal health services cannot be attributed to paraprofessionals alone, but rather must be situated within the wider institutional capacity of veterinary services throughout Tanzania. John and Festo are not recognised in any legal capacity – by the veterinary council nor the village council. As such they are left in a kind of institutional limbo, where they are heavily relied upon by members of the community to provide essential animal health services yet are simultaneously vilified by the wider veterinary sector for doing so.

This can have direct implications for One Health interventions. People like John and Festo have the potential to play a key role in the surveillance and reporting of zoonoses, as well as facilitating vaccine campaigns, yet their exclusion from any legal framework limits their potential to do this. These structural constraints are important to consider in the implementation of zoonotic intervention programmes. The obvious policy recommendation here is to support CAHWs and paraprofessionals by integrating them within the veterinary council. This would firmly establish their roles within community animal health and provide mechanisms in place for their supervision and stringent regulation. Findings from Chapter 6 demonstrate there are already informal networks of referral among (para)veterinary health workers within and around Msitu, as such there is scope to formalise these networks to facilitate communication between key actors, thus making a wider network of expertise available for rural livestock keepers. This would also aid the surveillance of livestock diseases (including zoonoses). It is the district office which inhibits or prohibits the practices of these workers, as such officials at this level have the potential to facilitate some elements of this.

8.4. Constraints to agency - health systems as sites of violence

Systemic shortcomings within human and veterinary health systems have significantly perpetuated constraints to agency when seeking out effective remedial actions for illness. Respondents' experiences when engaging with both animal and human health services were characterised by a series of 'lacks' – lack of staff, lack of medicines, lack of resources,

lack of skills, lack of trust. These 'lacks' reinforce the patterns of structural violence enacted on individuals through these weaknesses within the health system. Lack of medicines meant that Maria had to search for days upon being discharged from the district hospital for the medicines that were meant to cure her. Lack of diagnostic tests meant that Wilfreda and Sebastian cannot pinpoint what the exact cause of their malaise is, and so will continue a regimen of powerful drugs that they are not sure even helps. Lack of veterinarians in rural areas means that Amina was left with suboptimal care and treatment ability when her livestock, her safety net became sick. Lack of staff means that hospital workers become overburdened and fail to treat patients with the dignity and respect they deserve. Scheper-Hughes and Bourgois (2004) state that violence is a slippery concept that goes beyond physicality to include assaults on self-respect and personhood. They go further to say that we can best contribute by rendering visible these erased and unexpected linkages between violence, suffering and power. As such, the individual experiences told throughout this thesis provide a collective testimony to render visible (Laurie, 2014) the struggles endured by the people of Msitu as they must navigate over-burdened and under-resourced animal and human health systems. In the ensuing section I reflect on how these key findings have broader implications for the theoretical framework woven throughout this thesis.

8.5 Theoretical contributions

Conceptually, this thesis sought to explore health seeking behaviour through a biosocial lens with a specific focus on structural violence. Being embedded within a zoonoses project, I believed this to have practical value in identifying how people respond to illness, while at the same time being cognisant of how behaviours are largely influenced by wider social contexts. The dual approach to human and livestock illness was designed to add value to One Health which, as noted by Craddock and Hinchliffe (2015), Bardosh (2016), Dzingirai et al. (2017) has thus far lacked critical social science engagement. In Chapter 2 I posited that a biosocial approach can act as a means to emphasizing the role of the social within what are predominantly biological disciplines within One Health. As Robbins (2012) aptly states, biosocial approaches provide: 'a lens with which to view the swirling political and economic relationships that dialectically produce levees and slums, soils and dams, tourism and hunger, energy and climate,' with Richardson et al. (2016: 2) adding: 'health systems and pandemics.' A biosocial approach encompasses the ways in which biological

and clinical processes are inflected by society, political economy, history, culture and are therefore best understood as interactions of biological and social processes (Hanna and Kleinman, 2013). I will now explicitly discuss the theoretical implications of this research in relation to these concepts.

