

**Discovery of the Meanings, Expressions, and Practices
Related to Malaria Care Among the Maasai**

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Cecily Weller Strang

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Dedication

For the Maasai and others who suffer from the malaria illness.

Acknowledgements

I gratefully acknowledge the Maasai people, who welcomed and trusted my presence in their culture and my interest in their stories of malaria care. My family would often say that it took a village to get me through this doctoral academic journey and, although it literally took numerous villages in Maasailand, it also took my stateside academic and home villages.

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I am thankful to my Almighty God who gives the grace, courage, strength, wisdom, and love to carry on in the tasks set before me. I am grateful for the burden He has given me to offer care to the Maasai people. "We are many, but in Christ we are all one body. Each one is part of that body." Romans 12:5

Abstract

Each year, malaria invades and infects 300 million persons, kills up to 1 million, and 90% of deaths are among children in Sub-Saharan Africa. Malaria illness and deaths cost Africa \$12 billion in lost productivity. Eighty percent of all malaria cases occur in 17 African countries; one is Kenya, where one group suffers incessantly from malaria, the Maasai. Their pastoral, indigenous lifestyle places the Maasai men, women, and children daily at malaria risk. Although malaria is preventable and treatable, high mortality and morbidity occurrence continues. Global interest in malaria care includes prevention, treatment, and eradication. The current use of generic and professional malaria care/cure practices among the Maasai culture is not known. The purpose of this qualitative, ethnonursing study was to discover, describe, and systematically analyze the meanings, expressions, and practices related to malaria care among the Maasai who reside in the Kisongo Maasai villages in the Kimana region of Southern Kenya. Interviews with 16 key and 32 general informants provided in-depth examination of the ethnohistory and culture of Maasai relevant to malaria care. The goal was to discover the emic (generic/folk) and etic (professional nursing) care practices that promote culturally congruent malaria care for the Maasai. Guided by the theory of Culture Care Diversity and Universality and ethnonursing research method, four themes were discovered. Theme 1: Malaria care is a response by the entire Maasai community to promote community well-being. Theme 2: *Enkai*, as creator, is in ultimate control of the cause and cure and is resourced in malaria care. Theme 3: Malaria care is a planned sequence of traditional, spiritual, and professional care/cure practices. Theme 4: The Maasai community is resolute in responding to this illness. Findings guide care

decisions and actions toward malaria care that is respectful, safe, beneficial, and fits with people's daily lives. Malaria care should be in a partnership with traditional and professional care givers. Policy implications include a need for available, accessible, and affordable quality malaria care that will promote health and well-being among the Maasai. Using the CCT was appropriate and findings contributed to the body of nursing knowledge and caring practice.

Keywords: Culturally congruent malaria care, Maasai, Culture Care Diversity and Universality Theory, ethnonursing research method, environmental context, herbs as care

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Chapter 1

Introduction

Each year, 3.3 billion people live at risk for malaria; malaria invades and infects approximately 300 million persons and kills up to 1 million; 90% of these deaths are among children under five years old who live in Sub-Saharan Africa (Snow, Guerra, Mutheu, & Hay, 2008; World Health Organization [WHO], 2013b). The malaria disease poses greatest risk of morbidity and mortality to children under the age of five years old because they are often undernourished, anemic, of low birth weight, or not yet of an age to have acquired immunity to combat the parasites (van Eijk et al., 2007; WHO, 2012). The highest mortality occurs in countries with the greatest poverty (WHO, 2012). In addition to the personal gravity, malaria illness and deaths in Africa cost \$12 billion in lost productivity specific to loss of workers toward crop production, foreign and local investment, and education secondary to school absenteeism (Nothing But Nets, 2012). Global interest in malaria care includes prevention, treatment, and eradication. The national and international investments of time, funding, and human resources span a wide range of needs, from quantitative and qualitative research to practical, culturally congruent intervention strategies.

Eighty percent of all malaria cases occur in 17 African countries; one of these is Kenya (WHO, 2012). Seventy-seven percent of Kenya's population lives at disease risk (USAID, 2013). The number of reported cases of malaria in Kenya in 2010 was reported regionally, with an occurrence rate range between <5% and 38% of the population (Kenya Malaria Indicator Survey [KMIS], 2011).

One African group who suffers incessantly from malaria is the Maasai tribe. They live in Sub-Saharan Africa in southern Kenya and northern Tanzania where malaria is endemic, meaning malaria has constant transmission, measurable new cases, and has occurred in their environment for years (Kaiser Family Foundation [KFF], 2013). All of Maasailand is located within the malaria occurrence regions, so everyone in this region lives at risk for illness from malaria. Their pastoral, indigenous lifestyle places the Maasai men, women, and children daily in the midst of hungry mosquitoes that desire the food of human blood. Malaria is a preventable and treatable disease. The problem is that, although malaria is preventable and treatable, high mortality and morbidity occurrence continues in Maasailand. The current use of generic and professional malaria care among the Maasai culture is not known. This study will focus on discovery of culturally congruent malaria care for Maasai people who live in one region of Kenya.

Maasai suffer daily from malaria. Although prevention and treatment measures may be available, the Maasai community continues to uphold strong ties to traditional lifeways. Malaria care, in any culture, is multifaceted. Until global eradication occurs, even those who use the best prevention measures can sometimes contract the disease. Thus, knowledge and use of prevention measures and knowledge for appropriate care to minimize consequences for active disease are important for malaria care. Recently the researcher was notified of the death of a one-month-old infant of a Maasai friend, educated and graduated from a private high school and 2 years of college education. The cause of the infant's death was malaria; neither baby nor mother was sleeping under an insecticide-treated net (ITN). The researcher also received word that another African friend, an educated, older woman who lives in a home with screens on the

windows, sleeps under a net, and has the financial means to access excellent medical care, was “recovering from a serious malaria attack.”

After an extensive review of literature, only one ethnographic study was found specific to the topic of malaria among Maasai (Malisa & Ndukai, 2009). Therefore, the past and present beliefs and practices of malaria care within the Maasai culture are virtually unrecorded. In light of continued need for malaria care among the Maasai, it is also important to discover nurse transcultural decisions and actions that will promote malaria care within their diverse health context. The researcher chose the Culture Care Universality and Diversity Theory and the ethnonursing research method to guide this study. They are both based upon the foundational premise that “people of different cultures can inform and are capable of guiding professionals to receive the kind of care they desire or need” (McFarland, 2010, p. 459).

Domain of Inquiry

The domain of inquiry (DOI) for this transcultural, ethnonursing study was culturally congruent malaria care among the Maasai people. This was an in-depth examination of ethnohistory and culture of the Maasai relevant to malaria care. The DOI for this study was guided by the theory of Culture Care Diversity and Universality (CCT) and the ethnonursing research method (Leininger, 2006a). As defined in the CCT, the DOI is a “succinct tailor-made statement focused directly and specifically on culture care and health phenomenon” (Leininger, 2002, p. 92). The researcher predicted that the knowledge and actions that encompassed malaria care were ingrained in the indigenous culture and environmental context of the Maasai.

Over the past 25 years, the researcher has lived 2 years full-time in Maasailand, followed by numerous short-term trips. She has worked with, offered community health care to, and observed the consequences of malaria in Maasai people in several regions of Southern Kenya. She observed many persons ill with malaria and often reflected on the Maasai lifeways in relation to malaria care. It was also noted that current global malaria care initiatives were not evident in the Maasai culture. The researcher speculated that, if culturally congruent malaria care was provided, health could be improved. She began to ponder about what are the indigenous and professional meanings, expressions, and practices of malaria care among the traditional Maasai?

Knowledge discovered, with a purposeful focus on culture and care of the Maasai, will guide implications for malaria care. The goal of exploring culturally congruent care is toward understanding care and caring influences that may lead to improvement of the health and well being of Maasai people. Considering the high incidence of malaria morbidity and mortality, findings from this study are predicted to benefit the health of Maasai people.

Purpose

The purpose of this qualitative, ethnonursing study was to discover, describe, and systematically analyze the meanings, expressions, and practices related to malaria care among the Maasai men and women who reside in the Kisongo Maasai villages in the Kimana region of Southern Kenya. The goal of this study was to discover the emic (generic/folk) and etic (professional nursing) care practices that promote culturally congruent malaria care for the Maasai. Culturally congruent malaria care is safe, beneficial, and fits with people's daily lives.

Research Questions

The broad research questions to guide this ethnonursing study were:

1. What are the meanings, expressions, and practices related to malaria care among the Maasai?
2. How do the Maasai worldview, culture and social structure, environmental context, and ethnohistory influence malaria care?
3. What are the generic care and professional care/cure practices related to malaria care among the Maasai community?
4. What nursing care actions and decisions would promote culturally congruent malaria care for the Maasai of the Kisongo Maasai villages in the Kimana region of Southern Kenya?

Significance of the Study

Maasai do not appear to live in fear or defeat from the disease of malaria, possibly because they have always lived with malaria. In past, numerous visits to Maasailand, the researcher witnessed little discussion of malaria care and no mention of malaria prevention in daily conversations. However, when someone had malaria, great concern was voiced and discussion centered on how severe the case of malaria was and whether the ill person would live or die. Morbidity and mortality consequences of malaria reach beyond the health devastation and disparity and affect the political and economic status of an endemic nation, including Kenya (*KMIS*, 2011; Nixon, Friedman, Knopf, Duffy, & Kurtis, 2005). The immediacy of interest is that this endemic disease and its consequences are preventable.

As initial preparation for this study, the researcher traveled to the Kimana region in Maasailand to confirm malaria as a primary concern of the Maasai and to confirm the significant need for research on malaria care within the Maasai community. During June 2011 the researcher posed the following question to Maasai men, women, and tribal elders, nurses in the local clinic, pastors, medical and government officials, store owners, taxi drivers, and students: “what is the number one health problem for Maasai in this area?” After approximately 30 responses, all but one responded “malaria!”

The residents in the Kimana region and the Maasai in the Kisongo villages desired to share their malaria story. The head nurse at the local clinic invited the researcher to return to observe patients’ needs and participate in patient assessments to become familiar with care offered to malaria patients (J., personal communication, June 2011). Many mornings, outside the researcher’s tent, Maasai men or women were waiting to share their malaria story, having misunderstood that the research had not yet begun (C. Strang, personal observation, June 2011).

In June 2011 during initial preparation for this study, a non-Maasai storeowner commented to the researcher that he could see she had a deep burden for the people in the area who were suffering from malaria and he hoped she would not forget them (A., personal communication, June 2011). These experiences broadened the researcher’s understanding of the multiple influences on malaria care in this region and highlighted the broad dimensions of culture and care. This forthright interest in malaria care needs also progressed the researcher’s position from a stranger toward a trusted friend within the Kimana region and the Maasai community (Leininger, 2006a).

Findings from this study contribute to the discipline of nursing. This study is the first application of the theory of Culture Care Diversity and Universality (CCT) and ethnonursing research method within the Maasai culture and the first application of both within a study specific to malaria care (Leininger, 2006a). The unique application of the CCT and the ethnonursing research method within this topic and culture enabled discovery of malaria care within the Maasai culture which support the tenets and care constructs of the theory and fulfilled the rigor of qualitative research.

This research made a contribution to the practice of transcultural nursing care by discovery of similar and diverse meanings, expressions, and practices related to malaria care among the Maasai persons who reside in the Kisongo Maasai villages in the Kimana region of Southern Kenya. The influencing factors discovered among the key and general informants are useful in understanding the complex nature of malaria care within the environmental context of Maasailand. Discovery of Maasai cultural meanings, expressions, and practices of malaria care has provided implications for nurses and other health care providers (HCP) to develop culturally congruent malaria care, including prevention and education, for the Maasai community.

Findings from this study contribute to health policy measures to further care for sufferers of malaria. Malaria is a topic of great significance to Maasai health care and to malaria suffers worldwide. This research, aimed at malaria care among Maasai, generated knowledge for active practice. This was a worthy goal, for the “aim of inquiry in the practice disciplines is to generate knowledge for practice” (Sandelowski & Barroso, 2002, p. 29). Both health care professionals and policy makers enable progress in malaria care. Malaria care policy recommendations and systematic

interventions were a “logical extension of qualitative findings” implicated by the study outcomes (Morse, 2002, p. 1422). The qualitative findings and insights from this study were used to guide recommendations for malaria care nursing decisions and actions among the Maasai, in the development of practice, policy, and future research.

Theoretical Framework

As a participant in the Maasai culture, a human being who cares for them, and a professional healthcare giver to their community, the researcher sought a theory to guide this study and future nursing decisions and actions for malaria care within their unique cultural context. The goal was to respect Maasai traditional culture and current care practices and discover implications for health care practices that would be beneficial to them and receptively received by them. The theory of Cultural Care Diversity and Universality (CCT) was selected as the theoretical framework to discover the care meanings, expressions, and practices related to malaria care (Leininger, 2006a).

There are multiple influencers on culture and care (McFarland, Mixer, Webhe-Alamah, & Burk, 2012). Theories predict and lead to discovery of new or explicate vaguely unknown truths. The CCT was developed to discern largely unknown ideas about care within a culture and use this information to then guide nursing decisions and actions (McFarland et al.). Therefore, it is an appropriate theory to guide this study: to discover largely unknown truths about malaria care among the Maasai culture.

The CCT is the “broadest, most comprehensive holistic and universal theory for the discovery of new knowledge to help people of diverse cultures” (Leininger, 2006a, p. 19). The design of the theory exemplifies a primary concern for discovery of information

from the perspective of the informant, the Maasai (McFarland, 2010). The theoretical constructs of care and culture are foundational and these are essential toward discovery of care within any culture (Mixer, 2011), and this encompasses malaria care within the Maasai culture. The goal of the CCT is to “use culture care research findings to provide specific and/or general care that would be culturally congruent, safe, and beneficial to people of diverse or similar cultures for their health, wellbeing, and healing, and to help people face disabilities and death” (Leininger, 2006a, p. 5). This specifically fit within the purpose and goal of the current study.

Sensitivity to the Maasai culture in guiding this study was particularly important. Maasai are a wise, proud people. Historically, there is a precedent for the Maasai to be wary of Western health influences. In the late 19th century, European colonists shared both small pox, which killed three-fourths of the Maasai population, and rinderpest, a viral disease that killed many of their cattle (MERC, 2003; Saitoti & Beckwith, 1980). The colonialist government of the 20th century decreased the land available to pastoralist Maasai by over 40% and disrupted their interaction with the land they had inhabited and traveled within for thousands of years. The additional privatization of land plots has led to unsustainable pastoral lifeways, including impact on the well-being of livestock and community members (Narimatsu, n.d.). HIV from Kenyan urban centers is beginning to visibly affect Maasai health (Mmbaga et al., 2007). Maasai remember the past, observe the present, and are hesitant to acculturate what they see as Western, non-traditional health promotions from those who have done past harm to their communities.

Therefore, an understanding of transcultural health care for nursing practice among the Maasai tribe in rural East Africa is crucial. Today, nurses, whether practicing in their own country or in a global setting, care for a culturally diverse population. The theoretical premise of this study was that specific care needs are dependent upon the patient's unique cultural backgrounds. The CCT upholds the tenet that "care is an essential human need and the essence of nursing" (Leininger, 2002, p. 46) and can lead to patient participation and accommodation in health management when cultural factors are addressed and culturally relevant care is offered (Ray, 2009).

Major theoretical constructs of the CCT and how they interact as an "integrated holistic view" are depicted in the Sunrise Enabler (see Appendix A) (Leininger, 2006a; McFarland, Mixer, Lewis, & Easley, 2006c, p. 239). To maintain a culturally focused study using the framework of the CCT, the Sunrise Enabler was used as a cognitive map to visualize the major components of the CCT and to guide comprehensive discovery of all components. The CCT was an appropriate theoretical framework to guide this exploratory study that sought to hear the malaria care story within the unique culture of the Maasai community.

Theory of Culture Care Diversity and Universality Development and Use

Further explanation of the theory of Culture Care Diversity and Universality (CCT) is necessary to appropriately frame this study from the perspective of culture care. In anticipation of globalization and the need for nurses to serve diverse patient populations and to meet the culture care needs of individuals, families, groups and communities, the CCT was developed (Leininger, 2006a). In the 1950s, Leininger

coined the term transcultural, developed the discipline of transcultural nursing, and in early 1960s, coined another term, culturally congruent care.

The CCT was developed to “discover transcultural nursing knowledge to provide culturally congruent and responsible care” (Leininger, 2002, p. 27). The aim was to help the nurse researcher “discover new meanings, patterns, expressions, and practices related to culture care that influenced the health and well-being of cultures or to assist them to face death or disabilities” (p. 77) in order to establish a body of knowledge for nursing practice. Using this theory, the researcher is challenged to discover differences (diversity) and similarities (universality) about human care in cultures (Leininger, 2006b). The central purpose of the CCT is to “discover, document, interpret, explain, and even predict some of the multiple factors influencing care from an *emic* (inside culture) and an *etic* (outside culture) view as related to culturally based care” (Leininger, 2002, p. 76).

This theory was developed from the theorist’s educational background in anthropology and nursing, and her personal experiences in nursing practice in hospitals, clinics, community settings, and transcultural research where she observed both pediatric and adult patients best responded to caring actions specific to their cultural background (Leininger, 2006a). The first transcultural nursing study was a discovery of the culture care needs of the Gadsup Akuna of the Eastern Highlands of New Guinea (Leininger). The theory and ethnonursing research method has continued to be refined for over 50 years by researchers in numerous cultures and settings throughout the world (Mixer, McFarland, Andrews, & Strang, 2013). This study extended use of the theory and method to a new culture, the Maasai.

The philosophical stance of the CCT holds an utmost value in indigenous and lay beliefs within a culture, traditional modes of generic (folk) care, the cultural worldview of the people, and the ethnohistory of the people filled with informal knowledge, social structure and unique environmental factors (Leininger, 2006a). The CCT was developed with the philosophy that God created all people and wants them to be healthy and help others “with their diverse care needs” (Leininger, 2006a, p. 17). In addition, the CCT respects diverse cultural lifeways. The theoretical framework recognizes many cultures have a spiritual foundation and may acknowledge God as a supreme being; therefore, their term for God should be used and respected. The Maasai encountered during this study do acknowledge God as a supreme being and their name for God is *Enkai*. This term will be used throughout the study findings.

The use of the CCT means listening and reflecting attentively to the client’s story (or account) with context observations and historical factors. It is crucial for the fieldworker to enter and remain in the client’s cultural world (Leininger, 2006a). Because the Maa language is traditionally an oral language and knowledge is passed down from generation to generation using the spoken word, this qualitative strategy is an appropriate method to use within the Maasai cultural lifeway. These transcultural principles of hearing the story and history of the informants were used to discover cultural context and care needs of a Sudanese refugee family in the US (Leininger, 2006c). When the researcher discovered areas of potential conflict of cultural understanding about the old and cultures, she was able to guide preservation of cultural care practices and guide accommodations to function in a new culture. For example, as she listened to them discuss their faith and fear and cultural practices from their home

country, the researcher had insights which enabled her to value their home country and cultural identity, seek ways to offer appropriate care to build self-esteem and health and well-being within their new refugee home (Leininger). Caring was a way of healing.

CCT within the Sudanese context is an excellent exemplar of transcultural nursing and relevant to a study within the Maasai culture. This study within the Maasai culture demanded attentive listening to their stories and reflection by the researcher to discover the cultural context and care needs for malaria care among this unique people and within their current cultural changes. Cultural changes related to the DOI included a growing option to utilize professional malaria care. As an outsider to their culture and, in order to conduct research and accurately interpret findings, the highest respect for the Maasai culture had to be attained in all aspects of the study. The culture care theoretical framework was an excellent guide in the endeavor toward an in-depth examination of their diverse malaria care practices, needs, and choices.

Oriental Definitions

Several terms require further defining for understanding and clarification specific to the domain of inquiry, the theoretical framework, and the purpose of this research study. Oriental definitions, as opposed to operational, maintain flexibility throughout the ethnonursing study (Leininger, 2006a). Prior to the study, the researcher recognized the following definitions may or may not fit within the cultural context of the Maasai and anticipated new dimensions of these oriental definitions might emerge from the key and general informants' views throughout the qualitative study (McFarland, et al., 2012). During study analysis, a few of the definitions were modified and expanded based upon

discovery of new, emic culture care knowledge. One term was added. Overall, the initial definitions were found to be quite accurate.

Malaria

Malaria is a single-celled, parasitic tropical disease. This illness includes a complicated parasitic life cycle within human host, a female *Anopheles* mosquito vector, and the environment (WHO, 2013a; NIAID, 2008). Classic symptoms, common to all types of malaria, include a cold stage (chills and shivering), a hot stage (fever, headaches, nausea and vomiting), and a sweating stage (return to normal temperature and general malaise) (Centers for Disease Control [CDC], 2010). Malaria can be uncomplicated or severe and is curable if diagnosed promptly and treated correctly. Malaria is endemic in the sub-Saharan equatorial desert region where the Maasai in the Kisongo Maasai villages in the Kimana region of Southern Kenya live.

Maasai

The term Maasai refers to a collective group of persons, approximately 964,000 in number, who live in Southern Kenya and Northern Tanzania (Barrett, 2001). Although all Maasai share many similar physical characteristics, ceremonial rites and passages, traditional body modifications, home design, and a pastoral lifestyle, there are both noticeable and subtle differences among clan groups. For the purpose of this study, the name Maasai is a general referral to the Maasai persons who reside in the Kisongo Maasai villages in the Kimana region of Southern Kenya (see Figure 1).

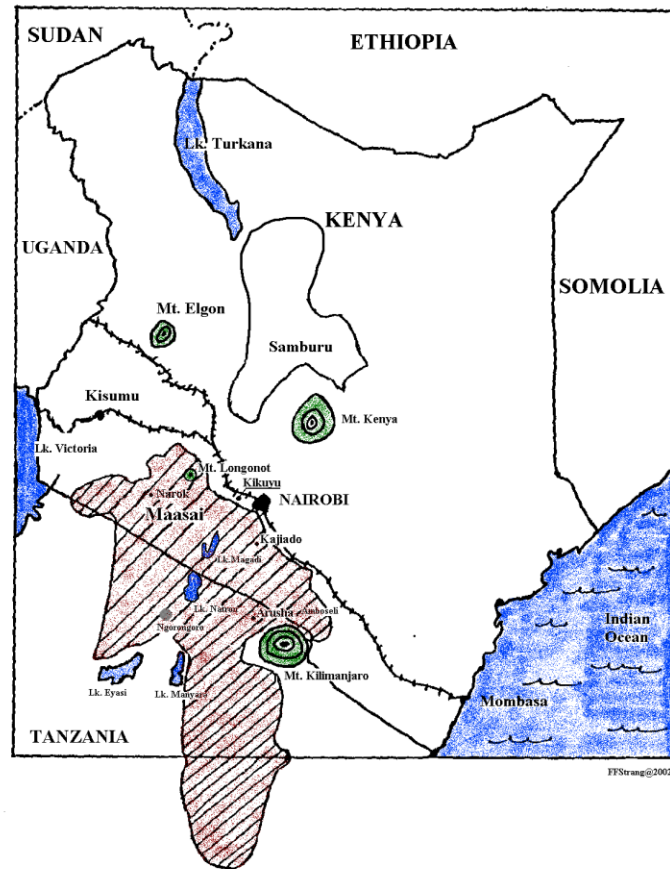


Figure 1. Area of Maasai Inhabitation in Kenya and Tanzania. The brown diagonal area on map represents the approximate areas of Maasai inhabitation in the countries of Kenya and Tanzania. The Kimana region is northeast of Mt. Kilimanjaro (Hand drawn by F. Strang, 2002).

Care, Generic (folk) care, and Professional Care

Care within this study is defined according to the theoretical premises of the CCT. Care is the core construct of the CCT and of this study. Care refers to “those assistive, supportive, and enabling experiences or ideas towards others with evident or anticipated needs to ameliorate or improve a human condition or lifeway” (Leininger, 2006a, p. 12). Care can include both folk and professional care “actions, attitudes, and

practices to assist or help others toward healing and wellbeing” (Leininger, 2006a, p. 12). Folk or generic care refers to “learned and transmitted lay, indigenous, traditional, or local folk (emic) knowledge and practices to provide assistive, supportive, enabling, and facilitating acts for or towards others...to improve wellbeing or to help with dying” (Leininger, 2006a, p. 14). Professional nursing care refers to care knowledge and practice that has been formally learned in order to prevent illness, to improve wellbeing, or to help with dying (Leininger, 2006a).

Malaria Care

Within the context of this study, malaria care refers to any cultural, indigenous, folk, or professional meanings, expressions, or practices related to the prevention of malaria, treatment for malaria, care of those who have died, and/or after effects of the malaria disease within individual members or the Maasai community as a whole.

Culture

Culture is defined by Leininger (2006a) as the “learned, shared, and transmitted values, beliefs, norms, and lifeways of a particular culture that guides thinking, decisions, and actions in patterned ways and often intergenerationally” (p. 13). Culture guides human actions and decisions (Leininger, 2006a); this study sought discovery of malaria care within the context of Maasai culture.

Culturally Congruent Care

Culturally congruent care, the essence of the CCT, is defined as “culturally based care knowledge, acts, and decisions used in sensitive and knowledgeable ways to appropriately and meaningfully fit the cultural values, beliefs, and lifeways of clients for their health and wellbeing, or to prevent illness, disabilities, or death” (Leininger, 2006a,

p. 15). Culturally congruent malaria care is safe, beneficial, and fits with people's daily lives.

Emic and Etic Perspectives

The emic perspective describes the concept from the insider's point of view. This is an experiential perception and the perspective from one inside the culture; therefore in this study, the emic view was the Maasai view. Both key and general informants were purposefully interviewed to offer an emic perspective. The etic perspective is from one who is outside the culture (Leininger, 2006a; Spiers, 2000). The etic view for this study was provided from informants who did not live in a traditional Maasai lifeway. They offered outside observations that included non-Maa terminology.

Meanings, Expressions, and Practices

Meanings refer to the significance or inner importance of malaria care (*Webster's*, 2008). Expressions are manifestations of malaria care through word, feeling, body language, or art (*Webster's*, 2008). Practices of malaria care are works of care through religious acts, traditional customs, or use of folk or professional health care (*Webster's*, 2008).

Lifeways

Lifeways are the ways of life or the customary meanings, expressions, and practices of living (*Webster's*, 2008). Within the CCT, discoveries of lifeways are compared to diverse and similar cultures (Leininger, 2006a). This study discovered lifeways unique to the Maasai culture and discovered the traditional, culturally situated meanings, expressions, and practices of malaria care within the Maasai culture.

Actions and Decisions

Three nursing action modalities are theoretically predicted within the CCT. These modes guide the nurse toward culturally congruent nursing care decisions and actions based upon the information gained through research. The data discovered were synthesized, analyzed, confirmed for accurate meaning, and then used to develop nurse care decisions and actions to specifically meet the culture care needs of the Maasai who suffer from malaria.

The three transcultural care decision and action modes are:

1. Culture care preservation and/or maintenance. These are professional acts that “help cultures retain, preserve, or maintain beneficial care beliefs and values or face death” (p. 8). This mode will help the nurse to preserve or maintain beneficial malaria care expressions, meanings, and practices within the Maasai community (derived from Leininger, 2006a).
2. Culture care accommodation and/or negotiation. These are actions or decisions that “help cultures adapt or negotiate with others for culturally congruent, safe, and effective care” (p. 8). This mode will assist, support, facilitate, or enable nurse actions and decisions that accommodate or negotiate culturally congruent Maasai malaria care expressions, meanings, and practices (derived from Leininger, 2006a).
3. Culture care repatterning and/or restructuring. These are professional actions that help people “reorder, change, modify, or restructure lifeways for better health care patterns, practices, or outcomes” (p. 8). This mode will assist, support,

facilitate, or enable the nurse and Maasai community to reorder, modify, or restructure malaria care (derived from Leininger, 2006a).

Insecticide-Treated Nets

Insecticide-treated nets (ITN) refer to bed nets which have insecticide infused into the netting fabric. These are usually hung from the ceiling and cover the entire bed so persons are protected during the night from the bite of the mosquito. The literature often interchanges the use of ITN, which need to be retreated with insecticide after several washings, and long-lasting insecticide-treated nets (LLIN), which only need to be retreated every 5 to 7 years (CDC, 2012b). Since informants described both types of nets during interviews, the term ITN will represent the general concept of insecticide-treated nets (ITN). ITN are an important concept in this study because they are low tech, available in Kenya, and are proven highly efficacious in malaria prevention (CDC, 2012b; WHO, 2012).

Environment

During study analysis, the researcher realized environment should be added to the orientational definitions and included as one of the concepts most relevant to this study. Environment was discovered as an essential construct in the overall worldview and malaria care of the Maasai. This was an appropriate term to add, as environment is a central construct in the CCT, and is recognized as a major influencer of care and health. Different environments and life settings are unique care settings, such as the wetlands and arid areas in Maasailand. The Maasai pattern to maintain health is inextricably linked with their environment and this environment was found to be an overarching influencer in all aspects of malaria care.

Theoretical Assumptions

Of the 11 assumptive premises of the CCT, five were specifically relevant to this research study and adapted to fit the study context:

- Culture care is the synthesis of two major constructs that guide the researcher to discover, explain, and account for health, well-being, care expressions, and other human conditions within the Maasai context (adapted from Leininger assumption 4, 2006a, p. 18).
- Culture care values, beliefs, and practices of the Maasai are influenced by and embedded in the worldview, social structure factors (e.g., religion, philosophy of life, kinship, politics, economics, education, technology, and cultural values) and the ethnohistorical and environmental contexts (adapted from Leininger assumption 6, 2006a, p. 19).
- The Maasai culture has generic/folk [emic] care and some professional [etic] care to be discovered and used for culturally congruent care practices (adapted from Leininger assumption 7, 2006a, p. 19).
- Culturally congruent and therapeutic care for the Maasai community occurs when culture care values, beliefs, expressions, and patterns are explicitly known and used appropriately, sensitively, and meaningfully (adapted from Leininger assumption 8, 2006a, p. 19).
- Qualitative research paradigmatic methods offer important means to discover largely embedded, covert, epistemic, and ontological culture care knowledge and practices that have previously been unexplored among the Maasai community (adapted from Leininger assumption 10, 2006a, p. 19).

Summary

Malaria is a devastating, yet preventable, disease. The Maasai live in sub-Saharan Africa and suffer daily from malaria. Malaria care within Maasailand should incorporate the specific needs unique to their culture and context. There has been minimal research focused on the Maasai and their experiences with malaria care. This research study discovered new knowledge and insights about cultural meanings, expressions, and practices related to malaria care among Maasai of the Kisongo villages in the Kimana region of Southern Kenya. Findings from this study contribute to knowledge necessary for nurses and professional health care providers (HCP) in the Maasai community to develop culturally congruent malaria care, prevention education, and policy related to malaria care. The discovery of data specific to the Maasai may not be transferable to other cultural groups living in the sub-Saharan Africa; however, the results from this study may be compared to previous research with other malaria sufferers and will broaden health providers wealth of knowledge for best practice malaria care.

Chapter 2

Review of Literature

The review of literature process and findings include current and seminal literature on the following topics: (a) Maasai ethnohistory and indigenous health care practices and beliefs; (b) malaria, including global interest, disease process, and current care measures; (c) facilitators and barriers to malaria prevention and treatment; and (d) malaria and the Maasai. The journey through the review of literature facilitated a comprehensive focus on the domain of inquiry (DOI) of this ethnographic study and on honing the questions that drove the research inquiry. The following is a report on what was found in the literature, will be presented in the order as noted above, and will conclude with a synthesis of the findings and supportive impetus for this research endeavor.

Review of Literature Process

Scholarly literature search in PubMed, CINAHL, NCBI, Education Full Text, Web of Science, and Anthropology Plus was initially conducted using the term malaria, which produced thousands of articles. Combining malaria with keywords such as prevention, insecticide-treated nets (ITN), Maasai, Kenya, and East Africa showed approximately 180 key peer reviewed research articles from the past 10 years relevant to DOI of this study. All of these titles were reviewed and potential relevant abstracts were read. Within articles found, a dependency search was conducted for classic authors and seminal articles. A Google and Google Scholar search retrieved additional literature and dissertations, and revealed the Centers for Disease Control (CDC) and World Health Organization (WHO) as invaluable resources for this study. Books Plus was searched

for literature on the topics of Maasai and malaria. Maasai is often spelled Masai, so both were used when entering new search sites. Maasai inhabit Kenya and Tanzania, therefore journal and book literature specific to both countries was reviewed, although articles representing Kenya were of priority since this study took place in a Kenyan Maasai region.

An extensive literature review was conducted to seek an accurate ethnohistory of the Maasai people, including health care culture and traditions. Classic literary works from as far back as the late 1800s were found, as well as research articles from the 21st century. Facts on Maasai history, contemporary life, and cultural etiquette relevant to the ethnonursing research plan in Maasailand were gathered from the literature and orally through personal communication with three Kenyan Maasai: B. Turrari (2011; 2013), a Maasai elder in the Kisongo tribe; D. Kanchani (2011; 2013), a Maasai health care worker; and M. Pulei (2011; 2013), a Maasai who has completed high school in Maasailand, completed a PhD in the United States, recently returned to full time work in Maasailand, and whose extended family continues to live in the study region. Informants, translators and further personal communications were utilized during the study and analysis process to maintain study rigor of confirmability and meaning-in-context.

One of the CCT enablers that is used to examine the major tenets of the theory within a unique culture is the Sunrise Enabler (SRE) (Leininger, 2006a). This enabler is a guide to explore multiple influencers on culture and care and was referenced as an outline for the literature review, toward attainment of a comprehensive ethnohistory of the Maasai (see Appendix A). Each of the following sections, representative of the rays

of the SRE, exemplifies the unique cultural beliefs and lifeways of the Maasai people that were discovered in the review of literature process. In addition to ethnohistory, the SRE was referenced to guide the literature search for relevant influencers specific to the DOI, culturally congruent malaria care among the Maasai.

Ethnohistory of the Maasai People

Maasai are a proud, beautiful African people group who live in Kenya and Tanzania. Their coverings of cloth wraps adorn their tall, muscular physiques with self-crafted, beaded jewelry and demonstratively decorated ear piercings (F. Strang, 2003). Their language of Maa is oral and their history and traditions have been passed through the generations within oral literature (Hodgson, 2011). In many lifeways, the Maasai continue to live as they have for thousands of years: herding sheep, goats, and cattle; migrating with the seasons or following rains which provide grass for cattle; searching daily for water and firewood; and continuing traditions within their unique culture (Saitoti & Beckwith, 1980).

One unwelcome tradition that has followed them for thousands of years is the suffering from malaria, which is endemic in this sub-Saharan equatorial desert region (KFF, 2013). Although healthcare has begun to have a sparse presence in their region, professional malaria care and preventive measures remain unfamiliar and often unavailable (D. Kanchani, personal communication, June 2013). The Maasai continue to suffer from malaria and may not use preventive measures (B. Turrari, personal communication, June 2013). The researcher first focused the review of literature upon influences on culture and care of the Maasai that includes their worldview and various cultural and social structure dimensions. In addition to gaining background knowledge

for the study and growing in cultural knowledge to equip the researcher to be culturally sensitive, the literature was an invaluable resource of content for the inquiry guide.

Worldview

The Maasai worldview “integrates the community inseparably with the natural environment” (Burford, Rafiki, & Ngila, 2001, p. 549). This holistic perspective encompasses the physical, mental, and spiritual realms as interconnected and death as a natural part of life (Donovan, 1978). They are monotheistic and generally discount witchcraft and superstition (Mol, 1996). This one God, Enkai, is giver of life and wrath, referenced as male and female, the black God of blessing and the red God of anger, and giver of prosperity, rain, and happiness or famine and death (Donovan, 1978).

In the oral traditions of the Maasai stories, Maasai believe they are the chosen people of Enkai [God] and were the receivers of land and all the world’s cattle (Saitoti & Beckwith, 1980; F. Strang, 2003). Historically, cattle have been the center of the Maasai life, and, overall, this concept continues today; cattle are a means and measure of wealth for the family, village, and tribe (Thomson, 1885). Traditionally, the Maasai diet consisted mainly of daily fresh milk, fresh blood, and meat (Mol, 1996). Therefore, the pastoral lifestyle of the Maasai has been to fulfill the need to sustain their wealth and food: to find food and water for cattle year round. Similar to the traditional ways, most modern Maasai day-to-day lifeways continue to rest in the “keeping of cattle. Men and boys herd them, warriors steal them, religious leaders sacrifice them, women and girls milk them, children play with them, elders buy and sell them” (F. Strang, 2003, p. 31).

Cultural and Social Structure Dimensions

Maasai cultural traditions remain strong and they are “highly skeptical and resistant to changes in their way of life” (F. Strang, 2003, p. 11). Decisions and care among the people are community and village based rather than individualized, and ultimately determined by male elders; societal structure has traditionally been patriarchal (Saitoti & Beckwith, 1980). Through governmental laws over the past 75 years, effects of the modern world have encroached upon their traditional world and “in the epoch of modernization, [the Maasai] are a living witness to a vanishing culture” (F. Strang, 1983, p. 4). This may pose a challenge for professional caregivers who aim to offer beneficial and safe care that fits within their lifeways, as they often are not familiar with the unique Maasai culture.

The traditional, cultural dimension of the current lifeways of the Maasai has presented both opportunities and difficulties on many fronts. Trading centers in the sub-Saharan bush are growing in size, bringing all aspects of the western world (M. Pulei, personal communication, 2011). As this modernization encroaches into Maasailand, changes are occurring and traditional Maasai lifeways are challenged: from availability and patterns of use of their pastoral rangelands, to oral versus formal patterns of education, to generic/traditional versus professional health care (Hodgson, 2011). This dichotomy between traditional and contemporary Maasai culture highlights the challenge of offering culturally congruent care.

In *Being Maasai*, Spear and Waller (1993) wrote that the Kenyan Maasai are “clearly trying to adapt through asserting collective and individual rights to land and reformulating the ideology of what it is to be Maasai” (p. 14). In *Being Maasai*,

Becoming Indigenous, Hodgson (2011) echoes this observation and noted the Maasai have claimed their indigenous lifeways as a proactive adaptation to change. This indigenous activism reflects self-determination, resources international support of indigenous peoples, and includes focus on the right to protect indigenous Maasai land, resources, cultural identity, knowledge, and language (Hodgson). However, no literature was found that recorded any reflection on current activism for health care in the rural areas of Maasai villages.

Ceremonies. Within age groups specific to males or females, they transition to new roles throughout their life span (Saitoti & Beckwith, 1980). Age group passages for males occur at approximately 10 to 15 year intervals, and each is celebrated by great ceremony (Maasai-Association, n. d.). The age sets for males include boyhood, junior warrior, senior warrior, junior elder, and, lastly, senior elder. First, boys are initiated to warriorhood through circumcision and attain the status of moran. The next age passage is a promotion to junior elder status, and then to full elder. Moran spend time in a warrior village, or *manyatta*, and are instructed by the elders on the lifeways of Maasai society (Saitoti & Beckwith, 1980). These traditions are in flux, as government pressure for Maasai to shorten the moran period has resulted in loss of instruction time on Maasai traditions and elevated younger men, less knowledgeable in the indigenous lifeways, to junior and full elder status (M. Pulei, personal communication, June 2011). Men of all ages also choose, negotiate for, and take a bride to his village (Saitoti & Beckwith, 1980).

Age passages for females are shorter and fewer compared to the male ceremonies. For women, and traditionally after clitoridectomy, there are two other

ceremonies: marriage, often arranged by the father, and fertility, a ceremony to receive blessing to bare many children (Mol, 1996). There are few opportunities for recognition among Maasai women: one blessing is to have children and another is to be recognized for expert beadwork (Saitoti & Beckwith, 1980). The researcher has apprenticed at the feet of three master bead-workers, Paulina, Elizabeth, and Josephine, each who have earned enough funds, from beadwork sales, to purchase a rain tank to have clean water at their home and pay for school fees to send children to school (Lowen-Rudgers, 1999). These women are admired within the Maasai community (D. Kanchani, personal communication, June 2011).

Political, Legal, and Economic Factors. Maasailand, which straddles the Kenya/Tanzania border near Mount Kilimanjaro, comprises 150,000 km of the Great Rift Valley (Homewood, Kristjanson, & Trench, 2009). The area has both wet and dry seasons, swamps and dry desert landscape. Implications of colonialism, which began in early 1900's and escalated after WWII, have been far reaching. Wealthy Africans and non-Africans have moved into or are bordering Maasailand and government demarcation rules have minimized land resources for the Maasai (Homewood et al.). This rapid change upon those who have occupied this region for thousands of years has affected their heritage.

Approximately 5 clans and 15 sub-clans occupy defined territories in Maasailand (Finke, 2003). The Maasai once roamed freely in the Rift Valley between the Kenyan and Tanzanian borders, respecting or fighting for one another's territory (Saitoti & Beckwith, 1980). Since Kenya gained independence from Britain in 1963, government demarcation of land, road development, and property fences have brought great change

to these nomadic pastoralist people. Group ranches were developed by the government as a livestock production/control system and a way to deed land to the pastoralist Maasai (Ng'ethe, n.d.). Kimana, the area for this study, is located in the Loitokitok district in the Rift Valley province of Kenya and contains group, and also individual, ranches (B. Turrari, personal communication, June 2013). After mismanagement and misunderstanding of the new system, further subdivision of the group ranches has occurred. These now small land parcels cannot support successful livestock production, the basis of wealth and economic stability in Maasailand, thus poverty has become a new issue to the traditional pastoralist Maasai, including to those in Kimana (Kelly, 2010). Depending on the climate, there are rivers and swamps that serve as water sources for livestock, wildlife, crops, and humans. Within these sources, especially the ecology of the swamp, thrive malaria-carrying mosquitoes.

Political marginalization has resulted in economic and ecological marginalization (Archambault, 2011; Hodgson, 2011). This was exemplified by Archambault's (2011) reflection on Maasai cultural tradition versus modernity of global human rights of a child. Customary marriages within the Maasai tradition are arranged marriages for girls, betrothed to a good man by the father; this is a traditional lifeway (Archambault, 2011; Saitoti & Beckwith, 1980). The agreement represents an alliance of families for social and economic gain. Educated girls are allowed to postpone marriage, however the father chooses who will be a child of the home and who will be educated. According to Archambault's ethnographic study of current marriage practices in one area of Maasailand, the age of arranged marriages is actually decreasing, sometimes to 9 years old, secondary to culture change, economic need, and marginalization. Families,

unable to feed all the children because of decreased land to herd animals, may seek marriage as a good alternative for a child; boys no longer need to herd animals or acquire a large herd to support a family, so are able to marry sooner (Archambault).

Educational Factors. One huge change available in Maasailand is in education options beyond traditional learning lifeways. Oral stories and proverbs and elder to youth teachings have been the mainstay of sharing knowledge (Saitoti & Beckwith, 1980). Sparsely located government or parochial schools are now seen throughout Maasailand in Kenya and Maasai children are attending school; however in school, oral histories of the Maasai are often reclassified as myths (Spear & Waller, 1993). Many villages and families consist of some children who wear traditional dress, conduct traditional chores such as tending the animals or searching for firewood, and are steeped in traditional lifeways, while some children in the same village wear the required school uniforms and daily attend school, learning to read and write in English (B. Turrari, personal communication, June 2011 & November 2013).

Technological Factors. Most Maasai continue to live in remote, rural villages without running water, electricity, or provision for sanitation (M. Pulei, personal communication, June 2011; C. Strang, personal observation, November 2013). Examples of technology in Maasailand include a wristwatch, a flashlight or 'torch,' a radio, and a mobile phone (F. Strang, personal communication, July 2013). Mobile phones are available and affordable (Zurovac, Talisuna, & Snow, 2012). In 2007 in Kenya, 6.5 million people, or one in three adults, had mobile phones (Mason, 2007a). Mason traveled to Maasailand to spot check ownership among Maasai and network service and, although network maps showed no service to the Rift Valley area of

Maasailand, he was surprised to see both. The digital generation had reached Maasailand. To use a phone in a low network area, one simply needs to climb the nearest hill to gain access to coverage (M. Pulei, personal communication, June 2011; Prue et al., 2013) Beyond basic communication, rural poor and uneducated persons use mobile phones to access the internet, pay for goods, and transfer money; no bank, post office, or computer required (Mason, 2007a; Nyabiage, 2011).

This is an amazing phenomenon in a 3rd world country and may have implications for use of professional care. Researchers suggest use of phones in developing countries also has the potential to improve malaria care, specifically to decrease the communication gap between health care providers (HCP) and malaria patients (Zurovac et al., 2012). In rural Bangladesh, mobile phones were used to as a resource to detect and treat persons with malaria (Prue et al., 2013). In this study, health workers were called if a family member had a suspected case of malaria. Health team members were sent to the home to assess symptoms and take a blood test. Follow-up could be made by phone; 25% of persons seen as a result of calls were positive for malaria and received prompt and appropriate treatment. In Kenya, mobile phones have been used for disease surveillance, medication treatment review with patients, and use of text messages to educate health care workers (Jones et al., 2012; Zurovac et al., 2012).

Religious Factors. Beyond the overall, traditional worldview of the Maasai, religious influences have affected the Maasai. Christian missionaries in the early 1900's entered the Maasai indigenous culture and often demanded colonial lifeways (Saitoti & Beckwith, 1980). These well-intended, but culturally insensitive directives were not well

received, and often resulted in the Maasai rejecting the presence of all white people (Hodgson, 2011). Over the years, Christians have continued to bring their faith beliefs to Maasailand, and now some Maasai are active church participants (Barrett, 2001).

Kinship Factors. Age-based seniority remains culturally acceptable. In this patriarchal society, the eldest male elder within a village is held as the wisest decision maker and the most respected of these elders are the overall decision makers for the region (Salvadori & Fedders, 1973). Housing of mud and dung huts are arranged in a circular pattern, surrounded by acacia thorn fencing to help protect women and children during the day, and keep domestic herd animals within at night, and wild animals out (M. Pulei, personal communication, June 2011). This circle of homes, or *enkan*, represents a unique kinship circle, the residence for up to 100 persons: one male husband, his mother, one to four wives, and many children who, within this tight polygamous or monogamous family structure, are deeply loved (F. Strang, 2003; Wanzala, Hassanali, Kibet, & Dossajee, 2005).

Maasai men care for the animals and make family and community decisions (Mol, 1996). Maasai women undertake most chores of daily living: build the home, search and collect firewood and water, cook, milk the animals, care for children, and pay for school and health care fees (Mol). Most of the traditional roles remain in place today. Water sources continue to vary from 3 to 20 kilometers walking distance from an *enkan* (Wanzala et al., 2005). Today's diet includes similar and expanded options and may include milk, curd (soured milk), beans, meat, and maize (usually ground and served as a porridge for children or as a firmer consistency for adults, called *ugali*) (Wanzala et al.).

In addition to the human factor, kinship is also noted in the herd animals. Maasai now occupy areas set by governments; Maasai territory is divided into 12 sections (Spear & Waller, 1993). Livestock have brand marks and ear cuttings unique to their section, clan, sub-clan, and family (Saitoti & Beckwith, 1980). These markings of herd animals indicate individual ownership, family affiliation, and identify a community.

It was noted in several studies that it was difficult to gain access to female participants within the Maasai patriarchal tradition; yet, mothers and grandmothers had been found to be the best information source for recent illnesses in the home (Conroy, Meegan, Joyce, McGuigan, & Barnes, 2001; Haasnoot, Boeting, Kuney, & van Roosmalen, 2010; Parker, Chabot, Ward, & Johns, 2007). Because of the patriarchal traditions, the researcher needed to remain cognizant during the study to respect the current culture. This included gaining gatekeeper permission from village elders to speak to informants and including men as informants. The researcher predicted care by both the women and men was important to discover in malaria care, so this information also alerted the researcher to specifically structure the research methodology and informant criteria to include both genders.

Health Care Expressions, Patterns, and Practices

This study had a focus on a specific health care problem in Maasailand. It was therefore important for the researcher to search the literature for relevant studies and information on the general cultural health care expressions, patterns, and practices. A dramatic change in Maasailand is in health care options. Clinics now dot Maasailand (C. Strang, personal observation, June 2011). Health care decisions and actions or changes in traditional care decisions and actions were noted to be made at several

levels within the Maasai community. Primary health care is given at the local, family or village level first, usually through use of traditional first aid and herbal knowledge and, if this is unsuccessful, the traditional healer or *laibon* may be consulted (D. Kanchani, personal communication, June 2011). In the literature, the role of traditional healers was recorded as highly respected in the Maasai communities; the knowledge and profession is passed down from father and son through generations (Saitoti & Beckwith, 1980). The *laibon* combines rituals and herbs to determine both cause and treatment of illnesses that did not respond to either family level care decisions or an *orpul* event (Burford et al., 2001). Their practice of indigenous medicine uses herbs, bark, roots, oil, meat, and blood for strength to heal or defend against an enemy, or to celebrate or seal a traditional event (Parker et al., 2007). Research conducted within Maasai communities on non-malaria topics suggested enlisting support and providing culturally congruent education for chiefs and traditional healers could positively affect implementation of professional malaria care actions and decisions (Conroy et al., 2001; Haasnoot et al., 2010).

In light of modernity, there is also an attrition of traditional cultural practices and a consideration toward professional health care (B. Turrari, personal communication, June 2011). Elders of the villages and village areas meet together to discuss opportunities to change traditional care actions and make decisions as to what is best for the community as a whole (F. Strang, 2003; Thomson, 1885). These decisions are then communicated orally to individual villages. In the changing ways of today's Maasai, a visit to the local health clinic is a new option and some are attending (D. Kanchani, personal communication, June 2011 & November 2013).

Generic (folk) and Professional Contexts of Health Care

The Maasai are an indigenous people group who maintain many of their traditional practices. It was important to discover what generic and/or professional malaria care/cure practices are currently utilized in Maasailand. Literature relevant to this topic contributed to the development of a relevant inquiry guide and assisted in development of nursing decisions and actions to guide culturally congruent care.

The Maasai use numerous plants and plant parts for medicinal purposes: trees, bushes, herbs, bark, roots, leaves, and plant juice (Burford et al., 2001; Bussmann et al., 2006). In Maa, the name for tree, *olchani*, is the same word for medicine (Mol, 1972). Herbal remedies, which often include a mixture of many plants and plant parts, are used for the treatment of a variety of health concerns, such as an appetite stimulant, to purge after a large meal, to purge the abdomen to make room for the growing fetus, or to cleanse the body toward physical and/or spiritual strength (Burford et al., 2001; A. Benjamin & D. Kanchani, personal communications, December 2013). These remedies are also used to treat numerous diseases: digestive problems, worms, fevers, malaria, malaise, fungus, and diarrhea (Burford et al., 2001; Koch, Tamez, Pezzuto, & Soejarto, 2005; B. Turrari, personal communication, December 2013).

Orpul is a Maasai indigenous health care practice (Burford et al., 2001). Orpul is a “healing retreat practiced by the Maasai, in which decoctions of medicinal plants are taken with large quantities of meat” (Burford et al., 2001, p. 547). The orpul retreat may be attended by ill men, women, or children; it is also a separate ceremonial event attended by Maasai warriors during specific age passages (Saitoti & Beckwith, 1980; F. Strang, 2003). Beyond the medicinal aspect of orpul, the event includes prayers,

meditation, song, dance, time away from daily chores, and conversation. Burford et al. (2001) equated this event as “reminiscent of the Western concepts of ‘group therapy’ and ‘self-help groups’” (p. 549). Maasai believe *orpul* is more effective than professional health care treatments (Burford et al.).

Holistic Health, Illness, and Death

As evidenced by numerous, previous references, the Maasai have a health care system that is holistic and “attends to the physical, psychological, spiritual, and even social dimensions of illness” (Burford et al., 2001, p. 550). Illness and death are on equal planes in the Maasai culture. The same Maa word, *enkeeya*, translates broadly to incorporate all three following words: sickness, disease, and death (Mol, 1972). This study confirmed these traditional beliefs and practices noted in the literature and discovered current meanings, expressions, and practices specific to malaria care within the Maasai culture.

Health Practices in Maasailand

Although minimal literature referred to Maasai and malaria, other scholarly works referenced Maasai practices that were categorized as cultural health practices. Use of herbal remedies and participating in the *orpul* retreat were noted as routine health practices (Burford, et al., 2001). Several health care practices were noted to be harmful: deciduous canine tooth removal in infants and children to prevent or care for febrile diseases or diarrhea (Mutai et al., 2010; Wanzala et al., 2005); traditional rite of female circumcision at puberty (WHO Media Centre, 2013); and facial branding of young children to prevent trachoma (M. Pulei, personal communication, June 2011). Although the African Medical and Research Foundation (AMREF) has run mobile health

prevention and care clinics in Maasailand for over 50 years, indigenous care traditions and beliefs remain general practice (AMREF, 2014; King, 1992; D. Kanchani, personal communication, June 2011). Also, preventable diseases such as malaria, diarrheal diseases, ringworm, and respiratory problems remain common, especially among Maasai children (Wanzala et al., 2005; B. Turrari, personal communication, June 2011). Occurrences of these illnesses suggest there is a current need for culturally congruent professional health care practices in Maasailand.

Health Beliefs Among Maasai

In a search of the literature for the Maasai perspective on the cause of disease, inconsistencies were noted. Patel, Eisemon, and Arocha (1988) studied the beliefs among Maasai of diarrheal diseases and reported that, in general, the “prevalent belief among the Maasai elders and herbalists is that disease is caused by ‘bad spirits’...caused by either someone in the family doing something wrong or someone wishing to harm the family. Bad spirits cause disease via a mediating mechanism” (p. 1278). However, F. Strang (2003) contradicted this report, stating that Maasai traditional religion lacked belief in ancestral spirits and Maasai culture “discounts witchcraft and mystical powers” (p. 65). Strang continued, stating that “both historically and in contemporary cultural expression, the Maasai are strongly monotheistic in their view of God, Enkai” (p. 64) and it is their belief that Enkai blesses the people with rain, prosperity and health or penalizes in anger, not disease. Need for the clarity of the cause of disease was an additional reason to seek the meanings, expressions, and practices related to malaria care among the Maasai.