8.5.1 Health seeking behaviour and the biosocial

Through exploring remedial actions for febrile illness within a biosocial approach, this thesis contributes to and advances current debates on health seeking behaviour. As discussed in Chapter 2, traditional health behaviour models tend to overemphasize the ability of the individual to make rationale health-related decisions while at the same time eliding the role of the wider social context. Subsequent models have made efforts to consider social context (such as the ACCESS and PASS models discussed in Chapter 2) however, these are still lacking critical analysis on how these structures come to shape individual lived experiences. This thesis builds on the work undertaken by Obrist et al. (2007) and Hausmann-Muela et al. (2012) by giving prominence to the role of structures and the ways in which health-related behaviours can be considered in relation to this. As Scheper-Hughes and Bourgois (2004) state, there is a need to theorise more broadly the way everyday life is shaped by the historical processes and global political economy. By situating health seeking behaviour within a biosocial approach, I was able to critically analyse how people design strategies to deal with illness against a backdrop of health system liberalisation, privatisation, poverty, inequality, constraints in access to health care and legal exclusion of key animal health workers from policy. Specifically, this research found that these structures manifest themselves in a series of insurmountable barriers at every stage of the health seeking process. This has clear implications for zoonoses (and other severe fevers) which rely on timely attendance at health facilities for effective treatment. Focusing on these structural conditions allows a reconsideration of health seeking behaviour by reorienting the locus of control away from the individual and placing it within the enabling and constraining framework of the social system and health care structures. This approach has rendered the tool far more useful in providing a deeper, more meaningful understanding of the ways in which structural constraints have material impacts on people's health-related behaviours. This then has clear implications for health

interventions which primarily rely on behavioural change to produce more positive health outcomes.

8.5.2 Health seeking and structural violence

The biosocial approach taken forward throughout this thesis, combined with a focus on lived experiences, has allowed me to not only identify the structures in place that restrict individual agency but also to appreciate how violence is enacted through these structures onto individuals. Tracing the journeys the people of Msitu took in order to remedy ill health has brought to light to the multiple ways in which violence is worked through every aspect of the health seeking process, as well as enacted through institutions. This is apparent in participants' everyday experiences with illness in Msitu – when people downplay fever out of fear of cost burdens; when access to essential treatment is prolonged by searching for the necessary finances to pay for hospital bills; when seasonality affects their ability to sell natural assets; when they have to travel further to access lesser quality care due to poor infrastructure; and when they reach a health facility and find it under-staffed with no medications. These violence(s) of everyday life, as Green (2004: 320, after Kleinman, 1997) has called them, 'are multiple, often mundane and partially obscured, yet they profoundly shape people's subjectivities and practices.' By exploring health seeking journeys through the lens of structural violence I have sought to uncover how wider systemic processes come to manifest in these everyday violences and the resultant pain and suffering it causes. Moreover, by applying a structural violence lens to this research I have shown how health seeking behaviour research may be approached from social justice perspective. This has allowed me to reframe constraints to agency not as inevitable, or misfortunate but rather as unjust and completely avoidable.

8.5.3 Health Seeking and One Health

This research had the added dimension of a dual approach to animal and human health seeking and thus has broader implications for One Health. One Health is premised on a systems approach and thus seeks to present animal, human and environmental health as existing within one overall system. Yet, as Davis and Sharp (forthcoming) note, so far little consideration has been given to the conceptual and material boundaries created to separate these entities. By looking at the ways in which animal and human health systems

are governed, I was able to explore these boundaries, uncover where they overlap and examine the resultant implications this has on livestock keepers navigating both of these systems when responding to febrile illness.

Chapter 4 highlighted how both the animal and human health sector underwent significant institutional and structural changes throughout the SAPs era. This primarily included health system liberalisation, privatisation, deregulation, decentralisation and the general commercialisation of both public and veterinary health. Key differences between the sectors primarily include the degree of privatisation. While the human health landscape saw an increase of private facilities and the introduction of user fees, the MoHSW still has mandate over the administration of public health in Tanzania. The veterinary sector, however, was almost completely dismantled from the public realm and moved into the private. This has resulted in some differences at the institutional level in how people access animal and human health services (e.g. whether through public or private means), however, this research has shown that the material impacts on livestock keepers in accessing these services are largely the same. Whether it is human health or animal health, the people of Msitu have their capabilities to pursue good health and wellbeing constrained by often insurmountable barriers in access to care. Ultimately, the forces that affect the ways in which people can deal with human health are the same, if not more pronounced, in the ways that they affect livestock health.