From the perspective of a health care provider, it is important to understand the

meaning of some basic terms that will be used within this health related study. To help address the limitation of the researcher's lack of fluency in Maa, the Maasai language, an English to Maa dictionary was an invaluable resource. For example, the Maa word for mosquito, *enkojongani*, is the same term used for malaria (Mol, 1972). This suggests there is some cultural knowledge associating malaria and mosquito. In addition to *enkojongani*, Maa has a second term for malaria, *oltikana*, translated as fever (Mol). This suggests a cultural knowledge associating fever with malaria. The Maa word, *enkeeya*, translates to the following words: sickness, disease, and death (Mol). This adds grave understanding to the cultural use of this term and the harshness of disease in their environment, as sickness and disease seem to also mean death. Clarity of these terms continued throughout the study as it sought to discover culturally congruent malaria care that would benefit the Maasai and fit within their daily lifeways. Use of the CCT and the ethnonursing research methodology were an excellent qualitative study choice to guide the researcher in discovery and analysis of the meanings, expressions, and practices of malaria care within their unique culture.

Malaria

Malaria is a complicated illness that includes a parasitic life cycle requiring a human host, a female *Anopheles* mosquito vector, and a suitable environment (WHO, 2013a). Malaria is a preventable and treatable disease and global interest in malaria encompasses prevention, treatment, and eradication. Yet, malaria remains in the top 10 causes of sickness and death in developing, low-income countries (WHO, 2012). Severe malaria can occur within 24-48 hours of initial symptoms and may include

cerebral malaria, severe anemia, abnormal blood coagulation, permanent neurologic damage, coma, and/or death (WHO).

Malaria literally means ‘bad air,’ referenced by early sufferers who attributed non-specific symptoms of fever, headache, myalgia, diarrhea, anorexia, and pruritis to breathing damp, swamp air (Tangpukdee, Duangdee, Wilairatana, & Krudsood, 2009). Hippocrates described the principle symptoms of malaria as associated with stagnant water; Roman writings attributed malaria illness to the swamps and the Roman aqueduct drainage system is credited as the first malaria prevention intervention (CDC, 2012d; Nobel Prize, 2013). The earliest case of malaria was noted in Chinese literature in 2700 BC (Janes & Spencer, 2003). Thus far, the oldest genetic proof of *Plasmodium falciparum* malaria has been found in the mummified remains of King Tutankhamun, who died in 1324 BC (Hawass et al., 2010; Than, 2010). Malaria remains a global concern in the 21st Century, including Maasailand in Kenya (KFF, 2013).

Plasmodium falciparum is the most life-threatening strain of malaria and remains a leading cause of sickness and death in developing countries (Nothing But Nets, 2013; WHO, 2008; WHO, 2012). Globally, 2.37 billion people live at risk for *P. falciparum* malaria; 1.37 billion live at high risk (Guerra et al., 2008; WHO, 2013b). In Kenya, malaria is present in all areas below 2500 meters (8202 feet), although Nairobi (elevation 1663 meters) continues to be listed as a no risk zone (Altitude, 2013; Gershman et al., 2011). *P. falciparum* is the malaria species most prevalent in Kenya, with 85% of the infectivity; *P. vivax* is 5%-10%; *P. ovale* is 5%; and *P. malariae* and *P. knowlesi* species are not detected in Kenya (Gershman et al., 2011). Of the five protozoan species of *Plasmodium*, *P. falciparum* causes the most deaths and is the

most prevalent cause of suffering from malaria among the Maasai in the Kimana region (Boggild & Kain, 2008; *KMIS*, 2011; WHO, 2013a; *World Malaria Report*, 2012).

The female *Anopheles* mosquito, the vector for malaria, requires a source of calm water upon which to lay eggs and a source of food (CDC, 2012a, November 9). Males prefer nectar; females prefer a blood meal, needing the protein to sustain egg growth (CDC, 2012c). The *Anopheles* species in Maasailand, Africa that carries *P. falciparum* prefers human blood over animal blood, and when an *Anopheles* mosquito bites a malaria diseased human, it ingests the parasite (CDC, 2012a, November 9). The malaria parasite grows within the mosquito for 10-21 days and is then transmitted to a human host through saliva when she bites during a nocturnal feeding (CDC).

Malaria can be uncomplicated or severe and is curable if diagnosed promptly and treated correctly (CDC, 2010). Prompt diagnosis includes recognition of symptoms specific to malaria (noted in above and in Chapter 1), accurate diagnosis, and appropriate treatment specific to the person's age, type of malaria contracted, and use of medications in drug-resistant regions (CDC, 2012c). One low-technological diagnostic test for malaria is the Rapid Diagnostic Test (RDT). RDT diagnoses malaria by using a dipstick and a drop of blood to determine presence or absence of malaria parasites; no formal laboratory or microscope is needed (CDC, 2012d). WHO (2010) supports use of RDTs to promote appropriate versus unnecessary anti-malarial (AM) drug treatment and decrease the risk of development of drug resistance. In Kimana town, which is within a few walking hours to many Maasai villages, the government fee-based clinic requires RDT diagnosis to treat malaria, and RDTs are sold in the town pharmacy (J., personal communication, June 2011). Because severe malaria can occur

within 24-48 hours of initial symptoms, prompt and accurate diagnosis and treatment are imperative in malaria care. It is not known whether Maasai who live in the Kimana area make use of professional malaria care.

Brief History of Malaria in United States

Malaria occurrence has a history in the United States (U.S.). During the building of the Panama Canal by the U.S. Army Corps of Engineers, 80% of all the workers contracted malaria, thus vector control was implemented (CDC, 2014). In 1914, malaria control was issued in an effort to allow American soldiers to train year round in the south where malaria was endemic (CDC, 2012d). In 1930, over 30% of residents in the Tennessee River Valley were ill with malaria. In 1951, CDC declared eradication of malaria in the U.S. (CDC, 1996).

Since its inception, the CDC in Atlanta, GA has had a focus on malaria. Malaria Control in War Areas (MCWA) was a federal governmental agency that waged war on killing mosquitoes around military bases in the U.S.; sprayed over 6 million homes with DDT; kept the southern states malaria free during WWII; and permitted American soldiers to train year round in the south (CDC, 1996; CDC, 2013). CDC, initially named Communicable Disease Center, was established July 1, 1946, as an offshoot of the wartime agency, MCWA; then Dr. Mountin, CDC founder, extended the organizations responsibilities to other communicable diseases (CDC, 2013). The CDC role changed to surveillance after a CDC epidemiologist, Langmuir, confirmed malaria had been eradicated from the U.S. (CDC, 2012 November). CDC continues as a national and now global leader in public health promotion, prevention, and preparedness.

The U.S. eradicated malaria in 1951, although the *Anopheles* mosquito is still a viable species in the U.S (Malaria Policy, 2013). Other countries, including Europe, were also successful in elimination of malaria, but a WHO global malaria eradication campaign, launched in 1955, was eventually abandoned by the 1970s and the goal of eradication worldwide refocused upon malaria control (WHO, 2014). Within the last decade, after statistical evidence of the global morbidity and mortality of malaria resurfaced, there have again been efforts toward eradication. The current facts are: half of the world population lives at daily risk for infection; three-quarters of the Kenyan population live at risk; all of Maasailand live at risk (Roll Back Malaria [RBM], 2010). There remains a need for culturally congruent malaria care among the Maasai.

Global Interest in Malaria

Malaria is a complex global issue. Malaria research ranges from vector control and prevention measures to global policy and vaccine development (NIAID, 2008; Nothing But Nets, 2013). A child dies in Africa every 45 seconds from malaria (WHO, 2014). Consequences that result from morbidity and mortality of malaria reach beyond the health devastation and affect the political and economic status of all endemic nations (Nixon et al. 2005).

Weak infrastructures in poor countries are unable to address malaria disease or afford costs of intervention and high transmission areas have an already compromised population; this creates a huge economic burden that limits development and contributes to the cycle of poverty (CDC, 2012c). For example, Africa alone is estimated to lose at least US \$12 billion per year in direct losses due to illness, treatment, and premature death (CDC, 2012d; President's Malaria Initiative [PMI], 2012 April). Illness

from malaria results in days lost from work, days lost from school and education progression, contributes to the cycle of malaria because the high number of persons with malaria transfer parasite to mosquitoes, and monies are spent on medications instead of needed daily life supplies (PMI, 2012). According to WHO (2013a), beyond the human cost of malaria morbidity and mortality, expenditures in endemic malaria countries include exorbitant fiscal health costs: 40% of public health expenditures, 50% of inpatient hospital admissions, and 60% of outpatient health clinic visits.

Other reasons for the interest in global malaria care include: human resistance to medications and vector resistance to insecticides that, in the past prevented and treated malaria, have resulted in resurgence of the disease (Global Fund, 2014; Mutabingwa, 2005); morbidity complications related to under-treatment of the active illness have led to vector resistance (Global Fund, 2013); and global travel and global warming have added to the broader transmission of malaria across new geographic borders (CDC, 2014; Global Health, 2013; Hartjes, 2012).

Malaria disease has regained a prominent platform and the renewed attention of global health caregivers, researchers, and policy makers (KFF, 2013). Global leaders and key stakeholders for relevant malaria information, research, implications and influencers for policy, and statistical holdings include: the U.S. national CDC (2014); the international WHO (2014) whose Roll Back Malaria (RBM) partnership exemplifies global cooperation with over 500 malaria care partners; the U.S. Agency for International Development (USAID), whose focus is on all aspects of global health toward malaria care in light of economic and humanitarian interests; and the Global Fund to Fight AIDS, Tuberculosis and Malaria. Although not exhaustive, the Malaria

Web-Quest Matrix lists malaria partners and exemplifies the diversity of global support toward the common goal of malaria care and a malaria-free world (see Appendix B).

Of particular note for malaria care in Kenya is The President's Malaria Initiative (PMI). The PMI is led by USAID and, in conjunction with the CDC, is joined by national and international partners such as the Global Fund, WHO, World Bank, Gate's Foundation, and faith-based and numerous other malaria interested organizations (PMI, 2012; PMI, 2012, April). The PMI and Kenya National Malaria Control Strategy promote malaria care and support use of insecticide treated nets (ITN), indoor room spray (IRS), intermittent treatment during pregnancy (ITPp), rapid diagnosis for fevers (RDT), and treatment with artemisinin-based combination therapy (ACT) as first-line treatment for uncomplicated *P. falciparum* malaria disease (Arguin & Mali, 2011; PMI, 2012; WHO, 2014).

PMI also partners with the host country's complex malaria care needs and focuses on strengthening infrastructure, availability of supplies, and monitoring and evaluation of all malaria care measures (PMI, 2012). Although only general statistics were found in the literature specific to malaria in regions which include Maasailand, Kenya overall has, over the past 10 years, seen progress toward prevention, treatment, increased distribution of ITN, use of ACTs, and availability of RDTs, and decreased occurrence in under 5 year olds, but increased occurrence in 5-15 year olds (PMI, 2012, April; *KMIS*, 2011). This increase is attributed to increased ITN use by under 5-year-olds, thus a decrease in the development on natural immunity (PMI, 2012).

An additional, powerful impetus to the current malaria interest occurred on October 17, 2007: Bill and Melinda Gates offered a global challenge for worldwide

eradication and elimination of malaria, a request far above mere care and control within endemic areas that had occurred in earnest since 1998 (Gates, 2007). Though bold, this statement was not unreasonable. Since 1945, 100 countries have eliminated malaria; yet today over 100 countries remain host to this devastating disease (KFF, 2009; KFF, 2013). Malaria is a preventable disease. With the proper global attention and support within health care, research, and policy, malaria eradication is an exciting, viable goal.

The effects of attention, care, and research must also focus on the unique needs and context of communities and individuals who suffer from malaria. The range of the disease is vast, from Asia, to Africa, to the America's (Roll Back Malaria [RBM], 2010). Although mortality and morbidity numbers have decreased from 2000 to 2010, human resistance to medications and vector resistance to insecticides that previously prevented and treated malaria have resulted in a predicted resurgence of the disease (Global Fund, 2013; Mutabingwa, 2005). Morbidity complications related to under-treatment of the active illness have also led to vector resistance (Global Fund, 2013). Global travel (KFF, 2013) and global warming (WHO, 2012) have added to the transmission of malaria and have expanded vector borders.

Malaria is a climate sensitive disease (Omumbo, Lyon, Waweru, Connor, & Thomson, 2011). Omumbo et al. stated climate variability and change, which contribute to rainfall and warming, are valid concerns in the increase of malaria incidence. NIH News (2010) also identified vector borne diseases such as malaria as areas of research need secondary to climate change. Climate variability adds to the complexity of malaria prevention. Higher rainfall and/or a warmer environment usually increase mosquito

production and the potential for malaria transmission, therefore increasing risk for human illness (Hartjes, 2012; WHO, 2012, October).

The literature highlighted several leaders in malaria research who have outlined health related phenomena associated with malaria disease. The National Institute of Allergy and Infectious Diseases (NIAID) of the National Institutes of Health (NIH) has developed a *Strategic Plan for Malaria Research: Efforts to Accelerate Control and Eradication of Malaria Through Biomedical Research* (NIAID Strategic, 2008, p.1). NIAID is the lead institution in the U.S. government whose responsibility is to support malaria research and development (NIAID Strategic). Their plan outlines the vision, strategy, and framework for malaria research and subsequent intervention to address the global burden of malaria (NIAID Strategic).

In the quest for eradication, NIAID's (2008) approach to malaria research listed focus on (a) epidemiological interactions between mosquito vectors and human hosts, (b) tool development for effective and sustainable malaria prevention, treatment, and control, (c) enhancement of research infrastructure in malaria-endemic countries, and (d) support of global collaboration. Research continues related to these phenomena, and health care professionals, organizations, governments, global leaders, community leaders, and individuals also participate in the goal of a malaria-free world.

The KFF (2009) listed the following key weapons for malaria control: (a) suppress vector using vector management tools such as ITN, IRS, and environmental modification such as elimination of standing water; (b) prompt human diagnosis followed by effective treatment; (c) kill parasite within the human host using ACT; (d) ITPp for pregnant women; and (e) control reintroduction of parasite after elimination occurs.

Eighty percent of all malaria cases presently occur in 17 African countries, although Asia and Latin America also suffer (Guerra et al., 2008; WHO, 2012). There are numerous reasons why malaria is so difficult to control in Africa: efficient mosquitoes transmit the parasite, high prevalence of the deadliest species of the *P. falciparum* parasite, favorable climate, weak infrastructure unable to address malaria disease, poor countries unable to afford costs of intervention, and high transmission areas with an already compromised population (CDC, 2012c). Specific to Kenya, the Kenya Gross National Income (GNI) per capita is \$770, or about \$2 per day (GNI, 2013). When considering food, education fees, transportation, daily supplies, and health care, \$2 does not go very far. Thus, extra funds for malaria care are scarce, including in the Maasai community where most Maasai income is from subsistence livestock keeping (Malisa & Ndukai, 2009).

The challenge of accuracy of exact numbers in malaria morbidity and mortality must be acknowledged. For example, *KMIS* (2011) reported 96% of Kenyan malaria as *P. falciparum*, however Gershman et al. (2011) reported 85% *P. falciparum* infectivity. A literature search for numbers of deaths attributed to malaria, all referring to 2010 statistics, showed a variety of numbers, from 655,000 deaths reported by CDC (2014), to the WHO (2014) report that acknowledged a range of 490,000 to 836,000 malaria deaths. Bite Back Campaign (2014) states every 30 seconds a child dies from malaria; RBM (2013) states every 45 seconds; and WHO (2014) states every minute. Although the numbers do not exactly agree, the range of statistics still place malaria as a leading cause of morbidity and mortality in sub-Saharan Africa (*KMIS*, 2011; RBM, 2013; WHO, 2014).

Challenges to evaluation of malaria mortality and morbidity include (a) poverty, (b) weak infrastructure, health care systems, and surveillance capabilities, and (c) drug, insecticide, diagnostics, and ITN availability and quality (KFF, 2013). Occurrence for the Kimana area was listed by *KMIS* (2011) as semi-arid, regional occurrence, meaning it has less mortality than some other areas. However, CDC reported malaria is present in all areas under 2500 meters, and all travelers to these areas are advised to use chemoprophylaxis and all other preventative measures (Arguin & Mali, 2013).

Current Malaria Prevention Measure Recommendations

Because malaria is a preventable disease, it was important to explore the evidence-based research for prevention and treatment measures. Also, because Maasai suffer from malaria, it was important to explore literature for current evidence-based measures useful in their geographic context. The literature review resulted in discovery of a variety of research foci on prevention: (a) recommendations for travelers; (b) chemoprophylaxis; (c) ITN, ITN use during pregnancy and in childhood, barriers and facilitators to ITN use; (d) culturally congruent malaria care intervention education; and (e) recommendations by global interest groups (which have previously been discussed).

Traveler Prevention

Anyone visiting an endemic country joins the risk for malarial infection (KFF, 2013). CDC and WHO have malaria care measures specifically for U.S. travelers to endemic countries. The prevention measures include: risk assessment, chemoprophylaxis appropriate for country of destination, use of DEET spray on exposed skin and clothing, insecticide-treated net (ITN) use, intermittent room spray (IRS), stay indoors after dusk in a screened room, spray the living space with

Pyrethroid-containing insecticide, and wear light colored clothes to cover skin (Arguin & Mali, 2013; WHO, 2013a).

Chemoprophylaxis

As areas of resistance to traditional antimalaria (AM) drug treatment using chloroquine expand, research has shown combination regimens of AM drugs have been effective in prevention, treatment, and decreasing future drug resistance. Although detailed specifics of chemoprophylaxis and administration of medicine for disease prevention are beyond the scope of this document, several studies are notable when considering malaria care within the Maasai culture. Amin et al. (2004) measured effectiveness and efficacy of AM drugs in Kenya. This randomized cluster sample study of 4000 households concluded brand use, brand quality, and adherence to dosage schedule were all factors related to drug performance in effective therapy. The study process exemplified culture care and sensitivity, as village elders were consulted before and during the surveys and local languages were used on the survey questionnaires. The structured questionnaire was used to interview mothers and asked about children under five years old who had had fevers within the past two weeks; 2655 fevers were reported. The medication used and dosage regime followed was recorded and coded as adequate, high dose, or low dose as compared to national guidelines.

Amin et al. also conducted a retail audit of AM drugs available in this same area and tested for the amount of active ingredient in 32 nationally recommended brands of tablets or suspensions for AM drugs sulphadoxine-pyrimethamine (SP)—first-line treatment, and amodiaquine (AQ)—second-line treatment. Clinical efficacy of SP was 85% compared to 62% under common usage and clinical efficacy of AQ was 99%

compared to 48% usage effectiveness. This study concluded in vivo clinical efficacy tests did not reliably determine effectiveness in ordinary conditions. Strengths of this study included the emphasis on cultural relevance to population and large sample size, and statistical support of results. The correlation of drug quality to drug effectiveness and the importance of adherence to prescribed dosage regimes reinforced the need for culturally relevant teaching on the topic of brand use and quality of medications.

P. falciparum malaria has become resistant to Quinine and SP; ACT are currently the most effective regime and can be used during pregnancy. However, Zurovac et al. (2008) tested guidelines for ACT use and found treatment protocol was too complicated for rural based compliance. This combination therapy may currently be a challenge in Maasailand if culturally congruent education has not occurred.

Malaria is an infection of the red blood cells (RBC) and predisposes antenatal and postnatal women and infants toward increased susceptibility for anemia. According to Nixon et al. (2005), 40% of pediatric HIV infections are secondary to RBC transfusions because of malaria-induced anemia. Van Eijk et al. (2007) study in western Kenya sought to evaluate the effect of routine iron and folic acid supplementation and ITPp for malaria with AM drugs sulfadoxine-pyrimethamine (SP). This study was conducted at a public hospital where there was a convenience sample of pregnant women. Variables in this study included first, second, and third trimester pregnant women and also assessed HIV status, presence of anemia or severe anemia, placental or peripheral malaria, and infant anemia and malaria. Overall results showed supplementation with ITPp chemoprophylaxis reduced placental malaria infection by over 40% and significantly decreased anemia.

Continuous chemoprophylaxis is not practical in the Maasai population due to year round and lifelong risk of infection, limited pharmacological supplies, and basic cost factors. However, research supports need of adequate pharmacological knowledge so appropriate medications will be used for heightened protection during pregnancy, during childhood, and when malaria illness occurs. CDC prevention recommendations for travelers, noted previously, may not be practical for the daily Maasai lifestyle because of the small Maasai home design with mud walls and limited ventilation, the outdoor lifestyle in rural Africa, traditional dress that leaves limbs exposed, and women daily milk the cows at dusk (D. Kanchani, personal communication, June 2011).

Insecticide Treated Nets (ITN)

One prevention measure, ITN, is effective and available (CDC, 2012b). Mass distribution of ITN has occurred in Kenya and ITN are available in some local trading centers and offered at subsidized rates in Maasailand; yet, the literature suggests they are not being used (*KMIS*, 2011; *Nothing But Nets*, 2013; M. Pulei, personal interview, October 12, 2010; D. Kanchani, personal interview, November 22, 2014). This will be an essential topic to investigate in this study.

Literature addressed the continued suffering from malaria as a global issue and continued research over time supports use of ITN as the simplest preventive measure (Gimnig et al., 2005; Hetzel et al., 2007; Wacira, Hill, McCall, & Kroeger, 2007; WHO, 2014). Currently, the greatest interest area is toward malaria prevention, with a specific focus on the use of ITN as an effective physical barrier in the host/vector cycle (Gates, 2007; WHO, 2013a). Since the growth of the parasite requires both a growth cycle within the human and the mosquito, a break in the disease cycle is required to stop the

spread of malaria (NIAID Strategic, 2008). ITN usage is relevant in malaria prevention because ITN usage by at least 50% of homes in a community affects all community members, not just those under the net (Wacira et al., 2007). This study also showed that the exuding insecticide and/or mosquito knockdown effect, in which a mosquito dies when it lights on the fabric, from village homes using ITN offered a measure of protection over those homes without ITN usage.

It would be best-practice care to prevent malaria transmission and thus avoid the need to treat malaria illness. ITN provide a protective barrier when hung over a sleeping area and prevent nocturnal mosquitoes from biting the humans within. ITN are becoming readily available in sub-Saharan Africa, either by purchase in urban and rural shops or through free distribution methods such as the Nothing But Nets Campaign (2012); however, personal communications with current Maasai residents suggested ITN use in Maasailand remains minimal (B. Turrari, 2011; D. Kanchani, 2011).

Although there have been no studies specific to exploration of Maasai and use of ITN, there have been studies conducted in similar cultures on use of ITN within the geographic region of East Africa and most specifically Kenya. Research has been conducted in sub-Saharan Africa on the use of ITN for malaria prevention; studies have shown that use of ITN has demonstrated success in breaking the disease cycle (Guerra et al., 2008; Renggli et al., 2013; WHO, 2013a). The primary vector control used in Kenya is ITN, and subsidized nets to vulnerable populations are a national health priority (KMIS, 2011). KMIS also indicated less than 50% of homes in endemic areas owned an ITN. This number is inconsistent with the distribution on ITN in other

countries, such as Uganda, who claim 98% distribution to homes in endemic areas (Kilian, Wijayanandana, & Ssekitoleeko, 2009).

Studies focused on ITN use included a range of topics. Gimnig et al. (2005) collaborated to evaluate six types of long lasting insecticidal nets for wash resistance in maintaining insecticidal activity. Repeated measures logistic regression test was used to measure mosquito knockdown and mortality. Wash resistance predicted insecticidal longevity. With each washing, some insecticide must remain within the fiber and some must migrate to the surface to provide protection from mosquitoes. After six washes, four of the six net types lost greater than 90% of insecticide level, however even nets with low-level activity were shown to provide some protection. Gimnig et al. supported education on the best nets to purchase as an important nursing measure in sub-Saharan Africa in order to promote the highest ITN protection against malaria vector mosquitoes. Kimana shops continue to sell non-treated nets (C. Strang, personal observation, June 2011).

Researchers desired to know if persons who owned ITN used them. The common measure of use was to ask specifically who had slept under a net the previous night. One study followed up with ITN distribution campaigns in five African countries; one was Kenya. Vanden Eng et al. (2010) study showed 80% of all children surveyed lived in a household with ITN, however in Kenya only 51% of children less than five years old slept under a tent. Two strengths of this study were the follow-up to all five countries where original net distribution occurred and the interest in success of the use of the ITN in order to develop a framework for future study. One weakness of this study was that young children were the only individuals of interest. Also, answers could have

been given to show support of the ITN gift rather than actual use. Follow-up of ITN use after distribution or purchase is an important endeavor to assess potential for malaria prevention.

Using mixed methodology, Wacira et al. (2007) compared net distribution techniques between an employer-based approach and a community-based approach. They also looked at net insecticide retreatment habits of ITN among owners. This was the first research to compare net distribution techniques between an employer-based (EB) approach and a community-based (CB) approach. This was a valuable study to seek how best to enable families with limited financial means to purchase ITN, since even a government subsidized ITN price is a full day's wage in Kenya (D. Kanchani, 2011, personal communication). Within all sites studied, the EB approach ranked higher in ownership because employers offered nets at installment payments, and higher use and retreatment habits because employer also provided education on both ITN use and retreatment. The questionnaire was in the national language of Swahili, which showed cultural consideration.

The WHO (2014) recommends all pregnant women and all children under age 5 in risk areas sleep under ITN. Yet, Githinji, Herbst, Kistemann, and Noor (2010) discovered 95% of persons surveyed owned a net, but only 59% slept under it and 37% of the unused nets were still in the original packaging. Ng'ang'a et al. (2009) found 75% households owned nets, but only 46.7% were slept under. Ter Kuile et al. (2003) research assessed correlation of ITN and morbidity of malaria on children, noting ITN use substantially improved weight gain, therefore, infants were stronger to fight a malaria infection.

Research supporting ITN as reliable protectants from malaria transmission is not new. Nevill, Watkins, Carter and Munafu (1988) study compared mosquito nets, proquanil hydrochloride, and placebos to prevent malaria. Their research showed, even with holes or tears, use of mosquito nets alone prevented the occurrence of malaria in 97.3% of 188 youth participants. The study protocol was abandoned because it was declared unethical to continue the risk to those unprotected. Sadly, it took nearly 20 years and millions of preventable deaths to finally renew global interest and begin to put evidence-based ITN research into action.

Interestingly, all reviewed articles supported the use of ITN as effective barriers against malaria transmission and, in one study, the effect of decreased disease incidence was as high as 90% (van Eijk et al., 2005). Beyond unanimous agreement that ITN use decreases malaria, a decrease was also noted in malaria related morbidity, anemia, and prevention of all nocturnal insect bites (Lengeler, 2004). Many article authors noted the need for more education on (a) the need for purchase of ITN as a family priority, (b) proper use, and (c) priority of use by children and pregnant women (CDC, 2014; Ng'ang'a et al., 2009; Ter Kuile et al., 2003).

ITN use. In response to the continued endemic status of malaria in sub-Saharan Africa and the known benefit of ITN use, literature review showed numerous research studies have addressed barriers and facilitators to net use. Affordability was a primary barrier to net use. Larsen et al. (2010) revealed an insightful priority of use of funds: purchase of daily food was of more concern than purchase of ITN for prevention of malaria.

Successful use of ITN has been shown to provide malaria prevention. One study noted a 44% reduction in child mortality with ITN use and offered encouragement that research toward discovery of barriers to ITN use among Maasai is a valid endeavor toward increase of ITN use (Fegan, Noor, Akhwale, Cousens, & Snow, 2007). Although not conducted in Maasailand, this 2 year longitudinal study in Western Kenya indicated that use of ITN in this similar geographic area provided malaria protection. Another study conducted in Western Kenya revealed 95% of households had ITN, yet only 59% of households used the ITN (Githinji et al., 2010). These statistics supported this researcher's assumption that nets are available in Kenya, and possibly near Maasailand, yet are not being used.

One mixed qualitative/quantitative study conducted in Maasailand, Tanzania (Malisa & Ndukai, 2009) used the focus group discussion format to assess ITN use and questionnaires to assess knowledge of malaria. These researchers concluded persons used health care facilities, traditional healers, or both for care. Unaffordability and unavailability of ITN contributed to low ITN use, as only 12% used ITN even though 65% were aware of ITN as a malaria prevention measure. Seventy-five percent of respondents knew the cause of malaria; however, 25% stated stagnant water as the reason for illness. Another survey of 10 African medical personnel noted the cause of malaria was rain or standing water and not mosquitoes (Dean, 2005). These misunderstandings may lead to non-net use and further confirmed the need to include exploration of ITN use among the unique culture of the Maasai.

Barriers to ITN use. In Zambia, personal, geographic, socio-economic factors all contributed to non-use of ITN; this included elder refusal to use ITN (Larsen et al., 2010). In Western Highlands, Kenya, predictors of non-net use included lack of community awareness and education, and living in the poorest homesteads (Gikandi, Noor, Gitonga, Ajanga, & Snow, 2008). The poorest homesteads were often located in the most rural location, which also led to lack of availability of ITN. Van Eijk et al. (2005) discovered that, among those surveyed in Western Kenya, personal sleeping preferences determined objections to ITN use.

Socioeconomic factors in Central Kenya were found to be the barrier to ITN use, as 55% of those surveyed stated they could not afford a net (Ng'ang'a et al., 2009). Also, cultural variables, such as fear of sleeping under net and shape of home and bed net as not conducive to use, were found to be barriers to use (Iwashita et al., 2010). Tozan et al. (2010) further noted lack of supplies, low quality product, cost of ITN, and lack of knowledge contributed to barriers. Inconvenient to use, had a bad smell, too hot, perceived absence of mosquitoes, color got too dirty, and wrong shape for bed or room were additional reasons persons did not use nets (Iwashita et al., 2010; Ng'ang'a, 2009; van Eijk et al. 2005).

Wacira et al. (2007) qualitative portion of their study was an insightful addition to their quantitative findings noted earlier and sought improvement strategies for overall acceptance and use of ITN. Reasons found for non-use of ITN included (a) cost too expensive, (b) limited availability, (c) claustrophobic to sleep under, (d) inconvenient to use, (e) home too small to hang properly, (f) lack of education about usage, and (g) fear of being poisoned (Wacira et al.). One limitation for net use that was noted in the

research literature was availability of ITN; therefore, global efforts have responded by promoting that pregnant women and children have first priority use (WHO, 2014). Much of the literature noted lack of education as a key to non-use. Education on malaria care is a desperate need that nursing professionals can offer.

Facilitators to ITN use. The literature review also noted discovery of facilitators toward ITN use, including options for transcultural care to promote ITN use. In Uganda, husbands were more likely to use funds to buy ITN if they had knowledge that their wife and fetus were at risk during pregnancy (Mugisha & Arinaitwe, 2003). This example affirmed the need for culturally congruent education on the importance of ITN use. Widmar, Nagel, Ho, Benziger, & Hennig, (2009) noted predictors of net use by women who lived in Western Highlands, Kenya included living in close proximity to a health clinic during pregnancy and correlated use of ITN to their access to services and education. Widmar et al. supported use of culturally congruent malaria care; they concluded that, when community-specific practices, attitudes, and misconceptions were addressed prior to ITN distribution, consistent and correct use, and change of attitude towards ITN as a preventative health measure occurred.

Involvement of the gatekeepers and community leaders has also led to ITN use. Tozan et al. (2010) trained non-medically educated villagers to provide malaria education and treatment. De Ver Dye, Apondi, and Lugada (2011) involved the village chief or elder in initial malaria education planning; these indigenous leaders then encouraged community members to participate in a prevention campaign.

Basford (2003) noted “contemporary nursing care has embraced the notion that professional caring should be underpinned by relevant evidence of best caring practice

that is supported and underpinned by empirical research” (p. 59). In the context of care, offering self-care opportunities through treatment and prevention education supported empowerment toward sustaining, maintaining, and restoring health (Basford). These exemplars can be used to guide future culturally congruent malaria care education on need and use of ITN. ITN are effective and may be available, however, they are not being used. Much of the literature noted lack of education as a key to non-use. Research has repeatedly noted that, when the cultural worldview and cultural and social structure dimensions are discovered, respected, and resourced, health care professionals can offer education and care that is culturally congruent, safe and beneficial to the health and well-being of the people.

Maasai and Malaria

Geographic location and traditional lifeways place the Maasai at high risk for malaria infectivity, morbidity, and mortality. Malaria is a topic deeply ingrained among the Maasai, exemplified by the following non-malaria discussion that shows the frame of reference malaria holds in the Maasai culture. In response to an explanation of climate change as a result of the density of the world’s atmosphere, similar to a warm blanket covering the entire globe that results in everyone with an increased temperature and everyone with negative consequences, a Maasai elder stated, “Now the world is like someone who is suffering from malaria” (Edkins, 2011).

Research was found that included the Maasai communities or the geographic regions where Maasai live. However, these were large number surveys with numerous ethnic tribes in the demographics and referenced general East African lifeways, not specific to the Maasai culture. When combining the terms malaria and Maasai, lack of

research in the literature findings was somewhat disheartening. Only four articles appeared in PubMed. Two were on the use of herbs for malaria care (Bussmann et al., 2006; Koch et al., 2005). One, an ethnographic study on Maasai attitudes toward health care, included care of malaria (Wanzala et al. 2005). Lastly, one article described medical outreach in Maasailand and recognized malaria as a major health issue (King, 1992). In reference to the geographic location of malaria in Maasailand, the literature named *P. falciparum* as the most prevalent and deadliest form of malaria in the African region inhabited by Maasai (Guerra et al., 2008; Nixon et al., 2005; WHO, 2011).

One study was found that referenced the knowledge and practices of malaria among Maasai in Tanzania. Malisa and Ndukai (2009) combined direct observation, focus group discussion, and survey of 200 local villagers to discover awareness of malaria disease and use of ITN among Maasai in Simanjiro District of Tanzania. Of the participants, 75% knew mosquitoes transmit malaria; 25% attributed malaria to stagnant water; 65% were aware of ITN use; yet, only 12.5% slept under them. In agreement with research previously noted on ITN use, affordability, accessibility, and education on malaria and ITN use were indicated as potential barriers to use (Malisa & Ndukai). However, the researchers noted two new obstacles to ITN use and malaria care. First, gender inequality was a factor: respondents stated men owned all of family's possessions, therefore use of monies to purchase and use ITN was a male decision. A second factor was overall cultural attitude toward malaria within the Maasai villages: malaria was considered normal and not preventable, only treatable (Malisa & Ndukai). The implications of these discoveries support the distinct need for culturally congruent malaria care within the Maasai community.

Studies on Professional Malaria Health Care Among Maasai

No studies were found that focused specifically on professional malaria health care among Maasai. The malaria care practices among the Maasai, who suffer incessantly from malaria, are unknown. Therefore, it is of utmost importance to conduct this study to advance professional malaria care/cure practices among the Maasai. Discovery of the meanings, expressions, and practices of malaria care among the Maasai in the Kimana area will guide nursing decisions and actions toward culturally congruent malaria care relevant to the Maasai people.

Studies on Professional General Health Care Among Maasai

Beyond the topic of malaria, the literature search did reveal several ethnographic or qualitative/quantitative research studies specific to health promotion among Maasai. One study sought primary health care practices among the Maasai (Wanzala et al., 2005). The introduction of the study shared professional care endeavors by AMREF, but noted the need for an improved approach to improve care. These researchers were looking for insights to improve health from the Maasai in the Kajiado district of Kenya. The research method included ethnographic observations, structured questionnaires, and focus group discussions to discover knowledge, attitudes, and practices of health care.

Data gathered between 2000-2003 show 79% of women used traditional medicines, 77% used conventional medicines, and 69% noted health care services were available (Wanzala et al.). Also, potential harmful care practices were noted to continue despite past health care workshops by AMREF in the area. These included: the restriction of diet during last 3 months of pregnancy to produce small, easy

deliverable babies; extraction of deciduous canine buds and permanent central incisors to treat illnesses; introduction of refined foods resulting in dental caries and diabetes; sick not taken to the clinic because of wild animal risk; and a high dependency upon traditional medicines. Wanzala et al. concluded community participation may aid in promoting prevention interventions toward improved health.

Conroy et al. (2001) in-depth study among the Maasai community discovered Maasai have a rich and precise knowledge base of diseases familiar to their culture. This was also affirmed in the ethnobotanical knowledge of the Maasai noted above. Conroy et al. concluded integration of research and traditional frameworks could lead to both credibility of findings and adoption by the community of preventative measures. The Conroy et al. study affirmed the process of low cost, low technology solar disinfection of water as a risk reduction of diarrhea in Maasai children under 6 years of age. An unplanned opportunity for follow-up occurred as a cholera outbreak affected the Maasai community shortly after the initial trial. Secondary interview data support solar disinfection as a first line defense against cholera. Only 3 cases of cholera occurred within the families who used solar disinfected water, compared to 20 cases among the controls.

Ethnopharmacological investigations by Parker et al. (2007) discovered that mothers incorporated traditional herbs, bark, and oils into the diet on a regular basis as disease prevention measures. These were the same plants used by the traditional healers for treatment. Four of seven medicinal plants identified by Maasai healers and mothers as having health benefits against measles showed antiviral in vivo activity.

Malaria care interventions should promote health and accommodate the cultural traditions and practices of the Maasai culture (Birks et al., 2011). Complexities of the Maasai culture, minimal resources, and pervasive illiteracy are relevant challenges when considering and promoting contextually congruent prevention interventions in the community (Birks et al.). One research team used a Rapid Assessment Response and Evaluation (RARE) model to examine the impact of HIV/AIDS in a Maasai community. Their concern was cultural practices that influence disease occurrence or prevention were not considered by most intervention strategists. With HIV/AIDS, Birks et al. concluded successful prevention strategies must be appropriate to the specific cultural setting and, in Maasailand, consider gender roles, sexual entitlement of Moran, and ignorance of risk in urban settings.

Indigenous Plant Use

Pharmacologic treatment for malaria has its roots in medicinal plants: quinine, a product of the cinchona tree; and artemisinin, a product of the Qinghao plant (CDC, 2012 November). Herbal treatment for malaria is prevalent in Maasailand. Traditional plant use, unlike modern medicine, is inexpensive and readily available. Today, herbal remedies are often used for malaria treatment in the Maasai community (Bussmann et al., 2006; M. Pulei, personal communication, July 2011). Bussmann et al. (2006) worked alongside Maasai herbalists in Kenya and recorded names and photographs of 39 plant species used for medicinal purposes; nine of these were used for malaria care. Community members confirmed the findings and strengthened the reliability of the indigenous information.

Koch et al. (2005) were in search of potential plants for future malaria medication

development. Three Maasai herbalists from three different villages in southwestern Kenya were participants in semi-structured interviews. The herbalists then led the researchers to 21 plants used by Maasai to treat malaria. The Maasai name, the part of the plant used in recipe preparation, and method for treatment were recorded.

International Review Board (IRB) and plant collection permits were obtained. Dried samples were taken to Nairobi for identity confirmation, and then taken to Chicago. With meticulous homogenous preparations, specific in vitro antimalarial and cytotoxicity assays were then evaluated using extracts made from each plant. Selectivity Index was chosen to evaluate potential herb activity toward malaria parasite and all but one was selective for *P. falciparum* parasite. Of the herbal plants tested, 57% were distinctly antiplasmodial. This study's results affirmed the appropriateness of Maasai indigenous folk knowledge of herbs for use in malaria care.

Synthesis of Literature

Malaria care is essential for all who live at risk. A thorough literature review revealed vast information on the topic of malaria, global interest in malaria, and treatment, prevention, eradication, ITN use, cultural barriers and facilitators to ITN use, and research on the disease. A majority of articles began with staggering morbidity and mortality statistics and provided research supporting various preventative measures. Articles were read and summarized and inconsistencies were noted. Yet, one fact was consistent throughout the literature: the successful effect of ITN use to reduce malaria occurrence. Analysis of literature indicated researchers and institutions worldwide collaborate to seek malaria care for the sufferers of malaria, including education, preventative measures, and treatment.

The review revealed a dearth of information on the topic of Maasai and malaria. Few literature references could be found on the topic of Maasai beliefs on health; cultural malaria care among Maasai; or ITN use in Maasailand. To offer culturally congruent professional malaria care to the Maasai, it is imperative that research explores the meanings, expressions, and practices related to malaria care within their unique culture. The Maasai continue to suffer incessantly from malaria. Geographic location and traditional lifeways place the Maasai at high risk for malaria infectivity, morbidity, and mortality. The consequences of malaria illness affect their health and economic status. Few research studies on malaria-related issues were found specific to their geographic location or tribe. The Maasai continue to be an underserved population in need of research on the topic of malaria care.

Several ethnobotanical studies noted Maasai have accurate knowledge of herbs that are selective to the malaria parasite (Bussmann et al., 2006; Koch et al., 2005). One study sought the perceptions of Kenyan Maasai toward professional health care, which included malaria care (Wanzala et al., 2005). A mixed methods study referenced the knowledge and practices of malaria among the Maasai in Tanzania (Malisa & Ndukai, 2009).

No studies were found that explored current malaria care, why Kenyan Maasai are not using known professional prevention and treatment modalities, or why morbidity and mortality has not decreased among the Maasai in the Kimana region. This study was necessary as the first ethnonursing study conducted to discover the meanings, expressions, and practices of malaria care among the Maasai in Kenya. Also, this was the first study to use the theory of Culture Care Diversity and Universality (CCT) in the

Maasai culture and on the topic of malaria. The theoretical tenets to explore culturally congruent malaria care among the Maasai were relevant to offer care that would benefit this unique population.

The literature noted vast global interest and investments in malaria care in Kenya. Several current prevention measures noted are low tech and available in Kenya, such as use of ITN for prevention and RDT for accurate diagnosis of malaria illness. The literature was unclear on whether these measures were available in Maasailand.

Malaria care within Maasailand should incorporate the specific needs unique to their culture and context. In the current literature, it is not known what folk care, professional care, or global malaria care initiatives are used in the Kimana region of Maasailand. Findings from this study contribute to knowledge necessary for nurses and professional health care workers in the Maasai community to develop culturally congruent malaria care. Qualitative findings provided a basis for recommendations for prevention education, treatment of active disease, and policy related to best practice malaria care (Morse, 2002).

The gap in literature for Maasai and malaria was clear. This researcher began to study the Maasai and malaria in 2008. At that time only four articles were retrieved from a PubMed literature search and, after 5 years and in-depth searching, the same four solitary articles appeared (Bussmann et al., 2006; King, 1992; Koch et al., 2005; Wanzala et al. 2005). Google Scholar revealed an additional handful of relevant articles on topics of ethnobotanical knowledge of Maasai, and one study on knowledge of malaria, malaria care, and ITN use from Maasai in Tanzania (Hetzel et al., 2007). No studies were found that explored why Kenyan Maasai are not using known professional

prevention and treatment modalities, or why morbidity and mortality has not decreased among the Maasai in Kimana region. There have been no ethnonursing studies conducted to discover the meanings, expressions, and practices of malaria care among the Maasai in Kenya.

In the rural sub-Saharan environment of Southern Kenya and Northern Tanzania, Maasai proudly continue to live as they have for thousands of years. These semi-nomadic people value their animal herds and their families, traditional dress, beadwork, ear piercing, life passage ceremonies, home design, stories, language, and traditional health care practices. What is known in the literature on malaria and malaria care may be relevant to these traditional Maasai who suffer from endemic malaria. This study is essential to build on the known scholarly works toward discovery of the unknown, in the quest to offer Maasai culturally congruent malaria care.

Chapter 3

Methodology

The ethnonursing research method is congruent with the purpose of this study and was used to discover the meanings, expressions, and practices related to malaria care among the Maasai (Leininger, 2006a). In the unique and beautiful sub-Saharan grasslands, the Maasai inhabitants continue to exhibit many traditional lifeways and health care traditions. As noted in the literature review, minimal research has explored malaria care in the Maasai culture. Use of the qualitative ethnonursing research method was an appropriate guide to a culturally sensitive research study that aimed to both highly respect and richly discover knowledge of malaria care by the Maasai people. This chapter will discuss the ethnonursing research methodology, data collection process, ethical considerations, data analysis process, and rigor of the methodology.

Ethnonursing Research Method

The premises of the theory of Culture Care Diversity and Universality (CCT) guide the ethnonursing method. Although ethnography is a research tradition that has frequently been utilized within anthropology, sociology, and public health perspectives, the ethnonursing method melds culture and care and is specifically appropriate for nursing (Brink, 1998; Leininger, 2006a). Ethnonursing, like ethnography, is a qualitative strategy in which the researcher collects data through personal observation and interviews and learns from the “members of a cultural group—to understand their world” (Creswell, 2009; Leininger, 2006b; Polit & Beck, 2008, p. 225). The ethnonursing methodology goes beyond the focus on culture of the ethnographic method to research the unique relationship between culture and care.

Using the ethnonursing method, this researcher remained interested and focused on the malaria care experiences of the individual informant, with the goal to rigorously and fully examine the domain of inquiry (DOI) from the Maasai cultural perspective. The purpose was to discover, describe, and systematically analyze in-depth, unknown cultural truths that will guide nursing care thinking, actions, and decisions (Leininger, 2006b). In choosing to use of the CCT and the ethnonursing method to guide the study within the Maasai culture, the researcher held high value in the emic perspective of the informant. From the data and using the theory and method, the PI predicted three decision and action modes to guide professional culturally congruent nursing malaria care that were holistic and unique to the Maasai culture.

Research Enablers

The ethnonursing method provides numerous enablers to facilitate in-depth data collection and analysis. Use of research enablers facilitates documentation and confirmation of data. The discovery of accurate, in-depth, previously unknown truths led to implications for future nursing care thinking, actions, and decisions for malaria care of the Maasai. Four ethnonursing enablers were used to guide this study. As will be evidenced below, the enablers do not work compartmentally, but overlap and actually enable and strengthen the other to fully guide the researcher in a rigorous study.

Sunrise Enabler. The Sunrise enabler (SRE) serves as a conceptual overview of the major tenants of the CCT and served as a cognitive map to guide the researcher toward a comprehensive collection of malaria care data (Leininger, 2006a; see Appendix A). The enabler is horizontally divided into an upper and lower half. The upper half includes the image of a sunrise, a half circle with rays that each represents cultural

factors. The dividing line, where the sun rays form, directs the concept focus to the individual in the nursing-client relationship, and/or beyond to include families and communities. This flexible focus was imperative in research in Maasailand, a community rather than individually focused society. The upper half of the enabler, above the horizon, represents and reminded the researcher to seek the world, cultural, and holistic views of care, and environmental, contextual, and historical influencers of care. The lower half of the enabler represents and directed discovery toward the generic and professional influences of malaria care and options for transcultural nursing malaria care decisions and actions.

The enabler, thus the tenets of the CCT, can be entered from any point of interest by the researcher or informant, and move among the potential influencers eventually exploring its entirety. The goal of this study was to discover care influencers that would lead to culturally congruent malaria care and improve health and well-being of Maasai people. The researcher resourced the Sunrise Enabler in several ways and focused on concepts of malaria care within factors such as kinship, lifeways, and social structure and generic and professional malaria care practices. As a visual aid, it was frequently reviewed as a reminder of the multiple factors that influence the meanings, expressions, and practices of malaria care among the Maasai. The enabler served to guide comprehensive development of the ethnodemographic data and inquiry questions prior to entry into the field. In this ethnographic study, the visual depiction and even the name were apropos, as the harsh desert sun of the equatorial line pierces the heart of Maasiland. In this land, there is darkness in the suffering from malaria. Symbolically, as

the 'sun rises,' hidden truths within the rays' factors that are significant to culturally congruent malaria care were brought to light.

Observation-Participation-Reflection Enabler. The Observation-Participation-Reflection Enabler is a four-step process that guides the researcher to enter and remain focused on the natural environment of the informants (McFarland et al., 2012; see Appendix C). The researcher should progress sequentially through the phases, from a general observer of the Maasai context and culture to an observer with limited participation. Next, the researcher may become a trusted participant in the daily life events of the culture, continuing in detailed observations.

The researcher began the study experience by driving from the international airport city to the study region, located at the foot of Mount Kilimanjaro. Prior to the scheduling of any interviews, the first days in Maasailand were then spent observing daily events of the local residents of Maasai villages, driving and walking in the Kimana area, walking and shopping in a local market, visiting a church service, and noting endless reflections in a field note journal. These initial observations were necessary for accurate reflection, the final phase. The researcher progressed through all steps to garner reliable culture care assessments toward comprehensive understanding and analysis of the Maasai culture and malaria care.

Stranger to Trusted Friend Enabler. To help the nurse researcher move from a stranger to a trusted research friend within the Maasai culture in the Kimana region, the Stranger to Trusted Friend Enabler was used (see Appendix D). The Maasai community, Kimana area, and potential informants needed to get to know the researcher and develop a trust in the relationship, to be willing to share truthful, credible

data. Although the researcher and her family have served intermittently over the past 26 years in Maasailand, this was only the researcher's second visit to this region. The asking of personal questions toward the goal of study rigor required a deep level of trust (see Figure 2).



Figure 2. Stranger to Trusted Friend. The informant presented a cow skin hide, laid it upon the bare earth, and invited the researcher to sit shoulder to shoulder for the interview (left). The researcher escorted inside for a follow-up interview (right).

Within the community, establishment of trustworthiness was conveyed from and to the Maasai elders, the Maasai community gatekeepers. Their continued support gave

credibility to the researcher and informants felt free to participate. A trusting relationship not only purported credibility of data, but also promoted safety for the researcher so that her presence traveling around the area was not interpreted as a threat. As the researcher developed a trusted relationship, the informants revealed the inside, covert data of the culture and malaria care.

Ethnodemographic Enabler. Lastly, this enabler was resourced to guide the formation of the ethnodemographic section of the interview guide. Ethnodemographic data describe the environment, history, social, cultural, ethnic, and geographic context and guided the researcher toward the meaning of malaria care practices within the DOI (Leininger, 2006a). Examples of general ethnodemographic factors sought in the Maasai context included gender, source of water and cooking fuel, type of home and toilet facility, and use of ITN (see Appendix E-1). Prior to the first interview, the researcher reviewed the demographic data with a traditional Maasai, who resided in the area, to ensure respectful inquiry. Only one change was made. It was advised that the researcher not ask how many children a person had. The PI was told that this question would be interpreted as related to the government census takers. It might initiate distrust by the informant because the Maasai do not want to be counted. This question was, therefore, removed from the inquiry guide.

Data Collection

First, the PI entered the culture 2 years prior to this study to gain gatekeeper permission to conduct research about malaria care in the Maasai district. The PI secured verbal agreement from Maasai elders and written official permission from the senior chief of the Kimana area (B. Turrari, personal communication, June 2011; see

Appendix F). After the University of Tennessee, Knoxville (UTK), Institutional Review Board (IRB) and the UTK Risk Committee granted permission to conduct the ethnonursing study in Maasailand, Kenya, the PI traveled to the study location in East Africa (see Appendix G & Appendix H).

Because of the community mindset, familiarity with the researcher through a previous visit, and the traditional oral method of sharing news, persons in the region became aware that the researcher had returned to conduct the study. Information regarding the research study was disseminated primarily by word of mouth, following the normative oral Maasai tradition, from the elders to the villages and villagers (Saitoti & Beckwith, 1980). In addition to elders, pastors and acquaintances of the PI were made aware of the intent of the study and asked to share the news.

Key and General Informants

All key and general informants (study participants) were selected based on the DOI. Informants were asked to participate in this study and to tell their story of malaria care. Key informants were persons who had expert knowledge on the DOI. Specific selection criteria had to be met. Men and women who self-identified as Maasai, spoke fluent Maa, and lived in a Kisongo Maasai village in the Kimana region of Southern Kenya, were invited to participate as key informants. Because diverse people groups or nationalities may live in this region such as Kikuyu, Luo, or Maasai, Kenyan or Tanzanian, African or Indian, one of the main selection criteria for the key informants was to be a fluent speaker of Maa. Most tribal groups in Kenya speak only their mother tongue and possibly the broader national language of Swahili and/or English (M. Pulei, personal communication, June 2011). Also, because of the traditional polygamous

family structures, one Maasai village may consist of wives from several different tribal backgrounds and primary languages. Speaker of Maa in the selection criteria assisted in maintaining the DOI within the Maasai story.

General informants were persons with general knowledge about malaria care among the Maasai and may or may not have spoken Maa, been residents in the Kimana region, or been of Maasai origin. The general informants offered confirmatory data and clarified diverse and universal concepts about the meanings, expressions, and practices of malaria care among the Maasai. This strengthened the study rigor. These informants included Maasai residents, area community members, community or government health care providers, religious leaders, teachers, and store or pharmacy owners.

It was initially planned that the number of key informants would be 10-12 persons with the goal of 4 men and 8 women. The actual number of key informants in this study was 16. Informants were eager to participate in this study and share their malaria care stories. The ratio of men to women remained close to one-third: two-third with 5 men and 11 women. The one-third: two-third ratio was chosen to show respect to the patriarchal culture, yet ensure inclusion of women who are the primary care givers to children and who may not be given a voice. Inclusion of both genders also gave opportunity to discover similarities and diversities of malaria care among the Maasai men and women.

It was initially planned that 16-20 general informants would be interviewed, approximately twice the number of key informants. However, as noted with key informants, there was great support for this study, which enabled 32 general informant

interviews. The number of informants for this study was determined after considering: (a) recommendations of the ethnonursing methodology, which suggests 10-12 key informants and a ratio of 1:2 key to general informants (Leininger, 2006b); (b) response from willing participants in the study environment; and (c) after consultation with expert CCT mentors. The aim of data collection was data saturation in which the PI was convinced the analysis was credible and fully reflective of the DOI. Data saturation was achieved and noted by redundancy and duplication of data gathered from observations and informant interviews on the meanings, expressions, and practices related to malaria care among the Maasai.