If the central selling point for One Health is the recognition of animal, human and environmental health existing within one system then it is important to be cognisant of the social, political, historical and economic structures that exist within this system, and the ways in which they can reproduce violence. This research has documented the ways in which these structures can overlap to produce extreme suffering for livestock keepers, firstly in their attempts to pursue remedial actions for themselves when they become sick and again when the livestock on which they depend become sick. This then has implications for One Health interventions that often focus on the animal host under the assumption of providing a more just and equitable solution than a focus on human interventions alone. What this research has revealed is the myriad of constraints in access to effective livestock health care that need to be considered when giving primacy to veterinary interventions.

8.5.4 Contributions to SEEDZ and BACZOO

The research conducted throughout this study extends and contributes to the social science remit within SEEDZ by focussing on health-related behaviours and health system factors. Social science in SEEDZ and BACZOO primarily focussed on understandings of disease risk and vulnerability in attempt to ascertain conditions that may premediate disease occurrence. This research focussed on what happens after disease occurs by focussing on the subsequent health-related actions taken to remedy illness, and the health system factors that influence these actions. As a qualitative social scientist, I deemed it necessary to conceptualise my work within social theory that would allow me to assess individual experiences in relation to the wider social environment. The SEEDZ study in particular was focussed on understanding drivers of change as existing within a dynamic system. Specific areas of interest were on the changing ecology of northern Tanzania, livestock movement patterns and consumer habits of small ruminants as key drivers of change. This PhD research has found that an account of driver of disease emergence must consider the role of the health system and the ways in which this can exacerbate and perpetuate disease. Furthermore, by choosing to explore this work through a structural violence lens I add a political element to the SEEDZ project wherein I highlight how contemporary experience of illness and zoonoses must be considered in relation to broader historical, structural and institutional factors. In doing so I add to the SEEDZ and BACZOO studies by providing an in depth account of people's health seeking behaviours, the ways in which these are influenced by structural and institutional barriers and the resultant violence and suffering this enacts on individuals.

8.6 Policy Recommendations

8.6.1 Health system strengthening

Throughout this research I have shown that zoonoses and other febrile illnesses do not exist in a vacuum but rather must be considered within the wider context of both human and livestock health and wellbeing. In order to widen the efficacy of health interventions, I suggest that they be undertaken as part of a holistic intervention strategy that focuses on strengthening and integration of animal and human (one) health systems as a whole, in

conjunction with focussing on specific diseases. Strengthened health systems improves equity and access to healthcare and contributes towards long-term sustainable development. The global health community has tended towards infectious disease exceptionalism, whereby international aid is funnelled into intensive responses for exceptional conditions (HIV for example) which reorients the donor gaze away from strengthening health systems more broadly (Benton and Dionne, 2015). A sole focus on vertical delivery programmes can have adverse effects on already fragile and over stretched health systems, whereby lack of attention to the social and political context has marked a counter-productive resurgence of simplistic 'magic bullet' medicine (Allotey et al. 2010). As such, there is a need is to better attend to break downs in public health systems and to the many political and social determinants of health (such as education, water, sanitation, vector control, air pollution, and accident prevention) that make people vulnerable to disease and injury in the first place (Amon and Kasambala, 2009; Cueto, 2007; Farmer, 2004; Freedman, 2005; Hahn and Inhorn, 2008; Singer and Hodge, 2010; Utzinger et al., 2002). For zoonoses in particular, technical capacity such as diagnostic tests are often prioritised over organisational capacities, such as communication, trust building, political advocacy and leadership (Swanson et al., 2015). As this research has shown, building capacity in these areas is critical for improving institutions and systems. However, significant financial and political support is required in order to achieve this.