Age of participants was a large consideration for this study. In the traditional Maasai culture, a mother and her daughters are the primary caregivers to children; also, a female is eligible for marriage and child bearing after onset of menses, between 9 and 16 years of age (Archambault, 2011; Saitoti & Beckwith, 1980). The age of mothers and fathers in the Kisongo villages is unknown. Given the high malaria mortality and morbidity statistics for children under 5 years old and given the childbirth and childcare responsibilities within the traditional Maasai lifeways occur at an early age, discovery of data related to malaria care would be limited if the age of informants were limited to a minimum of 18 years old, the United States definition of an adult. Therefore, key and general informants for this study included men and women equal to or greater than 18 years of age and also included persons age 12 to 17 who were mothers or fathers caring for their own children. By the age of 12 and above, some traditional Maasai may have completed the ceremonial process for marriage and some of these women have borne a child.

Key and general informants were purposefully selected to participate in this study. As news of the research study was shared among local villages in the Kimana area, many people came forward voluntarily to share their stories. In addition, the lead interpreter and Maasai elders, pastors, and other community members assisted in identifying participants who could best address the DOI. Using the ethnonursing methodology, interviews began with key informants and, as data analysis was conducted, general informant interviews were initiated.

When persons came forward voluntarily, interview days, times, and locations were arranged. The researcher arranged some interviews and others were made by a Maasai gatekeeper. Many Maasai also own mobile phones, so contacts and interview dates were often scheduled or confirmed between PI and informants in this manner.

Interviews with key informants had planned to be conducted within an individual context. However, once the study began, the researcher made the decision that the plan needed to be adjusted to be respectful within the Maasai culture. It was appropriate, at times, to have more than one informant participate in a key interview. Of the 16 key informants, 8 were participants in a solo interview, and 8 were participants in an interview with an additional 2-4 others. The goal of two-thirds women to one-third men was attained: 11 women: 5 men.

For example, during one of the earliest key informant interviews, the researcher and an interpreter had been led by the second guide/interpreter on a 45 minute trek through the bush. The intended informant was not available; however, an elderly, almost blind lady, offered to guide us to a nearby village where another lady would probably be willing to assist us. This *kokoo* [grandmother/matriarch] led us another 15

minutes through the bush and presented us to the village. After describing the reason for coming, we were welcomed and five chairs were carried out, one for the researcher, the two interpreters, the key informant, and the kokoo. This lady had invested in the venture and the informant expected that she would also be included in the interview experience. The researcher decided that CCC within the interview process would be to include both informants. She adjusted to the Maasai cultural context and conducted the interview with the key informant and the kokoo. The next decision was how to categorize this informant, key or general. Upon reflection of this interview and more of a similar scenario in days to come, the researcher made the decision that one informant would be categorized as the key and the other as a general informant. It regularly occurred that one answered the questions more freely and fully, while the other offered intermittent, brief comments and clarifications.

Interviews with general informants were conducted as planned, within individual and group contexts, with approximately five individual and four focus groups of 3-4 informants per group. Small focus groups afforded feasibility of time for each participant to share their perspective on malaria care and allowed time for the use of an interpreter, when necessary (Carey & Asbury, 2012). Focus groups included a cluster of persons with similar interests such as Maasai elders, health care providers, women's group, or pastors. The inclusion of focus groups in this study context showed respect for the traditional decision-making process of the Maasai culture, showed value for the community voice, and affirmed that the researcher valued the community voice, thus strengthening credibility of the data. Also, overall consensus among the community on topics of importance is within the Maasai tradition. With gatekeeper permission, it was

appropriate and within cultural etiquette for the researcher to speak one on one with male or female informants (D. Kanchani, personal communication, November 2013; B. Turrari, personal communication, November 2013). The CCT supports individuals, families, and groups as key and general informants and each of these were resourced in this study (Leininger, 2006b).

Interview Setting

Interviews took place at a location convenient to informants, conducive to private conversation, and safe from wildlife. All interviews were face-to-face and reflected the DOI and theoretical concepts of the study. The PI prearranged a neutral meeting spot at a camp centrally located to Kisongo area villages and hired a guard to offer protection from dangerous animals. The guard was not within hearing range of the interview. This camp environment had large acacia trees for shade, toilets, outdoor kitchen, and clean spring water to drink. This locale offered a safe and private environment for interviews. As is culturally expected within the Maasai tradition, the researcher served *chai*, a hot tea with sugar and milk, and bread or cookies when she hosted the interview (see Figure 3). When requested, the PI traveled to the informant's village and the interview took place in a private location, usually outside under a tree near the Maasai home, sitting on a cowhide or a small wooden bench (see Figure 4). A few interviews were conducted inside an informant's home.

Prior to beginning the interview, informed consent was obtained. Either English or Maa was used to obtain consent and to conduct the interview. The inquiry guide was referenced for the key and general informants interviews (see Appendix E-1). Both the interview guide and the consent forms had been developed, translated, and reviewed

prior to the study for cultural acceptability. This is further described under translation. For the interview, semi-structured, open-ended questions directed the inquiry and the informants were also free to tell their story. Following Maasai tradition for the content of a conversation, it was appropriate and expected to ask questions about family and children. Major tenets of the Culture Care Theory were resourced to guide the formation of a comprehensive and respectful inquiry guide (see Appendix A). Ethnodemographic questions were asked and openly answered by informants (see Appendices E-1 & E-2).



Figure 3. Interview setting. Key informant interview with a Maasai elder, the researcher, and two interpreters joined by community members invited by participate.

If the informant was not fluent in English, a Maa language interpreter was present for the interview (Appendix I). Initial interviews lasted no longer than 2 hours. There was usually a need for follow-up meetings to confirm and clarify data (Leininger, 2006b). There was a maximum of two follow-up meetings that lasted no longer than 1 hour.

Within 2 weeks following an interview, a follow-up interview was conducted with most key informants to clarify meanings, expressions, or practices of malaria care within the Maasai culture. It was not unusual or disrespectful to ask for follow-up interviews with some informants and not with others.



Figure 4. Interview settings. Sharing chai after completion of an interview (left). Entering the environment of the elders for an interview (right).

The general informant interview and focus group interviews lasted 45 to 90 minutes and the PI usually only conducted one session. Ideally, only one interview per day was scheduled to allow the PI to record detailed field notes and observation data. However, due to the harshness of the environment, transportation challenges, or

schedules of ceremonies or informants, exceptions were necessary. There were a maximum of three interviews per day, which remained within the recommendations of the CCT (Leininger, 2006b). Because the researcher moved from stranger to trusted friend within the Maasai community of the Kisongo clan during the course of the study, she was free to come and go within the villages in a quest to discover the Maasai malaria story to benefit community health.

For all interviews, the PI took notes before, during, and after the interview and also asked permission to audio record the conversation. This digital recording was transcribed by the PI and used to clarify accuracy of the language interpretation and for data analysis. If the informant did not give permission for audio recording, the PI took notes and made extensive additional notes in a field journal immediately following the interview. The recordings will be destroyed at the end of the study.

Study participants were compensated for transportation expenses to and from the interview site, equivalent to \$5 US. If the researcher traveled to the informant, he/she was compensated this equal amount in lieu of their time. An interpreter fluent in English and Maa was present for all interviews where the participant did not speak fluent English. Interpreters received a stipend, compensated at an hourly rate.

Translation to Maa

A conscientious effort was made by the PI to conduct a culturally respectful research study that protects all participants. Many Maasai in the Kimana region do not speak English and the researcher does not speak fluent Maa. Therefore, the language barrier had to be approached with creative vigor. In this transcultural nursing study, it was necessary to translate both the consent forms and inquiry guide.

Translation of informed consent and inquiry guide. The translation processes of forward, back, and monolingual translation from source language of English to target language of Maa was conducted for the informed consent (Appendix H) and for the inquiry guide (Appendix E-2) (Maneesriwongul & Dixon, 2004; Polit & Beck, 2008, Wang, Lee, & Fetzer, 2006). The informed consent form was available in English and Maa and disclosed the study purpose, risks, and benefits. The inquiry guide was used during interviews. Completing the translation process facilitated culturally congruent language among the PI, interpreter, and the Maasai Maa speakers.

Maneesriwongul and Dixon (2004) reviewed 47 studies that involved the translation of research instruments and then summarized their findings. Their recommendations have been followed for this study. First, forward translation initially translated English forms to Maa. Then, back-translation translated Maa into English. A monolingual test took place to assure comprehension of the Maa translation. These processes assured translation accuracy by first translating the source language into the target language, and then back to the source language. The monolingual test checked the target language for accuracy and then discrepancies could be adjusted. This process initially occurred by personal or email delivery of the English version documents to English speaking Maasai. Next, only the Maa version was delivered to a new set of persons performing back translation. Then comparison of English versions by the PI validated accuracy of Maa translation.

It is appropriate for community approach of several persons working together to clarify accurate translation and further clarification if necessary (Maneesriwongul and Dixon, 2004). The translation process for the consent forms and open-ended interview

guide was conducted by the PI, traditional Maasai, and by Maasai who have graduated from Form 4. Form 4 is equivalent to a high school graduate status in the U.S. and graduation signifies fluency in English (M. Pulei, personal communication, July 2011).

Maneesriwongul and Dixon also concluded the use of translators from within the study context increased collaboration and trust between the researcher and the informants. Maasai from the Kimana district were asked by the researcher or the gatekeepers to participate in the translation process. Use of one researcher and only two translators with key informants facilitated and ensured consistency during the study data collection.

Translation during an informant interview. Experienced researchers who have used the ethnonursing method have acknowledged that some meaning may be lost within the translation and interpretation processes (Purnell, 2013; Wenger, 2006). It has also been discovered that use of a trusted translator and local resident offers a more caring act between a health care professional and a patient, and this trust supports a higher level of exchange of credible information (Curren, 2006). For this study, two translators were used.

Purnell (2013) encouraged the nurse to develop the important skill of using an interpreter, such as looking at the informant and not the interpreter when asking or answering interview questions. This was wise counsel as this researcher noted in the field notes that,

as the interview process progresses, I realize that my skills in using an interpreter had become much more smooth and relaxed. I am interacting, for the most part, with the informant and not the interpreter. However, it took three to four

interviews to become comfortable to allow the interpreter to be my voice and focus more fully on the informant.

A further suggestion by culture care researchers was to consider the informant's preference for translator gender (Purnell, 2013; Wehbe-Alamah, 2011). The researcher checked the cultural appropriateness of consistently using a female translator and was informed by Maasai elder gatekeepers that an interpreter of the same gender was not culturally necessary with Maasai informants. This was accurate advice, as a majority of the study utilized female interpreters and no hesitation occurred by men to participate and speak freely with the female interpreter.

The researcher made a conscious effort to attain accurate and truthful data. First, two interpreters were present at all interviews where the informants spoke Maa. The researcher knew both interpreters, but they did not previously know one another. One interpreter was a trusted friend of the researcher for over 25 years, a health care provider (HCP) in Maasailand, familiar with the malaria illness, fluent in Maa and English, and from a region outside the research study area. The other interpreter was a resident of the research region, fluent in Maa and English, educated post high school, yet a full participant in the Maasai culture, knowledgeable of Maasai traditions, and living in a traditional Maasai village as the third wife of a Maasai elder.

Both women expressed an eagerness to help their people, had personally suffered from and cared for their children with malaria, desired to learn more about malaria illness and care, and were interested to learn and participate in the research process. Although the researcher had initially planned to use one interpreter, upon arrival in Kenya, the elder requested that his wife accompany as a guide and

gatekeeper to area villages. This was an excellent plan in the environmental context of the research region, as most interviews involved hours of walking through the bush. Without a guide, it would have been impossible to find most of the villages.

In addition, this local interpreter knew the area. She was a great asset in suggesting informants to best fulfill the DOI of the study. Also, there were some colloquial language nuances that greatly benefited from having a Maa speaker from the region. On the initial trek through the bush toward the village of the first scheduled interview, the two interpreters informed the researcher that they thought the three should now be known as 'The Malaria Ladies.' This dubbing of a group title was an affirmation to the researcher that they had each moved from strangers to trusted friends. This relationship added to the trustworthiness of the data translation. The enablers were affirmed to be relevant to both the researcher and the interpreters.

Observations

In addition to interviews, personal observations by the PI, focused on the DOI, were conducted within individual and group contexts. These occurred within Maasai and non-Maasai villages, local health care centers, market day, worship services, and when invited, in attendance at celebrations of the community. Researcher observations were important to maintain perspective on culturally congruent malaria care within the environmental context of the study. Within the ethnonursing methodology, the researcher suspends a priori judgment, enters a new context as an etic (outside) observer, and undertakes fieldwork to understand the culture from the emic (inside) perspective (Leininger, 2006b, Lincoln & Guba, 1985; Polit & Beck, 2008). The researcher must be cognizant of any biases, opinions, or pre-professional emic

perspectives of malaria care and focus on the Maasai cultural context. To accomplish this task, the researcher became an active observer and listener, daily recorded observations, reflections, and internal conflicts in a reflective journal, and self-reflected orally or through emails with a research mentor prepared in the ethnonursing method.

In addition, because the researcher had a priori experiences in Maasailand, a concerted effort was made to suspend prior knowledge of the DOI and enter with an open perspective for discovery. To assist in this endeavor, the researcher followed the process of the Observation-Participation-Reflection Enabler, described earlier, and, within the parameters of personal safety and cultural respect, reentered the DOI context with the perspective of a novice observer and participant. Prior to each interview and time spent in data analysis, the researcher was cognizant to remain open-minded and suspend personal opinions from past experiences in the culture. A conscious decision the researcher made to assist in this endeavor was to conduct the research in an area of Maasailand where she had minimal familiarity.

The process of working with the interpreters was key to this study. Both interpreters were Maasai and, as the study was reviewed with them prior to the first interview, both had preconceived ideas of how the participants would respond. The PI realized that it was important to bracket a priori knowledge, not only for the researcher but also for the interpreters. Therefore, before each interview and as recorded in the field notes, the researcher reminded herself and the interpreters to “pretend we have not heard any answers to these questions before and that we do not anticipate a specific answer. Also, we should expect and welcome diversity in the responses. To the

interpreters' surprise, although many responses were similar, diversity was realized as well."

Value and respect of the informants' emic ideas and interpretations of malaria care enhanced accurate data collection. The researcher desired to enable the informant to share their story of malaria care in a way that made sense to them and was of value to them. To attain this goal, it was important for the researcher to remain an observer and participant in every cultural experience possible.

The researcher was intentional to plan research observation and participatory experiences that were varied and would offer cultural insight. Within each outing, conversation, or drive through the region, the researcher listened, watched, smelled, tasted, or touched the surrounding environment. The researcher lived in a camp environment within the research region, which was located next to a number of traditional Maasai villages. Everyday the researcher could: hear the laughter and cries of the 16 children who lived just next door; greet the women as they made their daily trek along the path beside the camp to the nearby spring, balancing their load of laundry on their heads; smell the open fires needed to heat the water and cook each meal; drink chai with a neighbor who invited the researcher to visit and sit by her on the cow skin hide and be mentored in the art of beadwork.

Many days, the researcher conducted shopping for basic supplies at the local market. Once a week, vendors from area villages would congregate in the center of a nearby town. One could purchase any item, from batteries to vegetables and fruits, to livestock. This experience was always loud, crowded, and involved stamina, as a Caucasian woman in an African open market was unusual and many persons were

interested, usually in a kind manner, of her purpose in their region and hoping she would make a purchase from their offerings. In relation specifically to the DOI of the study, the researcher would also observe for items that might be relevant to malaria care, such as herbs or ITN. During the study experience, the researcher also attended a wedding and several worship services, ate at a local restaurant, and visited an orphanage, a local clinic, and numerous Maasai villages and homes. Usually, a translator would accompany the researcher to assist in understanding and/or communicating in these experiences. The researcher utilized a field note journal to make notations of each observation and participatory experience, and data analysis process to record data, researcher insights, and observations from the field.

During the study, digital audio and written data were stored securely in a locked box separate from the consent form box in a locked vehicle. The PI used a password-protected personal computer and password protected zip drives for data storage of digital audio and photograph data, typed data, and data analysis. It was intended that the ATLAS.ti™ qualitative computer software analysis program would be utilized to facilitate data management and analysis. However, because of limited access to electricity and internet service while on site in Africa, the researcher had to adjust this plan. She chose to make extensive use of a field note journal and minimized computer usage to simple resources, such as word processing. Coding and note taking on site was predominately executed through hand written notes into a field journal. Coding will be further discussed under data analysis.

Ethnodemographics and initial data analysis were conducted using the simple format of an excel spreadsheet. On location in Africa, the field notes journal remained

either with the PI in a bag on her person while in the field, or in the secured location in a locked satchel in a locked box in a locked vehicle. The password protected computer and zip drives were kept in a locked box in a locked vehicle. Upon return to U.S., study data was stored in the secure offices of the researcher and also chair of the dissertation committee and then will be destroyed. All digital files will be erased and all papers will be shredded after analysis is complete and the research is published. The consent forms will be held in the chair of the dissertation committee's locked office in a locked file cabinet for 3 years; they will then be shredded.

Use of Photography

With permission, the use of photography is culturally appropriate in Maasailand. Images of the traditional lifeways of the Maasai culture enhanced the discovery and description of this ethnonursing research study. Those who signed the informed consent were given the consent option to be photographed. A separate consent specifically for take and use of photographs was used (see Appendix H). The consent included permission to use photographs in the dissertation and future presentations and publications related to the study. If an informant did not consent to photography, no photographs were taken. All key informants and approximately half of the general informants consented to photography. A digital camera was used to take photographs. Following an interview, photographs were transferred to a password protected computer use for the data analysis of the study and then deleted from the camera.

All photographs taken of informants within their cultural environments, often with members of the family or community, were made into a print format and returned given by the researcher as a token of thanks. This often occurred as part of a scheduled

follow-up visit. As no informant owned a camera, this was a very meaningful gift. The response to this act was of deep appreciation and sometimes overwhelming gratitude (see Figure 5).



Figure 5. Sharing of Photos. Sharing of photos during follow-up visits, taken during initial interview.

Ethical Considerations

Conscientious effort was made by the PI to conduct an ethical and culturally respectful research study. Ethical considerations began with the study proposal and continue today. Careful thought and assessment of all ethical considerations occurred within each step of the research process.

Protection of Human Subjects

Approval from the University of Tennessee, Knoxville Institutional Review Board (IRB) was received (see Appendix H). Participation in this study involved minimal risk. Talking about malaria was recognized as potential to raise issues or concerns that the informant had not previously discussed or considered. If concerns about malaria care

arose, the PI suggested local resources available to the informant to discuss their concerns or to learn more about malaria care. These resources included a village elder, a traditional healer, or the personnel at a local health clinic. The researcher did not speak fluent Maa, so if a participant did not understand a question or if the PI did not understand the answer, a participant may have become frustrated. The interpreter helped everyone to best understand the questions and answers. The researcher asked questions that may have made the participant uncomfortable. Permission was clearly given to the participant that they could refuse to answer any question, decline to participate, or withdraw from the study at any time without penalty.

The information gathered for the study will be kept confidential. The translators signed a confidentiality statement (see Appendix I). All informant data on the inquiry guide, field notes, and audio recordings were de-identified and coded with a numeric identifier. No reference will be made in oral or written reports that could link participants' names to the study. Identification codes and data and consent forms for key and general informants were stored securely in a locked box in a locked vehicle. This was in a separate locked compartment from the secure space used for the computer and other data records. This information is available only to researcher, the IRB, and the dissertation committee.

The informant's signature, mark, or witnessed verbal agreement indicated he/she received and carefully read or had the consent form verbally explained and agreed to participate. An agreement was confirmed either by signature or personal mark, if the participant read and wrote, or, if the participant did not read or write, by saying yes and

reciting a statement noted on the consent form. A verbal agreement was signed and dated by the PI and an additional witness.

Language Considerations

Translation for needed documents was conducted with qualified, experienced translators. An interpreter fluent in English and Maa was present for all interviews where the participant did not speak fluent English. The consent form was available in English and Maa and disclosed the study purpose, risks, and benefits. Each informant read the consent form, which was available in English and Maa. If the informant could not read or speak fluent English, the PI read the consent form. If the informant did not speak fluent English and did not read Maa, a Maasai interpreter read the consent form and assisted with translation during the interview. The participant had an opportunity to ask any questions, reflect on whether he/she wanted to participate or decline participation in the study, and was informed that he/she was free to end the interview at any time without penalty. The PI answered all informant questions about the study before the participant gave consent. If the participant agreed to an interview, he/she signed the consent form. The signed informed consent, either by signature, personal mark, or verbal agreement witnessed by the PI and interpreter, signified understanding of the study and full consent to participate. No participant in this study chose to withdraw.

Benefits

Individual participants did not receive any direct benefit from participation in this study. However, informants may have been encouraged that the researcher recognized the value and importance of the Maasai malaria care story. Future benefits to the Maasai community may result from gathering information about malaria from the Maasai

stories. The valuable insights discovered will help HCP understand the Maasai story and guide them to provide specific information for the Maasai people about culturally congruent malaria care and malaria prevention. With the Maasai chief and elders' permission, this information will be used to develop a training day in this district about the topic of malaria prevention. This information may also be used to guide malaria health care policy making on local, national, or global levels.

Data Analysis

The CCT's four phases of ethnonursing analysis for qualitative data were used to guide a systematic analysis of malaria care among the Maasai (see Appendix J). The four phases of ethnonursing analysis were developed to enable and guide the nurse researcher to discover "actual or potential people centered care, wellbeing, and health phenomena as well as non-caring practices" (Leininger, 2006b, p. 47). In Phase 1, the researcher remained focused on the DOI, cognizant of her own etic perspective, and open to informant and context emic perspectives. Detailed field notes collected from initial observations and key and general informant interviews were reviewed daily. In Phase 2, data were coded and initial classification was begun. In Phase 3, recurrent patterns and ideas began to be analyzed specific to the context and DOI, and in Phase 4, synthesis of all findings occurred to confirm themes and direct recommendations for nursing decisions and actions for culturally congruent malaria care. Each of these phases in this study can be traced back to Phase 1, the raw data. These four phases were carefully followed and provided support for the validity of the findings and added to the rigor of this study.

A deliberate process of coding began with the first interview and continued

throughout the study and all four phases of data analysis. Since words do not necessarily translate from Maa to English word for word, raw data from the participants who were Maa speakers were often translated as overall concepts. Additionally, within the oral tradition, it is not culturally appropriate to interrupt the storyteller. Therefore, the informant needed to complete a thought process before the translator could interpret.

Initial codes emerged from these raw data. Immediately after each interview, the researcher coded the data using an evolving coding structure. Codes were then organized using concepts from the inquiry guide that reflected the constructs of the CCT. Additional codes were added to the coding structure as they emerged in subsequent interviews. Codes were collapsed to create categories which then contributed to patterns and, finally, to the creation of themes. Because a majority of the data analysis occurred in the field without electricity, the field note margins were used to record emerging codes, categories, and patterns. A separate section of the field note journal held documentation of potential themes. Once all interviews were complete, all data were reexamined to validate and consolidate the patterns into themes. Thus, the process of coding was non-linear and the researcher continually reflected upon the data, initial codes, and observations. She sought saturation of categories and patterns toward a synthesis of all findings into themes fully reflective of the meanings, expressions, and practices of malaria care among the Maasai.

Rigor

Rigor of ethnonursing methodology is held to the high standards of qualitative research. The ethnonursing method requires credibility, confirmability, meaning-in-context, recurrent patterning, saturation, and transferability to promote rigor in a

research study (Leininger, 2006b). Following, each of these criteria are defined and a descriptive given as to how they were met specific to this study.

1. Credibility refers to the accuracy and truth of the data findings. The believability of the information is confirmed through mutual agreement of the findings between the emic perspectives of the informants and the observed experienced and documented perspective of the researcher. Related to the emic meanings, expressions, and practices of malaria care within the Maasai culture, the researcher sought to discover credible observations, participatory experiences, and data documentation within the community (Leininger, 2006b). The credible data represented truths of malaria care in the Maasai environment; meaning-in-context and confirmability also supported the data credibility. Multiple methods were used during the research process to maintain credibility: personal interviews, use of a trusted Maasai interpreter, audio recordings and translation, detailed field notes and observations (Leininger, 2006b). Establishment of trustworthiness in this study began with gatekeeper permission from the Maasai elders and area chief. Their permission to conduct the research study gave credibility to the researcher among the area Maasai villages. Trustworthiness of gathered data was also strengthened as the researcher engaged a trusted and dependable Maasai friend, known to her for 25 years, to be a translator during the extent of the study.
2. Confirmability means that the researcher reaffirms repeatedly what the researcher sees, hears, and experiences within the Maasai context relevant to malaria care. The key and general informants were asked to confirm what the

researcher understood about malaria care and ethnohistorical Maasai concepts. Confirmability occurred in both initial interviews and in follow-up visits. Each informant, with the assistance of the interpreters, desired and was patient and willing to describe the data in a way that would accurately represented the DOI and the culture. Confirmability of data was strengthened as the researcher took and made continual comparison of field notes, findings, and meanings and sought to validate the data and the developing themes with informants (Beck, 2009; Leininger, 2006a). Transcribed interviews and confirming data with informants provided documented audit trails (Lincoln & Guba, 1985; Leininger, 2006b). Recurrent patterning and saturation corroborated findings and confirmed that honest and forthright answers were given and data collected were from the perspective of the participants.

3. Meaning-in-context focuses on finding and understanding the significance of the meanings, experiences, and practices of malaria care within the community. This was met through time spent by the researcher in the Maasai context and detailed observations and field notes that focused on understanding “actions, symbols, events, communications, and other human events” (Leininger, 2006b, p. 77) unique to the Maasai cultural context. Dependability was strengthened as the researcher took careful field notes throughout the length of the data collection and noted any changes in the specific context during the research time frame.
4. Recurrent patterning is documented, consistent, repeated similar or diverse meanings, experiences, and practices of malaria care within the traditional Maasai culture. This occurred over a period of time and required the time of the

PI within the context of Maasai events and lifeways. In addition, the PI remained cognizant of the importance of developing and maintaining stranger to trusted friend relationship among participants and community members (see Appendix D). This enabled the researcher to remain in the community and participate in events and observe lifeway patterns.

5. Saturation occurs when, after comprehensive and exhaustive exploration, no new information about malaria care is shared. Saturation was noted by redundancy of data gathered from observations, participation, and informant interviews on the meanings, expressions, and practices related to malaria care. Saturation of the overall description of malaria and first acts of care was met early on in the study. This enabled the researcher to add specific questions to the inquiry guide to seek more specific directives for malaria care from the informants. This led to a rich emic focus on pragmatic nursing decisions and actions for professional malaria care in their communities.
6. Transferability refers to whether the particular malaria care meanings, expressions, and practices from this study are transferable to a similar (not identical) environmental situation, context, or culture (Leininger, 2006b). The transferability criterion of rigor within the ethnonursing methodology looks specifically at similarities (not diversities). Post-study, the researcher evaluated the transferability of discovered data for another similar Maasai context beyond the Kisongo area. Interview inclusion of Maasai men and women of varying ages and from a variety of villages strengthened transferability of findings. Discussion of general findings with several Maasai general informants, who resided in other

clan regions, suggested that the results of this study might be transferable to other areas in Maasailand.

A prodigious strength of the ethnonursing method, congruent with the qualitative process, is the continual confirmatory process during the data collection. Whether agreement or discrepancies were noted, constant return to informants, both key and general, verified information and developed rigor (Brink, 1998; Leininger, 2006b). Another strength was the tenet that use of this method includes flexibility. The researcher was free to adapt questions to strengthen the study. One weakness of the ethnonursing method is that the data are not replicable; however, it may be transferable, as noted above.

The researcher was qualified to conduct this research study. She holds a Masters degree in nursing, is a PhD candidate at the University of Tennessee, and has been mentored by expert nurse scientists, researchers, and educators. She studied the CCT and ethnonursing methodology in-depth for 3 years. This study included on-site research of primary sources on the development of the CCT and the ethnonursing methodology at the Archives of Caring in Nursing, Christine E. Lynn College of Nursing, Florida Atlantic University, Boca Raton, FL.

This researcher has also lived among, worked with, and visited the Maasai people for over 25 years. She is respected by the Maasai community, local health care providers, and village elders and is known in the Maasai area by her Maasai name, *Naserian*. To receive a Maasai name from the community is an honor. This researcher accepted high ethical responsibility to respect their unique culture as a primary focus while conducting the research study. The PI's respect among the Maasai community

added credibility to the quality of data collected. This also exemplifies the researcher's relationship in movement from stranger to trusted friend. She obtained full support and permission from the Maasai senior chief and elders to conduct this research (see Appendix F).

It was a privilege to enter into the culture of those who suffer daily from high occurrence of malaria and seek tacit knowledge that could then guide nursing decisions and actions to offer best practice malaria care among the Maasai people. The use of the CCT and ethnonursing methodology was the guide to discovery of this knowledge. The goal was to represent the Maasai culture and malaria care in the spirit of dignity and pride within which they would approve, bathed in ethical and methodological sensitivity to their unique context.

Chapter 4

Findings

The embedded data discovered during this ethnonursing qualitative study will be documented and described in this chapter. Use of the methodology outlined in Chapter 3 enabled the researcher to discover the richness of the Maasai ethnohistory and their worldview, and gain in-depth knowledge of their malaria care practices. This chapter will present ethnodemographics and ethnohistorical concepts learned during the study, followed by in-depth descriptions of four universal themes synthesized from the data analysis. The data, specifically focused within the domain of inquiry for this study, were then resourced to develop culturally congruent decision and action modes. To promote culturally congruent malaria care among the Maasai, nursing decisions and actions for culture care preservation and/or maintenance, culture care accommodation and/or negotiation, and culture care repatterning and/or restructuring are presented.

Ethnodemographics

Key and general informants volunteered to participate in this research study. Sixteen Maasai key informants participated in the study. Their ages ranged from 18 to 100, with 11 females and 5 males. Twelve described themselves in a polygamous marriage, three in a monogamous marriage, and one as single. All reported no formal education beyond secondary school. Three recalled some primary education, and two recalled some or full completion of secondary school. Five informants disclosed an ability to read or write.

General informants numbered 32. Of these, 18 were also Maasai, five described themselves as half-Maasai, and nine said they were non-Maasai. Their ages ranged

from 18 to 90, with 16 females and 16 males. Approximately half the general informants reported some secondary school and/or post secondary education.

Informants had varying experiences with providing or receiving malaria care. Fourteen Maasai key informants conveyed they had provided generic care, garnered through non-formal learning, and all 16 had not personally provided professional care. Some key informants were recognized as masters in herbal care, and community members sought out their expertise when someone was ill with malaria. All 16 key informants were open to or had utilized professional care in malaria care.

Some of the Maasai general informants were herbalists. Six of the general informants were providers of professional malaria care within Maasailand. To maintain anonymity of the informants who were professional caregivers, health care provider (HCP) was chosen as a general term to represent general participants who were: government community health workers, chemist/pharmacists, nurses or doctors from a government or private facility, and/or NGO staff members who specialized in malaria care in Kenya.

Within the study region of Southern Kenya, key and general informants represented a variety of locations. For example, from the researcher's base camp, some informants were within a 15 minute to a 2 hour walk, some within a 20 to 30 minute drive by vehicle, some villages required access by both a drive and then a trek through the bush, and still other interviews involved a 2 to 5 hour drive by vehicle. Most key informants chose to be interviewed in their home village, however several traveled to the camp where the researcher was staying. General informant interviews occurred at the village, home, or office of the general informant, or at the researcher's camp. Of

the 48 interviews, only one key and six general informant interviews occurred at the researcher's camp.

Ethnohistory

The following reflections document and describe the Maasai worldview, cultural and social structure dimensions, and environmental context of malaria care. This section will focus on the researcher's participant observations and field notes. Additional learned ethnohistorical concepts, specifically focused on the DOI of culturally congruent malaria care, will be described within each theme.

Worldview

The worldview of the Maasai was clearly related to their space and place in their environment. The key informants of this study were more traditionally oriented. The lifeways of the Maasai in the twenty-first century remain interwoven with the environment. Sticks tied with grasses were covered with a mixture of mud from the earth and dung and urine from the livestock formed the walls of their home. Hard-packed dirt constituted the floor and wood was the fuel for cooking. The forest served as the toilet. Most of their daily tasks involved resourcing their surroundings: collecting firewood, collecting water for village life, searching for grass and water for livestock, and collecting plants for medicinal care.

The weather pattern during the research study brought the occurrence of rain and cold and an increase in mosquito activity. Because of their predominately outdoor living, the Maasai reported that, during this season, they were more frequently bit by mosquitoes. Universally spoken, residents of the area held the view that their environment was ultimately controlled by Enkai [God], and not by them.

Cultural and Social Structure Dimensions

Traditional greetings, offered with the correct etiquette, are always the initial act to show respect toward community members. The physical and verbal acts of greeting depend upon the age of each greeter. Persons of the same age use only words. Salutations are from men to women or women to women; the greeter speaks first, followed by a response from the one greeted. “*Supa*” [greetings] (by the greeter) and the response, “*apa*” [greetings back to you], is the usual greeting exchange between men, and is also acceptable between women, and men and women. A deeper, insider salutation between women or from men to women is “*taquenya*” [woman], and the response from the woman is “*iko*.” [greetings back to you].

Each member of the Maasai community had a responsibility to the daily well-being of self, family, village or to the community as a whole. Even a child, at age of 3 or 4, is responsible for daily tasks, and was observed washing clothes or dishes, watching over a sibling while the mother was working, collecting firewood nearby the village, or sweeping the floor.

Informants alluded to the notion that cultural differences occur within the same nationality and often complicate care. Informants reported that regional and/or tribal differences among Kenyan nationals impeded respect and trust of malaria care practices. It was observed by the researcher and also confirmed by key and general informants that professional HCP often did not show respect to indigenous Maasai persons.

Ceremonies and Cultural Lifeways

The lifeways of the Maasai communities was inextricably intertwined with their environmental surroundings. The women built homes with wood and soil. The location of the Maasai villages was in relation to resources available in the environment to sustain life: access to water for both human and livestock use and in relation to grass for grazing of livestock. Their traditional medicines were resourced from plants. The daily chores began in the light from the sunrise: lighting the fire to boil water for tea and porridge and milking the livestock. The chores continued past sunset with the milking of livestock, bathing of children, and cooking an evening meal.

Maasailand was full of evidence that traditional ceremonies remain a part of life. Ceremonies in the Maasai culture are often determined by age sets. Circumcision remains an important rite of passage in the Maasai lifeways. This act signifies a boy moving to manhood. One afternoon, women in a village were dressing in their best *shukas* [cloth coverings] and adorning themselves with many layers of beadwork upon their necks, arms, and ankles. They were preparing to attend a circumcision ceremony for a 12-year-old-boy. He had been circumcised the previous day and friends in the surrounding Maasai villages were invited come to his village to celebrate his passage from boyhood to manhood and the warrior status. One woman carried a gift to share with the mother of the child; a gourd filled with fresh milk from her best cow.

Moran [warriors], who are males between the ages of 12 to 15 and 30 to 35, were seen walking in groups on the road, in the bush, and at market day. This many-year passage includes periods of time when the warriors live in a separate village from the rest of the community and learn the ways of the Maasai. These young men eat

together, learn about names and uses of herbs, visit area villages and begin the search for a wife. They continually maintain their image and strong physique through traditional dress, body art using *ocre* [red earth] and hair design, eating meat, and attending orpul. The researcher observed the sacred act of braiding one another's hair, as three young men prepared for public appearance as moran.

Although women do not have specific age sets, they do have seasons of life that are determined by age, such as childhood, available for marriage, married, childbearing, and a respected old woman. Females in each age set were greeted with a specific word acknowledging their age, such as *entito* [little girl] or *yeiyo* [a woman who had older children but was not yet a very old]. Several informants acknowledged that female circumcision still occurs in some areas of Maasailand, but some changes were occurring in this requirement for women. Several informants spoke of an alternative ceremony where there is a symbolic cutting using words and song of traditional Maasai words, but the actual cut does not occur. Other informants stated that, if a girl goes to school, she can negotiate to delay circumcision and then often chooses to refuse this rite of passage when she becomes older.

One wedding, labeled a Christian marriage ceremony, took place during the time period of this study. The bride and groom were both Maasai and had both graduated from college. One set of parents dressed in full traditional Maasai dress. The other set dressed in western dress and were adorned with minimal beadwork. The bride wore a white wedding gown and the groom wore a suit and traditional beadwork that draped over his shoulders and chest. In attendance were over 600 invited guests. The ceremony took place in an outdoor area. Five large white tents had been erected for the

occasion and truckloads of plastic white chairs were set up. The day long event included: a parade of cars covered in flower arrangements; women dancing and singing as the bride and groom entered into the center of the ceremony; traditional Maasai dancing and songs; church hymns; three sermons; prayers; presentation of gifts; and food for all.

Herbal care was a common care act for many illnesses, such as worms, stomach problems, and skin rashes. Trees, shrubs, herbs, and ferns, growing around the camp where the researcher resided during the study, had been planted by the village elder specifically for use as medicinal care to treat a variety of illnesses. Some had been transplanted from nearby the village and others had been collected in the forests of Mount Kilimanjaro or the Chulu Hills. The elder proudly shared his knowledge of all the plants and their uses and offered to prepare medicinal care for the researcher when she had a stomachache. Some plants, such as the aloe varieties, were resourced using the plant juice or the succulent arms. Other plant parts used included the roots, the bark, or the leaves. The elder also shared his knowledge of the use of all the trees in the surrounding area. A few of the plants were noted to be poison, but most had a specific medicinal use.

Beadwork is a traditional lifeway still practiced, mostly by women, in all of the villages visited. During one interview, it was obvious the informant had been bead working prior to the visit. The low, wooden table positioned in front of the informant and the researcher was dotted with small red beads. During the interview, the informant was observed picking each one up and placing in a small plastic container. Each bead was precious.

At another village upon conclusion of an interview, the daughter of the informant brought out her current beadwork project (see Figure 6). This was both to get back to work and also to hopefully entice the guests toward a purchase. The work was recognized as that of an *asdai isaen*, a master bead worker, and both the researcher and an interpreter commissioned the making of a set of necklaces. The young mother was overjoyed and shared that it was her responsibility to provide the school fees for her children and this was her way of earning those funds.



Figure 6. Traditional Maasai Beadwork. The making (left) and wearing (right) of traditional Maasai beadwork. Note color and pattern designs unique to the Maasai tribe.

Beadwork was a symbol of beauty, tradition, and wealth. Each Maasai informant wore several items made from beads. Beadwork was seen in numerous forms: simple and intricate necklaces, earrings, and bracelets; bands worn around the head and waist; and beads sewn in decorative patterns onto fabrics, leather, or dried gourds. The beads and other supplies for the craft were costly; therefore, the amount of beadwork that personally adorned an individual was a representation of their wealth.

Another expression of cultural lifeways was the willingness of the Maasai to share their malaria care knowledge through word or art. A Maasai man came to the researcher's camp with his carving knife and the appropriate woods he had gathered in the forest. He then demonstrated how to make the tool, an *olkipire* [*stirrer*], used for mixing porridge and medicinal soups. He also instructed on the proper use of the tool. The man deeply desired that the knowledge of the tool and its use were clearly understood.

Education. Both formal education and traditional knowledge are valued among the Maasai. Some children are chosen to go to school. This choice may depend upon the financial ability of the family, as all formal schooling is fee based. Some children request to be school educated and some request to maintain the traditional customs. Some children may be seen as having a potential to excel and assist the family with formal knowledge, such as business skills in math or fluency in English. Even children who go away to boarding school are expected to remember their traditional roots. In a nearby village, a 12-year-old boy was picked up for the school break by his father and, prior to returning him home to see his mother and siblings, was first left in a remote location to herd the livestock for two weeks. His father shared that it was important for

his son to receive an excellent school education, however he “needed not to forget the traditional ways and who he was as a Maasai.”

Technology. Approximately half of the informant villages had access to a radio, usually one radio shared by all members. Two Maasai radio stations are broadcast. Except for the very old, most Maasai had a mobile phone. Women often wore a pouch around their neck to hold their phone. Men slipped the phone inside their belts. Although most informants owned a phone, those who did not had access to one in the community. One informant village had solar power; all others had no solar or electric power.

Religious. Numerous buildings with crosses on the roof were seen throughout the study area. Informants and guides confirmed that these structures were churches. They also stated many Maasai, particularly women and children, go to church.

Kinship. Families held many different forms: sometimes blood related, sometimes determined by marriage, and always representative of offering shelter to anyone in need. Usually, many family members lived together in a village setting. The term village has several meanings. Sometimes a village contains only one home, but ordinarily there are many homes in one village. Often several villages are combined to create a larger community setting, yet still referred to as a village. A village may house a husband, wife and children only, or it may include one husband with several wives and many children, orphans and also house extended members such as grandparents or in-laws or others in need, as well as livestock (see Figure 7). It is expected that all persons are cared for, including orphans, with the basics of life. These basics include clothing, food, an inside spot to sleep, an expectation to participate in daily chores, and often

includes education for children at a nearby school. At one informant's village, several in the community specifically pointed out an orphan among their children and stated that he had been "given to us to care for and he is number one in his class." Interestingly, this was one of the poorest villages visited, yet the members were proud that they were providing for an extra person and that he flourished under their care.



Figure 7. Members of a Maasai village. The picture on the left represents related and extended members of a village family. The right photo captures a single family unit.

Themes

Analysis, synthesis, and interpretation of the data related to the purposes, DOI, and research questions specific for this study led to four themes. The discovery of universal and diverse themes and recurrent care patterns describe the meanings, expressions, and practices of malaria care among the Maasai. All themes and care

patterns of this study tended toward universality; however, relevant characteristics of diverse care patterns within each theme will be noted. The themes and patterns are fully supported by descriptive data that illustrate the key and general informants' worldview, cultural and social structure, environmental context, language, ethnohistory, traditional generic care practices, and professional care-cure practices. The four themes discovered were:

- Theme 1: Malaria care is a response by the entire Maasai community to promote community well-being.
- Theme 2: Enkai, as creator, is in ultimate control of the cause and cure and is resourced in malaria care.
- Theme 3: Malaria care is a planned sequence of traditional, spiritual, and professional care/cure practices.
- Theme 4: The Maasai community is resolute in responding to the malaria illness.

The following is an in-depth description of the four themes.

Theme 1: Malaria Care is a Response by the Entire Maasai Community to Promote Community Well-being

Malaria care is a response by each member of the Maasai community to an expected illness in their environmental context. Elements from the environment are attributed to the cause and to the cure of malaria. Response to the malaria illness requires the efforts of all to maintain the well-being of the community. In the cultural and social structure of the Maasai, the well-being of each person is, in essence, a reflection of the well-being of the whole community, and vice versa. For example, an individual was asked, "How are you?" The response was, "'We' are not well; my wife's mother is

sick.” For malaria, care includes responsibilities of each member of the community: men, women, children, old ones, and even the sick.

Because of the harshness of the living environment in Maasailand, the well-being of the community is dependent upon the investment of each member in daily tasks. In each of the villages visited by the researcher, each member of the Maasai community was observed having a responsibility to the daily well-being of self, family, village, and to the community as a whole.

Universal and diverse patterns from the data support theme one. The universal patterns include: recognize the environment as cause and cure of malaria; understanding of and familiarity with the malaria disease; and response as community in malaria care. Pattern diversity occurred in thoughts toward the exact environmental cause of malaria, the frequency of malaria occurrence, and the acts of care offered to those who are not yet sick.

Recognize the environment as cause and cure of malaria. A universal pattern from all informants was that elements within the environment were either attributed to or related to the cause of malaria. There was, however, a vast difference within the responses as to the exact cause. The most common responses to the cause of malaria included rain, green grass, mosquitoes, the specific bite of the mosquito, God, cold weather, flowing water, and sunset or evening. The following four descriptors are representative of an elderly woman and man, and a young woman and man: “When it rains, the green land comes and this brings mosquitoes. The mosquitoes bring malaria;” “There is no way to stop the mosquitoes from biting;” “The mosquito has malaria, especially when it rains;” “Malaria is especially a problem if it rains.”

A middle-aged mother reflected, “Mosquitoes come because of the green land. Enkai [God] brought the mosquitoes to the green land. Nobody else can do this. The green land is the breeding place.” A grandmother and a very young informant’s statements were similar: Malaria comes with “cold weather” and “the green vegetation, the green land. When it rains, the vegetation becomes green.” It was noted in the researcher’s field notes, that in mid-November upon her arrival, the rains began. The field notes and pictures documented the change that occurred during the two month study time period (see Figure 8).



Figure 8. Comparison of Dry to Rainy Season in Kimana Region of Maasailand.

The rains bring a cooler climate to this equatorial valley. Most informants described that malaria comes when there is rain, the air is cool, and the environment is green. The informants commented that malaria does not come immediately. It was observed that when the rain cycle begins, the land is not green, but very desert like and dry. After about 2 weeks, the grass begins to appear. And within the next 2 weeks after that, the ground was a beautiful fresh green. This entire process was witnessed during

the research timeline. The day of arrival in Maasailand was the end of the first week of the rains. After 1 more week of daily rain, the green tips of the grasses and the fresh tips on the bushes appeared. It was a brownish red color as far as one could see when she first arrived, and but it became a beautiful glaze of green. Then, the first baby mosquito was seen in the evening.

Informants were eager to share of their malaria knowledge. Pointing past the edge of the village fence toward a water source, one informant stated, “When you live near the water, you are more likely to get malaria. The streams are breeding places for mosquitoes.” Another Maasai elder in a remote village shared that “the mosquito bites you and malaria gets into your body. We know this because we have realized this for ourselves.”

The time of day was also relevant in the understanding of malaria. One mom who lived in the plains described that “in the evening when the sunsets, all the mosquitoes come.” A grandmother, comparing malaria with her daily tasks, shared that “the mosquito bites before we light the fire at night, not during the day.” One young lady, who had just completed high school, stated, “Malaria is widespread and caused by the long grass and stagnant water that is left after the rain. It is caused by a parasite that is spread by a female mosquito. I learned this in science and biology class.” A general informant spoke with great disgust about the female mosquito that carries malaria and stated, “She is a bad lady!”

There were also causes of malaria that were infrequently mentioned. Standing water was attributed to malaria because “the water is not flowing.” Also, after the drinking of contaminated “swamp water, we have malaria.” Two informants added

“malaria is from rain and air.” Two informants took opposing spiritual stances to the cause of malaria. One stated: “Only the devil can bring sickness, not God.” The other, an elderly lady, also emphasized the daily presence of malaria throughout her life: “The wrath of God brings malaria. Every morning and evening hours I am telling God for malaria to disappear.”

When symptoms were recognized, the environment, attributed to the cause, was then resourced as cure. *Environment as cure* was discovered as a substantial pattern of generic/traditional care. This pattern is simply acknowledged here in relation to the environment as both cause and cure of malaria and will be addressed fully within theme three.

Understanding of and familiarity with the malaria disease.

The familiarity of the Maasai with the malaria illness was reflected in their in-depth description of the disease and their need for an immediate care response. The understanding of and familiarity with the malaria disease included: symptom recognition, expected cycle of symptoms, malaria as a predominant health issue, names for malaria, and types of mosquitoes and their relevance to severity and outcomes of the illness.

Symptom recognition and expected cycle of symptoms. Informants recognized multiple symptoms as confirmation of malaria. The researcher’s initial interview request to an informant was to tell any information they would like to share about malaria. Consistently, the informant’s initial response was a description of the symptoms of someone with malaria. One informant summarized the stories told by many, “In the morning you are ok, but by night you feel...you start shaking, headache, whole body feels very hot. So you say you are very sick; I have malaria.” Others stated:

“I learned about malaria for myself. I have that headache and I know. It comes quickly;”
 “Malaria looks different from any other disease.”

The interpreters confirmed that most every informant used the same two specific words to describe malaria. First, the informants shared that the concept that malaria always starts out as cold, “*olnairobi*.” Then the informants used the term “*irmotiok*.” Conceptually, the term *irmotiok* was interpreted as meaning “changing a *sufuria*” [a cooking pot]. The explanation of this idea is that “two *sufurias* look alike, but when switched on the fire, will actually have something different inside. This summarizes the malaria disease: it is making me to change.” This was an agreement with informants descriptions of malaria symptoms, that “sometimes the same person is cold and shivering or changes to be hot with fever; sometimes the patient feels good or changes to feel worse.”

A young man, a middle aged woman, and an old man all described malaria symptoms the following ways: “The whole part of the body is aching, especially legs, head, and stomach;” “With malaria, your joints, legs, back, and head ache;” “The first day, [you] feel cold. You don’t feel hot and you have no appetite. You start sneezing, and vomit after you eat. You say, ‘I am sick.’ The patient feels cold, but when you touch the body, he is hot.” “First step to malaria: body gets hot, heart starts pumping abnormally, and the breathing system is not normal.” Other symptoms referenced the growing weakness of the patient. “You have no appetite, but you keep drinking water,” and “With malaria, you become slim.” One young informant stated, “Malaria is in the whole body, including the blood.” Two other young informants stated that malaria is in the blood, but affects the whole person.”

Five informants described a unique feature seen only in malaria was that “when you vomit green water, you know you have malaria.” As they described the vomit color, two key informants pointed to a color in the interview environment to specifically distinguish the color: one pointed to a picture of a green apple on a plastic mat that covered the table, and another pointed to a green plant growing in the bush nearby.

The symptoms of a child’s illness were descriptive. One young mom quietly stated, “If a child cannot talk, they have malaria.” Another informant said malaria in the child “begins with shaking and he becomes very hot. Their heart starts pumping. The child starts saying ‘um, um, um’ with the high fever.” Another mom reported that “a person is very hot – you cannot be near because they will burn even you.”

Names for malaria. The names for malaria within the Maa language offer great insight into Maasai informants understanding of malaria. Each name for malaria given by an informant was a Maa word that expressed an aspect of the cause or symptoms of the illness. Three terms for malaria were used by the informants. “*Enk-agang’ani*” was the term used by all Maasai informants to label the malaria illness. The interpreter noted that this is the “same word used for fever and for mosquito” in the Maa language (Mol, 1972). “*Nandidu*,” also defined by the interpreter as the same word for the needle used in the traditional art of beadwork, is a term for malaria because “the mosquito’s mouth is sharp like a needle when she bites you.” As an elderly informant described this name, she pinched her arm as if the mosquito were pricking her. “*Entimiru*” was the third word used for malaria by two elderly informants, a man and a woman. They both described this term as a “deep Maasai word” that means “something that chases you in

evening hours, like the wind, and also causes you to shake and be cold.” Several informants clarified that the term malaria is “the English word, not Maa.”

Types of mosquitoes. Informants noted two types of mosquitoes and these were also associated with specific types of malaria illness. The severity of illness was also attributed to the geographic location, where the malaria was contracted, and also related to the type of mosquito that inhabited that area.

There is a nursery one and one with tall legs. Both the children and mother mosquitoes all have mosquitoes. The mosquito is very poisonous. It bites you.

The blood comes out and transmits to your blood. Then you get malaria. The big one bites you and goes deeply inside you. This one is more dangerous. After it bites, you become sick. The wings look like a fly.

Other informants agreed, stating there are “two types. The small one bites you and you may get a severe headache and go mad. The big mosquito, like a fly, bites humans and brings malaria.” Five different key informants told a story of a serious malaria outbreak “a few years ago. There was a small mosquito that caused people to go mad.” A general informant confirmed “the people there suffered greatly from a malaria outbreak, going crazy.”

Response as community in malaria care. The understanding of the disease included a confidence in knowing how to respond when the symptoms were experienced personally or observed in another. When symptoms were recognized, care could begin and would be immediate. Informants shared that the community is responsible to be prepared to offer malaria care. They described that the community response includes knowledge of the disease and an understanding that “we have grown

up with the symptoms. That is how we know” how to give malaria care. There was also the expectation that the sick would accept acts of care and would ultimately survive.

Many informants addressed the reality that death is a potential outcome, even with malaria care. Several informants shared “there are not many deaths; most get better from the herbs.” They also clarified that “little children and old men with weak bodies usually die from malaria, but not the moran [strong young warriors].” Another informant gave an example of what might happen if immediate care was not provided. She expressively shared, “If you don’t get treatment you stay like this (she put her arms straight out, rolled her eyes back in her head, made her mouth wrinkle up, and became very still) ... and die.” Her dramatic reenactment drew laughter from the informant, the researcher, and the translators. By the manner in which she offered this information, the informant clearly meant it to be a satire, making light of the greater issue of death in malaria.

No proverbs were discovered that related specifically to malaria care. However, several women shared a general proverb that exemplified the importance of community care and the reality of death and malaria: “Do not discriminate between all the children you are caring for, because maybe you will die and leave it to the other women in the village to care for your children.” Community members, especially elders and old women, have the responsibility to educate the young about malaria care. Malaria care involves the knowledge of “knowing what to do first.” In the traditional lifeways of sharing knowledge, one elderly Maasai woman remembered: “My parents taught me how to feed my children these herbs, so this disease can disappear.”

Members of the community have specific responsibilities in malaria care. Women may be responsible to care for those who are sick, such as serve herbs to the ill person, wash the patient, observe the sick person for signs of worsening illness or recovery, and make the recovery soup. An herbalist, who may be a man or a woman, has herbs for those who need them and cannot collect themselves (see Figure 9). An herbalist may sell their herbs in the village market or hold the belief that they should offer them at no cost because “I serve all the people around. I do not charge. An herbalist is someone who sells herbs like [the man in the market].” The informant who gave herbs at no cost did not call herself an herbalist. However, the Maasai in the area who resourced her herbs and her wisdom in their use called this humble lady an herbalist. If herbs are growing very near the village, the women may collect them for themselves.