Rwanda has shown that, with political will, marked improvements in health service delivery are possible. Since the 1994 genocide, Rwanda's rapid recovery has been nothing short of historic. Life expectancy has doubled and child mortality has fallen by more than two-thirds since 2000. In the past decade, death rates from AIDS has declined by 78.4% while deaths from malaria dropped by 87.3% and vaccination rates for many diseases surpass those reported in the United States (Binagwaho et al., 2013). Rwanda's recovery was not a miracle, nor was it primarily driven by foreign aid, but rather due to a concerted effort by the government to place investment in public health — for all citizens – at the centre of its development agenda. This includes: the strengthening of the health system as a whole, alongside disease specific interventions; the introduction of a health insurance program with three-tiered fee structure meaning the poorest 25 per cent of the population do not pay but are covered; and the integration of information communication technology to

improve the flow of information between procurement and distribution divisions of the ministry (Farmer et al., 2013). One key strategy has been equipping communities to address health at a local level. Each of Rwanda's nearly 15,000 villages has elected community health workers who have been trained by the health ministry to offer preventative, diagnostic and treatment services, as well as the ability to link patients to the formal health care system (Farmer et al., 2013, Binagwaho et al., 2013). Farmer (2013) asserts that Rwanda's unprecedented success can rightly serve as a model for other African nations committed to health equity. Additionally, it reinforces the need to support health care and health care workers at the community level.

8.6.2 Community One Health

Rwanda's commitment to health equity and social justice has also translated well into its approach to One Health. Like other East African countries (including Tanzania), the government of Rwanda has stated it is committed to addressing One Health challenges and has devised a strategic plan that goes beyond the traditional approach of disease surveillance, out-break investigations and response. It also includes new competencies around leadership/governance, efficiencies in resource utilisation, disaster management, delivery of healthcare, systems-related approaches, and vigorous attention to training for life-long learning. A key objective of their multipronged approach is a focus on mobilising and empowering various experts and lay workers at the community level to establish a 'One Health workforce' (Nyatanyi et al., 2017). For example, disease surveillance of both zoonotic and potential zoonotic disease is monitored by a multidisciplinary team comprised of Community Animal Health Workers, Community Health Workers, NGOs, health dispensaries, hospitals, park rangers, farmers and livestock keepers. These experts are prepared and trained to act rapidly and collaboratively given evolving information (Nyatanyi et al., 2017).

In the future, the idea is to further integrate these community health actors through a 'hub-and-spoke' network, where the community health workers (spokes) are linked to hubs (centres of expertise) through mobile phone technology. Nyatanyi et al. (2017) propose that one day these workers at the community level will be rebranded 'One Health CHWs' (OHCHWs) given that they are well situated to quickly identify unusual events or problems

affecting humans, animals or ecology/agriculture. Hub centres would be connected via the internet to district centres and eventually to a central repository and command centre. OHCHWs would routinely collect local information on the health of humans, animals and crops and notify hub centres when there are sudden changes or concerns (Nyatanyi et al., 2017). Rwanda's focus on the community is but one part of a three-pronged approach to achieving one health, with other aspects focusing on integration and collaboration at the ministerial level and the promotion of applied, interdisciplinary research within education/academia (ibid).

8.6.3 One Health in Tanzania

Tanzania is well placed to emulate Rwanda's success through its already established commitment to addressing One Health challenges. In January 2018, the GoT launched the One Health Coordinating Unit in the capital city, Dar es Salaam, and has devised a national One Health Strategic Plan (2015-2020). These are designed to strengthen mechanisms for the prevention, detection and response to outbreaks, as well as building capacities for preparedness and response to public health events. Like Rwanda, commitments to One Health also extend into education and research. There is a national drive to integrate One Health science within the higher education curriculum, such as incorporating it into key classes within the Nelson Mandela African Institute of Science and Technology. This builds on Tanzania's long history of integration across disciplines, with researchers from the Sokoine University of Agriculture, the National Institute of Medical Research and the Tanzania Wildlife Research Institute having conducted joint programmes on bovine tuberculosis, brucellosis and rabies for over 20 years (Kamani et al., 2015).

While it is clear that One Health cannot be achieved without concerted efforts at the government level and within education, the Rwanda example shows that targeting efforts towards the community level is vital. Community health workers (CHWs) have long assisted in the provision of health services at the community level in Tanzania. After independence they were integral to achieving president Nyerere's *Ujamaa* vision and, more recently their importance is reflected in the 2014 Community-Based Health Program (CBHP). The program identifies the need to coordinate and standardise CHWs' training, service tasks and the way in which they are managed in order to increase the quality of care and, as a

consequence, health in general at the community level. If their counterparts in the veterinary sector (such as paraprofessionals like John and Festo) can be considered for similar formalisation and standardisation it is easy to see how a potential 'One Health workforce' may be created in order to truly operationalise One Health in Tanzania.

This research has documented the various ways in which people like Maria, Jacob, Amina, Wilfreda, Sebastian and others throughout Msitu experience and embody violence in their attempts to respond to animal and human ill health. Establishing a One Health workforce would bring essential services closer to people like them who rely on community care, thus enabling them to more effectively safeguard their health and wellbeing, maintain their livelihoods and plan for the future.

Appendix 4
Health Seeking Behaviour Survey Questions

Human Health

1. Can you tell me when you last experienced severe fever (e.g. were too unwell to continue with your daily activities and/or had to go to hospital for treatment). If no severe fever experienced, ask for regular/small fever. If no such fever experienced, skip to question 7.

2. How often do you experience fever like this?

3. For this last time, what symptoms did you feel when you first started to become unwell?

4. What was the first thing you did in response to these symptoms? (if respondent says went to hospital, prompt for if anything was done before this e.g. went to the pharmacy/took herbal treatment etc).

    a. Why did you opt to take this particular treatment?

5. If respondent went to hospital or other health service provider ask:

    a. How long after first becoming unwell did you decide to go to hospital?
    b. Did you yourself decide to go to hospital?
    c. Did you consult with anyone before going? E.g. spouse, neighbours, family
    d. What symptoms were you experiencing that made you decide to go to hospital
    e. What was the name of the place you went?
    f. Is it a dispensary, health centre, clinic, or hospital?
    g. Why did you decide to go to this particular place?
    h. How far is it from your home and how did you travel there?
    i. How much did the transport cost?
    j. At the health facility, how long did you have to wait before being seen? What do you think was the reason for the wait?
    k. Did you have to pay anything upon arrival? If so, how much?
    l. How long were you in hospital for?
    m. What were you diagnosed with?
    n. What kind of treatment was given to you here e.g. oxygen tank, CT scan etc.

o. Were you prescribed medicines? If so, were you able to get the medicine at the hospital or you had to go elsewhere?
p. How much did the medication cost?
q. How did you manage to arrange for the total costs at the hospital? Prompt for asking friends/neighbours/family for help/selling crops/selling livestock. Is this how you normally deal with unexpected costs?
r. Did you manage to pay for these costs in one payment? Or had to pay some and the rest later?
s. How do you feel you were treated by the healthcare staff at the hospital? How did this make you feel?
t. Did the staff give you any information on how you can prevent such illnesses in the future?
u. Did anyone accompany you to the hospital?
v. Who looked after your household (including children/livestock) while you were in hospital?
w. Did you feel better after going to hospital? If no, how did this make you feel?
x. Did you take any treatment after going to hospital? E.g. herbal medication, paracetamol?

6. Next time if/when you become unwell like this, would you do the same thing? If no, what would you do differently?

7. In general, what healthcare provision is available to you in your community? E.g. is there a community health worker, dispensary, pharmacy?