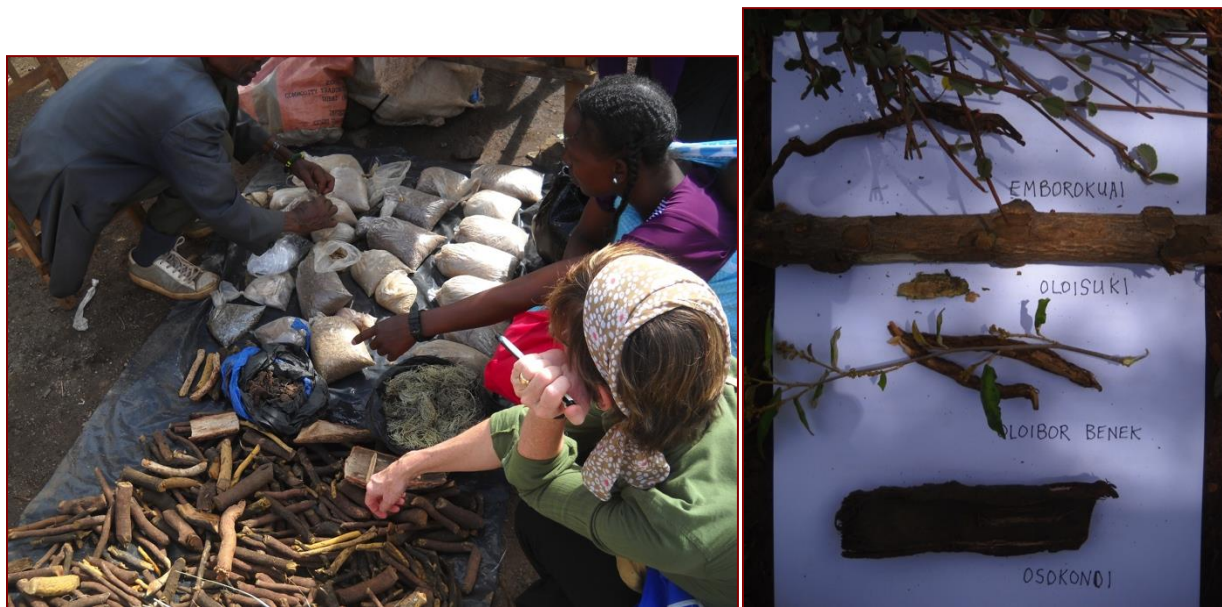


Figure 9. Herbs for Malaria Care. Herbs are available for purchase on market day (left) or freely given and often freshly gathered from a local herbalist (right).

Men in the community also have responsibilities, one of which is herb collection. They usually are responsible to collect herbs and both male and female informants agreed that this was “because they are strong, more than women.” The reason given was that “the roots are hard to dig out and the men are strong.” Also, “only men and warriors collect herbs, not woman, because the herbs are located a bit far/not near the village.” From field notes, the researcher observed that only men carry spears and walking sticks, not women. Also, it was reported by informants that the best herbs for severe malaria are located in the forest, too far for women to travel safely. The men make the medicinal soup as “they are the doctors to measure the correct amount of herb.” They determine which herb and dosage are needed, and the “men slaughter the goat or sheep for the soup” which follows the traditional lifeway of man working with the livestock. The researcher’s observations confirmed that only men slaughter the animals; although two female general informants added, “the women often butcher large pieces of meat brought to them and we also know what specific cuts of the meat are gender and age appropriate, even in malaria care.”

It was discovered that the community members who live nearby are the ones who care for those who are sick. The range of responses included “my children and husband” care for me, “the neighbor ladies care for me when I am sick,” and “my family nearby cares for me when I am sick. My sons live just nearby and my sons and their wives take care of me, until I get better.”

Just as caregivers have responsibilities during illness care, the sick are expected to accept care provided by community member. In the daily tasks of the Maasai community, when someone is ill, someone else must take over their tasks and also care

for the sick. In order to promote community well-being, it is the responsibility of the sick to recover quickly and relieve the burden of their absence. The expected acts from the ill included: “As an adult woman, when I use an herb, I have strength to vomit. A child is not strong enough.” Several other informants added that “children do not know how to vomit, so just give them fat from sheep and goats to cause diarrhea.” The responsibility of the sick was a continued theme among a male informant:

Only men give the herbs to men if they are sick. Men are very brave and strong; herbs are very strong and bitter. When sick with malaria, men tell me I must drink the bitter herbs. I must follow their rules. The men are more strong and persistent than the ladies.

It was important that the sick take herbs, no matter how bitter, and purge out illness.

Also, the caretakers were to make herbs less bitter, so that a child would take them.

A new concept among some in the community involved the responsibility to care for those who are not sick yet: to sleep covered. The act of sleeping covered was most frequently ascribed toward the purpose “to prevent the mosquitoes from biting” (and not connected to prevention of malaria). An elderly lady said,

I do not believe anyone can prevent malaria; cold weather causes malaria. But I believe the net can prevent mosquitoes from biting, so I use a net. Everyone in the village sleeps under nets, because no one wants to be bitten by mosquitoes.

A very old woman shared that “we do not have a net. I put the child that sleeps with me under a blanket so the mosquito does not bite her.” Three of the twenty villages visited during this study used nets consistently and all mothers and children were expected to use the nets at night to protect from biting mosquitoes.

Theme 2: Enkai, as Creator, is in Ultimate Control of the Cause and Cure of Malaria and is Resourced in Malaria Care

The Maasai worldview revolves around daily life of family, community well-being, and the creation in which they live. Universal patterns from the data analysis that led to this theme were: Enkai is Enkai; Enkai is creator and in control of the world; and Enkai is resourced as an act of malaria care.

Enkai is Enkai [God is God]. Enkai [God] was cited by name by most key and general informants. Key and general informants also confirmed that “Enkai is the same word for God used by traditional Maasai and Christian Maasai.” One Maasai elder clarified, “Enkai is Enkai. God is God. It is the same God.” Two general informant pastors confirmed that these statements emphasized the “traditional Maasai monotheistic belief in one God.” Their God was also described as being very near to them personally: “I have faith I am in God’s hands.” Two young moms, one key and one general informant, shared, “My faith is in my heart.” and “The thoughts which I have is that God will give me plans to work for God.”

Enkai is creator and in control of the world. Informants spoke of Enkai (God) as trusted creator who “gives the Maasai life, children, and the livestock.” Further, informants described Enkai as “creator” of the environment and Enkai as “creator of the rain, the mosquitoes, and the herbs.” One Maasai elder said,

We believe to pray to God in our hearts and for God to give us our daily bread.

We have faith and we pray to God to heal us. He is the only one to look after us and our relatives and families.

A mom shared, “God is good, so we don’t blame God” for malaria. Another grandmother said, “Only God can prevent malaria. We do not have anything to prevent malaria.” A young moran [warrior] thought deeply about his spiritual beliefs and spoke as a representative of his village area, “We pray, ‘God, give me strength to help one another.’ God is the only one who can help our relatives, people, families. Not the church, but God.” Two other elderly ladies shared: “God is the one who made us. We are all in one creation. We are all in His hands.” “I pray to God to help me. I believe in God.”

Enkai is resourced as an act of malaria care. Enkai, who is honored as all-knowing and giver of knowledge, was trusted in malaria care. “I pray to God to chase away malaria.” A young traditional Maasai man said, “I have faith that when somebody in my family gets sick, God can heal.” A young mom continued this idea,

I believe God can heal me when I become sick. The faith of God is important to us because only God can heal us when we get sick. God can heal people at hospitals; that is part of the faith.

Historically, lifeways of the Maasai used a spiritual healer, the *liabon*. A departure discovered was that the liabon, the traditional healer, is no longer a trustworthy authority on malaria care. “We do not believe the liabon can heal. Only God can heal from malaria.” “We go to elders who know the herbs. We do not go to the liabon.” These thoughts were confirmed by the general informant’s reports: “The true liabon in the past were good. Today the liabon’s work is just a business,” and “They cheat people and charge too much money. Also, we now acknowledge that they do not have any spiritual power.” One general informant was still concerned that the liabon could put a curse on

persons that did not follow their traditional lifeways and warned this curse could be in the form of malaria disease. A Maasai general informant confirmed that “the liabon is accessible, but uses prophesy to treat illness and relates illness to life issues.”

Theme 3: Malaria Care is a Planned Sequence of Traditional, Spiritual, and Professional Care/Cure Practices

The malaria illness is both anticipated and accepted as part of life. The informants described malaria care as a response to an environmental cycle that is known to cause malaria and leads to a cycle of illness that requires a response. Maasai have a plan of malaria care: a sequence of care/cure practices within the Maasai community for care during illness, recovery and prevention. The malaria care/cure practices involved traditional, spiritual, and/or professional care.

Within the sequence for malaria care among the Maasai informants, generic care was the predominating care/cure practice. The acts of generic care involved traditional lifeways to promote malaria care. These included use of traditional herbal care and the many facets of this practice and the spiritual care act of prayer. Most informants shared that professional care may also be resourced, but not as the first act of care. Financing professional care involved use of personal resources, such as work outside the village or sale of livestock. Herbal care is often used in accompaniment with professional care or used again for continued care if professional care is not deemed successful. All 16 key informants shared that herbal care was always used in the act of recovery care.

Both the physical and the spiritual environments are resourced in malaria care. Patterns synthesized from the data, which support this theme are: traditional care/cure practices are the first care act; spiritual care/cure practices are a co-care act;

professional care/cure practices are an emerging care act; and the Maasai environmental context influences facilitators and barriers to malaria care/cure practices.

Traditional care/cure practices are the first care act. Generic malaria care is a sequence of care that is familiar within the traditional Maasai lifeways and is in response to the recognized symptoms of the illness. The first care act in malaria care usually takes the form of traditional herbs as care. Traditional care/cure practices focused mainly on elements within the environment as cure. Herbal care was described as a complex sequence of gathering, preparing, measuring, and administering of herbs as medicine. It was discovered that herbs, in some form, were used in all layers of malaria care: illness, recovery, and prevention.

Herbal care. The sequence of malaria care was concisely outlined by one informant: “We go to the herbs. Drink these herbs. Vomit out malaria and it disappears away.” The use of herbs was consistently described as the most important act in malaria care. Key informants were from five specific areas and 11 different villages within the study region. Fourteen of the sixteen key informants, who represented all age groups and educational levels, stated that, “when we know a person has malaria, we use herbs.” The other two key informants chose professional care as their first malaria care act.

Informants repeatedly stated that herbs from their environment held multiple uses: to cause purging of the sickness, to aid in recovery, and to prevent occurrence. Herbs were used to purge the illness from the body through vomiting, diarrhea, and/or sweating. For adults and children, the initial response to this first act of care is, “You have to vomit with herbs first.” An older man shared: “We believe the mosquito puts

poison in the stomach, so we vomit and diarrhea to get rid of malaria. No other disease has the green color when you vomit.”

One Maasai elder shared that “herbs are given by Enkai to protect and heal in all illnesses, including for malaria care.” Key and general informants affirmed that herbs in their environment are “available nearby” and “affordable” and “they usually work.” A majority of the informants were confident that using this resource from their environment in this manner is a cure for malaria. “In our community, we treat malaria using roots of an herb,” and “After drinking the herb, and after vomiting out watery, greenish liquid, you feel the body relax and this is the sign the body is getting better.”

Herbal collection and preparation. Herb collection was usually done by men because “men are stronger than women and the roots are hard to dig out of the ground. We collect the herbs in forest far away where there are wild animals, because it is not safe for women to go.” However, if the herbs grew nearby the village, women would sometimes collect the herbs themselves. The Maasai shared their knowledge of herbal care: how to collect, the names how to prepare, and how to store the herbs. During an interview, one informant stood up and left without any explanation. She walked out into the bush and began digging up a root of an herb used to treat malaria. She showed how to dig up the roots from under a very large bush. This lady was quite old and the roots were very tough to extract from the ground. After describing how to prepare the herbs, she handed the researcher a large knife and had her practice scraping the inner bark that would be used in a soup. Then the lady offered herbs she had collected and dried to the researcher to be taken home.

The informants also described how to use specific herbs and dosages to treat different ages and life stages, especially for pregnant women and children. The potency of the herb, often determined by a bitter or strong taste, was an important concept in the safety of herbal care. The stronger/bitter herbs were for adults and moran; the weaker herbs for pregnant women and children under 10. The measurements of herbs for appropriate medicinal uses were shared.

Recipes for medicinal and recovery soups were repeatedly shared by each key informant, as this was relayed as an important concept of herbal care safety. Men and women emphasized the importance of knowing how to treat people of specific ages with which herbs and which part of the herb to use. "Remove the bark of the herb and then boil in water. Cool. Sieve first and give two cups to the patient. Then the patient starts vomiting. This herb is not for infants, but is ok for small children." When asked what age of child was old enough for this treatment, the informant looked around the village and then pointed to a young girl, about 10 years old. Another recipe was: "Use the roots of the herb Oremit. Boil bark in water, not the solid inside piece. You can put with milk or fat to dilute. This one is not bitter and can be given to children or pregnant women." A slightly different recipe was also shared:

For a child: To treat on the first day, you mix the herb, Oremit, with soda ash and butter and give to the older child. This causes vomiting. On the second day, give the herb with butter only. This will only cause diarrhea" because the child is not strong enough to vomit again.

During discussions about herbs, key and general informants reported that it is "diverse as to which herb to use" for which disease, so it was important to "know the

reason for use” and which “specific part of each herb to use.” It was also discovered that different areas within the study region used different herbs. Some herbs used for malaria care had a more generalized use, while others were only mentioned by one informant.

Of the key informants, 14 of the 16 named specific herbs that they used for malaria care. The responses varied, and a total of 13 herbs were named as used in malaria care. Many herb names were consistently mentioned among all Kimana areas where interviews took place. Each informant usually listed use of 1-3 herbs in malaria care, but up to 6 herbs for use with malaria was mentioned by a single informant. The following is a list associating the number of informants to use of the specific type of herb: 9 Oremi, 8 Emokotan, 4 Oliasai, 2 Oloisuki, 2 Olchurai, and 2 Olaihor Benek. Seven other plant names were mentioned, but by only one informant. Also, many of the herbs were used across the entire region and several male informants stated, “If the herbs are not near our village, I travel to the mountain forests and gather them.” The plants were always referred to as an “herb.” When the informant described or took the researcher into the bush to show the actual plant, some were fresh leaves from a bush, some dried bark from a tree, and others were a root, either freshly dug or in a dried form.

Most plants used for malaria herbal care had this as their single use purpose; however, a few herbs did have multiple uses, for example Malbaine and Emokotan. It was reported by key and confirmed by general informants that Malbaine is a common herb used in malaria care, but is also “useful in 47 illnesses.” This herb was not initially mentioned by key informants as used in malaria care. However, after 5 general

informants named Malbaine as useful for malaria, follow-up interviews revealed that this herb was used, but not as a first choice in malaria care. Emokotan was suggested to have two uses. This herb received the largest diversity of comments in relation to its use in malaria care. The comments of use were related to safety concerns. “Use Emokotan? No! It will abort the child in a pregnant woman. For pregnant women, only use Oliasai or Ormorsoit” for malaria care. One Maasai general informant said that,

some herbs harm pregnant women or unborn baby or nursing baby. Do not give bitter herbs to them. Emokotan is no longer used. This herb affects the blood. Because many people have taken tablets and now have chemicals in their bodies, they are now allergic to Emokotan. It makes them swell up.

For malaria care in children: “Children do not know how to vomit and the herbs are too strong. So just give fat from sheep and goats to cause diarrhea.” A young unmarried female said, “In pregnant women, you do not want to harm the baby in the stomach, so add herbs to tea or fat to dilute their strongness.”

Informants freely shared skills necessary for malaria care. The researcher was shown how to mix the herbs using a special handmade stick, shown how to collect the herbs, was invited to join an elder for gathering herbs in the forest at a later date, and was brought fresh and dried herbs and taught their names and uses. The informants showed the researcher how to cut the bark off a tree without harming the tree, how to scrape the inside of the bark or the outside of the bark-depending upon the herb, how to dig a root out of the ground, which tool to use for the gathering process as opposed to the preparing process, how to dry the herbs, how to store the herbs, the recipe for the

medicinal versus the recovery soups, the importance of correct dosage for each age group, and the making of the special tool used to properly mix the herbs.

One general informant health worker, in charge of a small town clinic, welcomed the researcher into his patient-care room. This small, dark space had a single wooden table that held an array of medical supplies, including those needed for assessment of malaria. The health worker described in detail the process of assessment and care for patients who presented with clinical symptoms of malaria. He demonstrated how to use the Rapid Diagnostic Test (RDT). He then gifted the researcher with a new RDT and a packet of Artemisinin Combination Therapy (ACT), the first-line treatment for illness. This care act was offered so the researcher would be prepared if she became ill with malaria.

Herbal care in illness care. Herbal care is the first act of physical care offered to a person who showed symptoms of malaria. Herbs are “used to purge malaria from the body.” Herbs as the first medicinal care act is an involved process.

Different herbal care “is required for infants, children, adults, young men, and pregnant women.” This was described as dependent upon several factors, but usually referred to the perceived “strength of the person,” particularly their strength to tolerate vomiting. Great concern for the safety of the unborn child and the pregnant mother were also a factor in the strength of the herb used for the purging of malaria from the body. Two informants shared that the fever and the practice of sweating using herbs assists in malaria care because “the more you are hot, the more you sweat, and the malaria comes out.” For the act of sweating, informants shared these instructions: “Cover patient with a blanket. Make a vapor with herbs by steam. Use the asparagus fern and tea leaves. Sweat out malaria.”

Most informant comments concurred on the topic of malaria care for a child: that it was not the same as for an adult and that professional care was often the best care act. An elderly lady, traditionally dressed and who had not been formally educated, said, “For a child, you give the herb only once, then you go to the hospital immediately. If the medicine does not work, go back to the hospital for a different medicine.” Diversity was discovered on this topic. One young man who lived far away from a town, but also lived in a village area that reported a lot of child deaths related to malaria, stated that the “child’s blood is very weak, so they cannot take herbs. Definitely take a child to the clinic.” Two young women key informants, shared they would choose to go to the clinic first. These ladies had been to school and learned about malaria in science class. However, other informants who had been to school continue to choose herbal care as the first malaria care act.

Herbal care in recovery care. For recovery and healing after the symptoms of the malaria illness have subsided, there was only one malaria care act reported. The universal care pattern of recovery care was the “preparation and giving of a recovery soup,” also interchangeably called a “porridge.” The purpose of the soup was “to regain strength and weight.” All Maasai, adults and children of both genders, who had suffered from malaria, had this soup prepared for them.

“To recover: soup from a slaughtered goat is given after one begins to get well.

Boil meat with water. Add fat from the animal. Then put bark of the Olchurai tree in soup. You can also add the branches. Then froth with the olkipire [mixing stick]. You can give this soup to all ages.”

A recipe from an elderly grandmother was similar:

“To recover from malaria: slaughter a goat and give soup to regain strength because the body is very weak. Herbs used in the soup: Olibor Benek and Olchorai. Boil these together in water. Boil separately the meat in water. After both have become cold, mix using the olkipire.”

Another grandmother cited that for “recovery, first I pray for the patient, that God will heal and give strength. Then I slaughter a goat and give soup, so the body can move from weak to strong” (see Figure 10). Several elderly informants, who “had cared for many persons with malaria,” told that the full recovery would take “a long period, about one month.”

Herbal care for preventative care. Initially when informants were asked about any methods for prevention of malaria, none mentioned herbs. However, during the interview several informants spoke of herbs as preventing malaria. A very old Maasai lady promoted the use of herbs in malaria care: “If you drink herbs all the time, you will not get malaria.” A Maasai general informant male also stated that “in the old days everyone used herbs, so we did not have malaria. Now, people do not drink herbs every day, so we have malaria.”



Figure 10. Slaughter of Goat for Strength Soup. An animal from the family livestock is slaughtered (left) to make strength soup (right). Also note the *olkipire* [stirrer] propped in the corner (far right).

Spiritual care/cure practices are a co-care act. The first malaria care medicinal act was usually herbal care. A spiritual care act, in the form of prayer, was a co-care act with herbal care. Enkai, as creator of the environment, rain, and mosquitoes, is requested through prayer to protect and heal. The content of prayers was freely shared with the researcher and included prayers for protection prior to malaria illness because “only God can prevent malaria.” God is requested to protect from the occurrence of malaria and to heal when malaria occurs. Informants shared that

prayer is a co-care act in throughout malaria care. One of the oldest women interviewed said, “I pray to God to heal me first, then I drink the medicine.” A general informant added, “We have prayed that God will heal the patient while he drinks the medicine.” Mothers often shared that “when my child gets sick, I start with prayer.”

Acts of prayer extended beyond the sick to the researcher, so she could offer malaria care. The field notes recorded prayers offered for the researcher to return with information and help in malaria care. One young moran from a remote village concluded the interview by saying, “We are praying you [the researcher] will help us because malaria is high; all ages die from malaria.” Other interviews concluded with similar statements: “We are praying for you [researcher] to help us. We wait for blessings from God.” “God touched you to come here. May God be with you and may you succeed in what you do for malaria.” “We will pray for you, that you will come back to help.” The highest form of blessing in Maasailand is bestowed by the oldest *kokoo* [grandmother/matriarch] of a village. In addition to the above prayers expressed to the researcher, the researcher was honored by this act on two occasions. A quote from the field notes best describes this act.

Although in our Western culture, being spit upon is an insult, within the Maasai culture it is a highest blessing. I had the honor of being spit upon two times last week. The first time was on a follow-up visit to the mid-wife. I delivered to her the pictures I had taken during our first interview, and also asked some follow-up questions. She said the pictures would be to her “like a radio (which she does not have), as when I am lonely they will keep me company. I will look at them and remember our time together.” She proceeded to go to her home (I could hear her

rummaging through things) and she returned with 3 necklaces which she had made, and she gifted them to me, placing each upon my neck. She then sat down beside me and spit on each of my hands and offered a blessing over me to Enkai [God].

Professional care/cure practices are an emerging care act. Professional care is a newer malaria care practice in Maasailand. One of the oldest Maasai informants remembered that “in older days, we didn’t give any medicines from the hospital, only the herbs. The person would have diarrhea and vomit and become better.” Professional care is resourced by some, and if used, is usually not chosen as the first act of care. Use of professional care may be influenced by multiple environmental factors: proximity of care/cure resources (accessibility), affordability, and availability of quality professional care and medicines, which may not be available even if accessible.

The terms hospital and clinic were used interchangeably by the informants to describe: large facilities with many buildings, smaller day clinics located in small shops in towns, and clinics in remote areas, centralized to be accessed by many Maasai villages. According to a general health care informant, the study region has government, private and faith-based clinics. This informant also referred to all care facilities as clinics, whether large facilities or small assessment sites. Therefore, because these terms were used interchangeably, this researcher will use the term hospital/clinic to represent all care facilities.

Both key and general informants attributed use of professional care by the Maasai as also influenced by ethnohistorical influences such as “mistrust of outsiders,” “lack of knowledge about professional care” practices, “non-care acts experienced from

professional care givers,” and “unfamiliarity with care practices such as use of tablets, injections, or drips.” “Herbs come from the forest/nature; injection comes from clinic.” Those who used professional malaria care spoke of the “use of ITN,” use of “tablets,” and attending the “clinic for assessment and correct diagnosis.” They described the need for accurate diagnosis, since “other illnesses may have similar symptoms to malaria.”

A majority of the key and general informants continued to label malaria as a predominant health issue in need of care, stating “Malaria is a problem for all people in both the towns and the traditional villages, especially during the rainy season.” Several informants clarified that “there is some malaria now, but in the old days there was even more.” In contrast, the general informant health workers consistently stated that the “malaria disease was currently not a frequent illness in the area.” Another health care worker emphasized:

This geographic area is regarded as a low malaria zone. Most positive cases come from Mombasa or Kisumu. Every facility has RDT and, only with a positive case, are drugs given. The microscopy showed a lot of malaria cases, however, with use of RDT the cases went down. Similar diseases include the flu, pneumonia (which also has coughing), typhoid fever – which does not have a confirmable test, difficult to test positively... but clinically, symptoms are still suspect as malaria.

A local health care worker clarified, “Clinically, we see 100-200 cases [per month] of malaria. However, now since using RDT, positive cases are only about an average of

10 each month, with less during dry season and more during rainy season. Now we only treat positive cases.” A general informant said,

Current statistics in Maasailand are unreliable, because most Maasai live in bush and do not utilize clinics or other professional health care services. Therefore they are not tested by RDT or microscopy for malaria disease. Yet in their daily living environment, they are exposed to mosquito bites.

Still another health care provider added that “mosquitoes are in the bush and if a Maasai gets bit there, they may get malaria but may not pass it on because it is the second bite that is the worst” in the spread of the disease. Another said malaria is not here in Kimana, it is in Lo Enkaganga, a spring near Sopa Lodge. They have malaria there.” Field documents noted this location was less than a 10 mile drive from Kimana.

There was variation in the actual use of nets. Few Maasai informants reported sleeping under a net the night before the interview. They often said they had used nets, but did not have one at the current time. A Maasai grandmother in one village showed the researcher that “we have nets over each bed.” In another village, a Maasai general informant also confirmed “the children sleep under a net for no malaria. Now with ITN, they are helping to decrease malaria.” A key informant shared, “We use nets so, in the evening when the mosquitoes come, you will not have malaria.” These informants took the researcher into the homes and showed that they had nets hung over all beds. A male key informant in a remote village showed the researcher that an ITN could be hung in a Maasai traditional home (see Figure 11).



Figure 11. Net Use in Traditional Maasai home. These photos illustrate how a net can successfully be hung for use inside a traditional Maasai stick construction home.

Of the 16 key informants, four were found to be currently using ITN, seven had used them in the past, and 5 had never used ITN. However, no informant said that they would not sleep under a net, only that ITNs were not available and/or affordable and that they got dirty too quickly in the homes with a fire. Male and female informants spoke that the hospital/clinic gave nets to pregnant women and those with young children.

The researcher was also invited to visit a Maasai mom and newborn. Upon arrival, the mother proudly offered the one-day-old infant to the researcher to hold. She shared how she was sleeping under a net (which was visibly hung to the side of the bed). She then presented a very special item for all to view, including a first viewing by the infant's grandmother. It was a fully enclosed, pop-up net "to protect my daughter during the day, when she is resting and I am working" (see Figure 12).



Figure 12. Net Usage by Maasai Mothers. A mother shows a net covering a bed that she and her three children sleep under (left). A new mother displays the net enclosure protecting her one-day-old daughter, who is napping inside (right).

Although the most common response to malaria prevention was that, “only God knows how to prevent malaria. We do not have that power,” there was one diverse response offered by a recent graduate of high school. This formally educated Maasai girl confidently stated a list of prevention measures for malaria, “One can take antimalarial drugs, spray insecticides in rooms, sleep under ITN, cut the grass around homes as the mosquito habitat is in the long grass, and drain stagnant water.”

The Maasai environmental context influences facilitators and barriers to malaria care/cure practices. There were a number of facilitators and barriers mentioned by the key and general informants that impacted the choice of malaria care/cure practices in Maasailand, particularly their use of professional practices. These included preventative care using ITN, geographic environment and location, expectation to use traditional care, knowledge of care options, and financial means.

Use of ITN. A practice for ITN use was facilitated by local clinics. Most male and female key and general informants reported that “pregnant women in the clinic are given free nets.” However, they also had a universal memory that there had been “no mass ITN distribution in this [research study] area by any government or NGO.” Barriers to ITN use were voiced by Maasai informants. One stated, “We have not money to buy a net.” Another shared, “If the net is used in a house with smoke [from the cooking with a wood fire], it lasts only 2 weeks.”