8. Are you satisfied with the health services available to you? How do they compare to services in the past?

9. How do you see the health of your community in general? (if only fair or poor) why do you think this is?

10. Have there been any community health seminars in your area in the last 6-12 months?

11. Do you have any health insurance? If yes, what kind?

Animal Health

1. What is the most recent livestock health issue you have experienced?

2. What species of animal was affected?

3. How many were affected?

4. Is it common for your livestock to get illnesses like this?

5. What were the first symptoms you noticed that made you realise something was wrong?

6. What do you think caused it?

7. What was the first thing you did in response to this illness?

8. At any point did you try to treat the animal yourself?

9. If so, what treatment did you give – why?

10. Do you prefer to treat your animals yourself? If so, why?

11. At any point did you call an animal health expert? (skip if already indicated in qu. 7)

    a. If yes, is this someone who has official qualifications? Or someone who has not been trained but has knowledge on animal health (through experience)
    b. If someone without official qualifications, why did you opt to call this person (and not e.g. an official expert such as a vet or LFO).

12. What symptoms did you observe that made you realise the animal needs outside help?

13. If called an expert ask:

    a. Were they able to diagnose what was wrong with the animal?
    b. Did they administer treatment?
    c. If yes, did they tell you what the treatment was?
    d. How much did the expert charge you?
    e. Did you manage to pay all at once or in instalments?
    f. Did your animal get better after this expert treated it? If no, how did this make you feel?
    g. Were you happy with the service of the expert?
    h. Would you call them again the next time your livestock becomes sick?

14. In general, what other treatment options are available to you when your animal becomes sick? E.g. herbal medicines, agrovet

15. Are you happy with the services available to you? How do you think they compare to services in the past?

Appendix 5

Health sector reforms: Summary of major developments in the health sector

1990 - The First National Health Policy
1991 - The Liberalization of Private Health Care Provision
1993 - Government/Development Partners Appraisal Mission on the Health Sector
1994 - Proposal for Health Sector Reform Agreement to Enter a SWAP programme in Health
1998 - Agreement to enter a SWAP programme in Health
1999 - Poverty Reduction Strategy (PRS) identifies health as a priority
1999 - Health Sector Reform Program of Work (1999 – 2002)
1999 - Comprehensive Community Health Plans (CHP) Introduced
1999 - Health Basket Fund Introduced
2000 - National Package of Essential Health Interventions Approved
2002 - National Health Insurance Fund (NHIF) Established
2003 - Health Sector Strategic Plan 2 (HSSP2)
2004 - Emergency Infrastructure Rehabilitation Programme
2005 - Tanzania Essential Health Intervention Project (TEHIP) tool rolled out
2006 - Joint Assistance Strategy for Tanzania
2007 - The National Health Policy 2007
2008 - Human Resources Strategic Plan
2009 - Health Sector Strategic Plan III (HSSP III)

Source: Mujinja and Kida (2014).

Appendix 6

Division of Public and Private Sector Functions

Livestock Service	Public	Private	Comments
AI	**R***	+++	GoT regulates/controls semen importation
Animal Welfare	**R**+	++	NGOs/Associations- pressure groups
Breeding	+	++	
Certification	++	+	Private Contract
Clinical Services		+++	
Compulsory testing	++	+	Private Contract
Diagnosis/Reporting	++	+	Private Contract
Diagnostic support		+++	Private laboratories
Drug and Vaccine Production/distribution	**R**	+++	
Embryo transfer	**R**	+++	GoT regulates/controls embryo importation
Emergency Diseases Response	++	+	Private contract
Emergency planning	+++		
Export Inspection	++	+	Private Contract
Extension	++	+	
Food Hygiene/Meet Inspection	**R**++	+	Private Contract
Herd Health		+++	
Marketing		+++	
Monitoring	+++		GoT Epid. Unit
Notifiable Diseases Control	++	+	Private Contract
Policy/Planning	+++		
Quarantine	**R**++	+	
Registration of Veterinarians/Paravets and Village/Community Animal Health Workers	**R**+++		Legislation still under review
Research	++	+	
Surveillance	+++		
Tick control		+++	
Training	++	+	
Tsetse/Trypanosomiasis Control		+++	
Vaccination	+	++	Private Contract
Zoonosis Control	++	+	

Source: Animal Health Strategy Plan for Tanzania, as in Rutabanzibwa (2003). 'R' = Regulatory

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