Geographic environment. The geographic environment of the Maasai village was a determinant for use of professional care. Elements in the geographic environment often created a barrier to care, such as a risk to personal safety, specifically related to danger of animals and “trying to cross a flooded river during the rainy season.” A middle-aged mother commented, “We cannot walk to the hospital because it is dangerous from wild animals and it is too far.” Even those key and general informants who lived near clinics reflected on the fact that “Maasai who live out in the bush cannot get immediate professional care because it is not safe to travel through the bush.” Pointing the opposite direction from my arrival, a Maasai elder explained that “in the dry season, we can walk through there [now a visible lake] and a clinic is not so far.”

Geographic location. Geographic location related to available transportation, adequate roads, and the practical availability of traditional versus professional care. Key informants from very rural villages, located 1-2 hours drive from a paved road, voiced concern about accessing care, relative to their geographic location: “Because the hospital is very far, there is a high rate of death in the area, mostly children;” “We have no transport. It takes 3 hours for a car to come;” and “If the rains have come, there is

the most malaria, but the transport vehicles cannot drive on the roads to our village.”

The researcher’s field notes reflected this phenomenon. As this study was conducted during a rainy season, follow-up visits to informants in these areas were not possible because “the bridge was washed away,” “the roads were impassable because of torrential rains and deep mud,” or “the rushing water inhibited access to a village, previously only accessible by foot, because the crossing of a stream was now impossible as it was a rushing river.”

One of the two key informants who did not use herbs as the first act of care was a young mom. She lived near a main paved road and stated, “We go to the hospital first because we have transport. This is the quicker means of care, as the doctor will decide which sickness the child has. I do not know what disease the child has.” A focus group of general informants who lived near a town said, “If we get sick in the night, we go in [to the clinic] the next morning.” Another mom, who lived an hour and a half drive from the nearest government clinic, commented that “I prefer the private hospital, because they have enough medicine and take serious measurements first, such as temperature, weight, to see from which disease the child is suffering.” This private hospital was about a 3 hour drive across a very rugged terrain. The practicality of the use of herbs first was that, because they are accessible in their environment, one can “go for yourself to get the herbs.” In one village, the informants reported, “We don’t have a hospital here. When we become sick [with malaria], we use Oremit [root herb] that grows nearby.”

Expectation, knowledge, and availability of care options. Another barrier to use of professional care was related to generic malaria care practices. It was explained that, within the traditional lifeways of the Maasai informants, they use traditional care

first. The following was offered as a matter-of-fact, no discussion statement, “In our village, we use herbs first.” Knowledge of malaria and care options was voiced as a determinant for care choice by both key and general informants. “When you go to the hospital, you can’t be well unless you also take the herbs with the tablets.” Another lady commented on the use of professional care: “Sometimes the tablets do not work, so we come home and take herbs. Then the patient gets better.”

Care givers were expected to know what types of care were necessary to treat various levels of illness. The severity of the illness determined the choice of care. “One type [of malaria] makes you mad in the head and herbs do not help. You must go to clinic for tablets and injection and drips for hydration. The other type makes you sneeze all the time, you do not loose appetite with this one and the herbs help.”

Gender, age, and stage of life were also factors in the most appropriate malaria care option. Most acknowledged that their care for a child who shows signs of malaria is to “give herbs first, then give medicine from hospital if there are no signs of improvement.” The time to wait, after noting malaria symptoms, but before taking a child to the hospital, ranged from “the next morning” to “after 7 days.” For adults, a similar understanding was voiced: “If you become worse, go to the hospital, but only after herbs.” For adults the minimum time frame to try the herbs first was “4 days.” A comment shared by two key informants and about half of the general informants was that one “must take a child to the hospital first. Do not use herbs first.”

Although a plan for malaria care was voiced by each informant, informants did not have medicinal care immediately available. One Maasai man’s plan was, if someone in the village had malaria, he would then “travel to the forest to collect the herbs.”

Another Maasai elder's comment agreed with this process: "When we know a person has malaria, we go to look for herbs in the forest." A Maasai general informant stated that, if she needs the herbs for malaria care, she "must go to the herbalist who lives a 30 minute walk away. If she does not have what I need, I must get them from the herbalist at the market." The researcher observed this market is held only one day a week. One mom of an infant shared her plan that, if her child had symptoms of malaria, she would "give the child paracetamol [acetaminophen]." She then added, "I would send someone to the shop to get it." As represented here, community support was again an important aspect of malaria care.

Financial means. Financial means, such as the cost of traditional care versus government care facilities versus private medicine settings was another factor in malaria care choices. Traditional herbal care was free from the forest or herbalist, or could be acquired at a minimal cost in the local market place. Both key and general informants agreed that government care facilities "cost less money but offer unreliable assessments and quality of medicine." Private medical settings offered the best professional care. They provided "trusted assessments" of the patient, offered the "best quality of drugs," and best "caring" atmosphere, but they were also the "most expensive."

A mom shared, the "government hospital is cheap, so people go there if they do not have much money. We always go to this hospital." A young Maasai man emphasized, "The government hospital is cheap, but their medicine is not strong. We sell a goat or cow to get money to go to the private hospital." A non-Maasai general informant confirmed:

Treatment is different at private and government hospitals. You definitely get better if you go to private. They [private] give all the medicines there and also they have different medicine. The government may send you to a chemist and the medicines may have expired. However, they are cheaper if you are not financially stable.

Although many important responsibilities of women in malaria care were previously discussed, another role of women is to pay for professional care. When questioned about how a mother would provide for the expense of taking a child to a hospital/clinic, they proudly responded with the following solutions: “I go and work. I fetch firewood and bring to another woman.” “I make the Maasai beadwork and sell at the local market place.” “I make a house for another lady and get paid.” “I wash clothes at a nearby camp for the workers.” “I sell milk each morning.” “I have a shop in my home and sell flour, oil, and other items to my neighbors.” Most women and men also responded, “We have to sell livestock to go to the hospital.” The decision to sell livestock had to be made by the men because they own all the cattle, sheep, and goats. One newly married, young mom answered,

I ask permission from my husband to sell a goat or cattle to get money, so I can take my child to the clinic. If he is far away working, I call him on his mobile. If I cannot contact him, my neighbors will help me and I will somehow repay them.

In addition, general informants confirmed that the selling of livestock was “not an immediate means to funds, as market day is only one day a week in each town.”

Theme 4: The Maasai Community is Resolute in Responding to the Malaria Illness

Key informants were resolute that, within the environmental context in which they live, malaria is an expected occurrence and their current care practices are a good plan. The Maasai did not express worry or fear about becoming ill. Yet, they were not content to live with the malaria illness if there is a way to prevent the disease. Informants universally voiced the desire to hear and learn more. Informants were also resolute that malaria care is their responsibility and there is limited help for malaria care in Maasailand. Three patterns support this theme: Maasai do not live in fear of the malaria illness; Maasai are curious to learn more about malaria care; and Maasai do not depend upon political or non-government organizations (NGO) support for malaria care.

Maasai do not live in fear of the malaria illness. The Maasai anticipate, expect, and do not live in fear or worry about becoming ill from or potential death from the malaria illness. The Maasai live in recognition that malaria care is a needed act in order for the sick to survive the illness. The community members are expected to know the signs and symptoms of malaria and to respond immediately.

Malaria was described as just “part of life.” The Maasai live with it, accept it, know what to do, and do it. One Maasai elder reflected, “There are mosquitoes. There is rain. There is malaria. God has provided herbs and the knowledge among Maasai of how to use the herbs to treat adults and children. No, we do not fear malaria.”

Informants said that environmental changes alerted them to the potential of the impending illness and, when malaria symptoms occurred, they were not surprised or worried. Several key informants, of varying ages, offered comments similar to the following quote: “One does not worry, because you will get malaria. But you drink the

herbal medicine and most will get better.” One young mother stated in a matter-of-fact manner, “I do not worry about my child getting malaria. My child will get malaria.”

When the concept of malaria prevention was approached, the key informant responses tended toward universality and centered on the concept that God is in control. A consistent outward expression from most key informants, when asked if there were ways to prevent malaria, was laughter and then comments were made, such as: “Only God can prevent malaria;” and “Malaria is too big of a problem for people or the government to control.”

Upon approach to the gate of one village, the Maasai elder met the researcher at the small opening in the acacia thorn fence. Blocking the entrance and before greeting her in Maa, he asked through a very large smile, “Can you [the researcher] kill all the mosquitoes in the environment, so there will be no more malaria in my community?” The field notes reflect that the researcher knew the answer she would give to this question would determine whether she would gain entrance for the planned interview with this wise informant. He was checking to learn for himself if she was foolish or worthy of his time and knowledge. With great relief, her answer of “no, but the cycle of illness between the mosquito and the Maasai can be stopped” greatly satisfied him. He gave the researcher’s hand a hardy shake, backed up, and welcomed her to enter his home for chai [tea with milk and sugar] and proceed with the interview.

Maasai are curious to learn more about malaria care. The Maasai were resolute in their approach to malaria care. They shared of a desire to fully care for a “patient” with malaria in their environmental context. They shared confidence in their current knowledge of malaria care: “We have grown up with the symptoms. That is how

we know.” Yet they expressed curiosity to learn more about future malaria care that would be safe, beneficial, and fit their way of life. One young moran [warrior] offered a poignant disclaimer, “We are interested to learn more, because nobody loves to be sick.”

The Maasai’s resolve included the acts to consult, to talk over, to seek information, and to ask for professional opinions. An elderly lady’s openness to new approaches to malaria care that would benefit the well-being of her community was expressed: “‘We’ have to follow [new information] and have faith.” Another informant affirmed, “Yes, ‘we’ are interested in learning more about malaria.”

Every key and general informant was curious about how to best offer malaria care to their family and community members and interested to learn more. The researcher noted in field notes, that “informants were most willing to share their story if there was a pragmatic outcome to be hoped for. “Is there a way to stop the sequence of events, from environmental cause, to illness, to the need for care and cure? Come back and teach us.”

Interest in general prevention education. All informants were also curious about how to incorporate prevention, whether personally in their home or as a HCP who cares for and promotes malaria prevention within the Maasai community. Many reported area hospitals/clinics, schools, and radio advertisements have introduced new ideas of prevention. They shared the “use of ITN is promoted by clinics that give ITN to pregnant mothers and children under the age of 1.” They also shared that the “clinics give tablets and drips for malaria.”

Education was listed as an important element of malaria care, especially to promote preventative measures. General health care informants and some key informants voiced concern about the lack of understanding by the Maasai to use professional care/cure practices. A health care worker expressed that “many people think there is no malaria because they do not hear the mosquito passing. But they need to take precautions before they hear it moving.” Another said, “People do not know the cause of malaria, they need education.” One Maasai general informant said, “It is good to teach people to sleep under a net. If you sleep under a net, the mosquitoes will not bite you. All will sleep under nets if they know about nets.”

Five key Maasai informants also suggested that their mobile [phone] could be used in some way to assist in malaria care education. Although no specific suggestions were made, two HCP informants said, “Education is critical. The Maasai have mobiles.” This form of communication “could be a great asset to future malaria care in Maasailand.”

Key and general informants concurred “there have been no seminars by health care workers or the government in the area”. According to one health care worker, this was “because of lack of resources.” Another health care worker suggested, “The best place to start is to educate health workers, so they can teach in facilities.”

Interest for education about ITN use. As the concept of prevention emerges in Maasailand, the informants voiced interest in learning more. In a remote Maasai village where no professional health care is available for many miles, an elderly man voiced an openness to consider new malaria care ways, “Only God knows how to prevent malaria. The hospital gives nets [to the women]. This may be a solution.” A very old lady shared:

“In older days, we did not have nets. Now-a-days there are nets to prevent mosquitoes from biting. We did not sleep under ITN last night because we don’t have nets. We have not money to buy a net, but we want a net and we know how to use it.”

The unavailability of ITN was voiced by many informants. A young moran [warrior] said, “I have never slept under a net because I do not have one.” Key informants from two separate village areas told that “a mobile clinic brought nets, but it has gone away, and the nets became dirty and were thrown away. Less people became sick when we used nets.”

One key and several general Maasai and health care informants confirmed their knowledge of malaria care using nets and the need to re-activate the insecticide after a period of time. They also shared, “We know how to retreat nets, but have no retreatment packets. They are not available in our shops.” A general informant health care worker confirmed that “chemicals for retreatment are not available in this area.”

The issue of nets becoming soiled or unusable was a concern among other informants. Two mothers offered further explanation: “Nowadays, they [clinic staff] give us nets to help reduce malaria. I cannot hang in my house with the fire because in 2 days it will be black. But in other houses, they are used and all sleep under the net. There is less malaria when they sleep under the net. However, right now we have no nets.”

Although most informants stated there had been “no ITN distribution in the area,” others remembered there had been “one in the past, possibly in 2005.” “There is no mass distribution now, because this is not a high malaria zone; only most vulnerable get them.” A health worker said, “This is a Low & Seasonal Transmission area. Seasonal

transmissions occur because of rains, which increase breeding sites and mosquito behavior.” Several key and general informants said “distribution of nets to under 1 year olds and expectant mothers is free.” Another general informant stated, “nets are distributed fairly without corruption.” It was also shared that “some are selling their nets, because others are realizing the importance of nets and they offer to buy them. Nets in shops are too expensive.” The researcher field notes quoted two shop owners in Kimana as selling ITN for 450-600 Kenya shillings, approximately half the price of ITN priced in Nairobi. However, Maasai and non-Maasai general informants calculated that “anyone in Maasailand could afford a net if it cost 100 KSH.” One general informant made the suggestion that “we need a partner, an NGO, who can sell nets at a low price and give a report.”

Suggestions for malaria care education seminar. Interest by informants was a great entre for the researcher to inquire specifically about how best to share additional information in Maasailand about malaria care. A universal suggestion by key and general informants for a venue for malaria care education was a “seminar.” Suggestions for how best to advertise malaria care seminars were universal, except there were differences in the use of posters: “Advertise in churches or the community, but not with posters because we cannot read.” “Advertise on the radio. I hear advertisements on the radio that pregnant mothers and young children should sleep under mosquito nets. They also advertise antimalarial drugs.” “Put information on the two Maasai radio stations, NOSIM and MAYIAN.” “Advertise in churches, in hospitals, in town, in villages. Talk in churches, but put posters in shops.” “The best way to advertise a malaria seminar would be posters in the hospitals, because all can see the posters.” Two young

moms suggested: “Send SMS to mobile phones” and “Advertise on Facebook.” “In the church, they give advice to members to take children to the hospital when sick, to sleep under nets, and to take malaria medicines. Advertise a seminar in the church.” “We will all welcome you with a seminar on malaria. We pray that you will come back.”

Informants were also asked what they would like to learn if they attended a seminar about malaria care. The varied responses included interest about: “how to use net,” “how to wash a net,” “why is there malaria even in the dry time,” “how to treat malaria with medicines from the chemist,” “malaria symptoms,” “ways of preventing” malaria, and “effects of malaria.” Informants also shared, “Let us know ahead and we will come for any length of time.” General informants clarified that “Maasai could come to a seminar for 3 hours, but probably not more because of their daily tasks.”

Maasai do not count on political or NGO support for malaria care. Many informants stated that they do not currently receive outside help from political or non-government organizations (NGO’s) for malaria care. A Maasai general informant concurred, “NGO’s and elected officials do not care about health care. Everybody depends upon himself.” Several key and general informants asked the researcher to accompany them in the future to meet with government officials to request assistance in malaria care.

The Maasai voiced knowledge that “care is sent to others,” but not to them. An elderly Maasai lady said that the “government has brought no nets this way.” Specific comments were also voiced in relation to the care from the Maasai chief of the local area: “The chief does not bother to check about malaria;” “The chief cannot help with malaria;” and “We cry for help [to the local government], but we see no changes.” A

diverse perspective came from a young moran, educated through 8th grade. He suggested:

We will be patiently waiting for you [the researcher] to see what can be done. We will then go with you to the chief. I suggest we gather first, make a meeting, discuss and make a plan, and then all agree [on how to proceed].

Others also voiced the need for assistance in seeking outside help toward malaria care. A universal comment, related to government assistance, was summarized by a Maasai mother of four children, “The liabon [traditional healer] cannot help. The chief cannot help. Can you [the researcher] help? If you go with us to the chief and ask to send help, he will agree.” A general informant health worker suggested, “We need to go to the chief and to the community” to promote professional malaria care/cure practices. “The current health system in Kenya does not understand the Maa culture or the inaccessibility of their community to health care facilities. They are pastoralists and the mothers and children suffer the most.”

Another general informant health worker commented:

Previously, there has been no advocacy from the Maasai communities. They did not know their rights of health care. Their transport is walking or maybe using donkeys. By the time they reach a health care facility, they may be wasted, anemic, or dead. Then, the facility they got to may have no lab services, and therefore cannot accurately diagnose the illness. RDT's to diagnose malaria are not available. There is a gap in the supply chain from the government to the clinics. The malaria care policies say: if RDT is positive, then treat. But if the test is negative, the worker tells the patient to return in two days to be retested. This

is not practical for the Maasai; they cannot return. Today, there are NGOs interested in these isolated and hard to reach areas and advocacy is beginning for the Maasai people.

Discoveries for Culturally Congruent Nursing Malaria Care Among the Maasai

The discoveries of universalities and diversities in malaria care among the Maasai are unique to their culture. These care discoveries were used to recommend nursing decisions and actions that support the Maasai care meanings, expressions, and practices and contribute to culturally congruent malaria care that is holistic and promotes the well-being of the community (Leininger, 2006a). The CCT predicted three modes that will assist, support, facilitate, or enable nursing care decisions and actions: culture care preservation and/or maintenance, culture care accommodation and/or negotiation, and culture care repatterning and/or restructuring (Leininger, 2006a). These professional care modes were abstracted from the patterns and themes derived from the Maasai key and general informants.

Culture Care Preservation and/or Maintenance

Culture care preservation and/or maintenance are professional acts that “help cultures retain, preserve, or maintain beneficial care beliefs and values or face death” (Leininger, 2006a, p. 8). Nurses and other HCP are encouraged to provide the following culture care preservation and/or maintenance acts.

Demonstrate respect for traditional malaria care practices. The Maasai voiced a desire for professional caregivers to respect them as persons. Maasai informants had experienced non-caring acts when attending professional care facilities and HCP informants had witnessed non-caring acts toward Maasai. Nurses need to

preserve the Maasai interest in use of professional malaria care by showing respect for them as an ill person in need of care. The nurse can demonstrate respect and value of traditional malaria care by inquiring what generic care practices were given to a patient prior to the seeking of professional care. This would demonstrate respect by showing interest in the cultural beliefs and practices.

Maintain acts of generic malaria care that are safe and beneficial. The Maasai desire respect for their age-old traditional pattern of using herbs in malaria care. It is important to preserve traditional herbal practices for medicinal use that are not harmful. As the first act of care, herbal care may be beneficial for adults who have developed partial immunity to malaria. These patients often experience a less-severe case and traditional ethnobotanical knowledge may be appropriate treatment of a mild case of malaria.

Affirm and preserve Maasai community support practices for those with malaria. Spiritual beliefs and the co-care acts of prayer were discovered as essential to malaria care among the Maasai. Nurses can: affirm use of spiritual care in combination with generic and professional malaria care acts; preserve generic care given by community members; and encourage them to continue recognizing malaria symptoms, making soup, and taking over daily chores for the ill. Each of these traditional care meanings, expressions, and acts assist the sick toward full recovery and bodily strength and enable each person to carry out their role in the community.

Culture Care Accommodation and/or Negotiation

Culture care accommodation and/or negotiation are actions or decisions that “help cultures adapt or negotiate with others for culturally congruent, safe, and effective

care” (Leininger, 2006a, p. 8). Nurses and other HCP are encouraged to provide the following culture care accommodation and/or negotiation acts.

Accommodate expected communication patterns. A respectful greeting is expected upon an initial meeting between Maasai men, women, and children. Although Maasai have traditional greetings, they also recognize that non-Maasai do not speak Maa. It is appropriate and respectful for the nurse to greet a Maasai patient in Swahili, one of the national languages. Nurses can accommodate Maa speakers who attend hospitals/clinics by using translators/interpreters for full understanding of care practices and treatment: both generic used and professional offered.

Accommodate a blending of traditional and professional care/cure practices. Most informants used generic care as the first care act for malaria. Nurses are encouraged to accommodate a blending of traditional and professional care/cure practices. Nurses can evaluate safe generic care practices that do not impose potential harm for a person with malaria and encourage use of these acts in combination with professional care acts. Maasai women voiced a preference for female professional caregivers; however, many HCP are male. Since men and women share malaria care responsibilities in Maasailand, perhaps nurses could negotiate with Maasai to accept opposite gender HCP available in their region.

Negotiate with national and global malaria care partners. Informants reported that lifeways improved when they used ITN: fewer persons were bit by mosquitoes and less children became ill with malaria. Informants were interested to use an ITN to test if it would decrease occurrence of malaria infections. Many stated they had not used a net because they had never had one or were either unavailable or unaffordable. Because

the use of ITN are supported as an effective, low cost prevention measure, nurses must negotiate with national and global malaria care partners, i.e. WHO, AMREF, faith-based organizations, and PMI, to provide ITN.

Some informants also noted the importance of correct diagnosis and use of effective medicines for malaria care. RDT for diagnosis and ACT as first-line medications are recommended for malaria care in the region; however, both were also reported as in short supply. Provision of ITN, RDT, and ACT would include consistent availability, financial affordability, and accessibility by remote villages. This would then facilitate safe and effective care.

Recommend partnerships be created between the Maasai and malaria care providers. Many key informants shared that they could not rely upon the government for malaria care. Yet, they also voiced a willingness to meet first with the local elders to develop a plan, and then with the senior chief to request malaria care support from the government. Often the researcher was requested to assist in these negotiations. Nurses can recommend partnerships be created between the Maasai and the local, national, and global malaria care providers who share interest and responsibilities for care in Maasailand. Accommodations for care available to rural areas could include a mobile clinic, a nurse consultation by phone, and/or a “bush worthy” ambulance to guarantee safe, affordable, emergency transport.

Informants also requested malaria care education. Negotiations with local and national partners could include simultaneous education on malaria care for regional traditional and professional malaria caregivers. Nurses and the Maasai community leaders can collaborate during planning stages about appropriate venues and content of

malaria care education seminars. Also, this study and other research data to support malaria care can be shared with HCP in the area.

Culture Care Repatterning and/or Restructuring

Culture care repatterning and/or restructuring are professional actions that help people “reorder, change, modify, or restructure lifeways for better health care patterns, practices, or outcomes” (Leininger, 2006a, p. 8). Nurses and other HCP are encouraged to provide the following culture care repatterning and/or restructuring acts.

Address unsafe malaria care practices in need of repatterning. Many malaria care practices among the Maasai were beneficial to the patient. However, two practices were unsafe. These practices are in need of repatterning because they have the potential to cause great harm. First, 14 of the 16 key informants chose herbal care for the purpose of purging, through diarrhea or vomiting, as the first malaria care act for children. This repatterning would refer to discontinuation of use of herbs for the act of purging to cause diarrhea in children under the age of 10. Second, the Maasai generally chose generic care as the first act of care for all children. For this repatterning, the nurse would work with the Maasai community to replace traditional herbal care with professional care as the first act of care for all children.

Nurses can address these unsafe practices and advocate for the children by working with the Maasai caregivers and the government and global interest groups. The nurse can develop a culturally relevant curriculum that incorporates discoveries from this study and offers Maasai caregivers education. Creative educational malaria care frameworks may be in the form of seminars or radio spots.

Develop culturally congruent education to restructure concept of malaria

prevention. An additional education focus for the nurse should be the concept and use of prevention measures. Most Maasai informants did not believe that malaria was preventable. A number of informants did associate the mosquito with malaria and some took a step further and associated the mosquito as the cause of malaria. Using intentional education which incorporates respect for current knowledge, HCP can offer information for the Maasai to consider restructuring current beliefs. This restructuring would include the concept of malaria prevention and repattern their lifeways to include ITN use in their sleep routine. Current WHO (2014) recommendations promote that mothers and children age 5 and under use ITN while sleeping. This repatterning would also incorporate ITN use for naptime, and ITN use by at least three-fourths of the Maasai community members. Working with interest groups, the nurse can advocate for resources needed in the region: request availability of ITN, RDT, and ACT in professional care settings; request that current malaria care policies be enforced; and request funding be provided for malaria care education needs.

This chapter closes with a quote from a Maasai elder key informant. To signify that all truths had been shared, he declared, “And that is the story of malaria.” The topic of malaria care was concluded and the wife was summoned that it was “now time for tea.”

Chapter 5

Discussion of Findings

The purpose of this qualitative, ethnonursing study was to discover, describe, and systematically analyze the meanings, expressions, and practices related to malaria care among the Maasai in the Kisongo Maasai villages in the Kimana region of Southern Kenya. The meanings, expressions, and practices of malaria care that were freely shared by the informants provided significant insights into the current culturally congruent malaria care generic and professional care/cure practices. This chapter presents a discussion of the findings. First, a brief overview of the four research questions that directed this study is presented. Theory implications, including support of the assumptive premises and care constructs found, are discussed. Nursing implications for practice, education, policy, and research to promote culturally congruent malaria care for Maasai people is shared. These implications will be compared with findings from other transcultural nursing studies. This chapter concludes with final reflections of this study.

Overview of Research Questions

Each of the four research questions that directed this study were addressed and answered. In-depth understanding of the emic meanings, expressions, and practices related to malaria care among the Maasai was uncovered. The Maasai worldview, culture and social structure, environmental context, and ethnohistory were found to influence each decision and act of malaria care within the traditional lifeways and also influence the use of generic and professional care/cure practices. It was discovered that the Maasai community resourced both generic (folk) care/cure and professional

care/cure practices for children and adults. Within this unique environmental context, multiple facilitators and barriers were uncovered that influenced choices for malaria care in Maasailand. Finally, data were synthesized to make nursing care decision and action recommendations that promote culturally congruent malaria care for the Maasai of the Kisongo villages in the Kimana region of Southern Kenya.

Nursing Theory Implications

The use of the CCT and the ethnonursing research methodology in this study contributed to nursing theory. The theory was appropriate for use within the context and unique culture and context of malaria care among the Maasai in Kenya, East Africa. The study findings are consistent with the tenets, assumptive premises, and care constructs of the CCT. As was found by other nurse researchers, this study affirms the feasibility of conducting international research and the use of this methodology in a transcultural environment (Moss, 2010; Schumacher, 2010).

From the perspective and experience of the researcher, use of the CCT was a care act in itself. The informants responded to the researcher as one who cared for them and expressed interest in their lives beyond completion of a research task. The researcher utilized the CCT enablers when initiating contact with informants, analyzing data, and incorporated the tenets and methods of the CCT ethnonursing research plan throughout the study. Use of this theory and methodology, whether interviewing a Maasai mother in a traditional village or an NGO official in a Nairobi office, was interpreted as care.

Symbols of care represent what is valued in the culture (Ray, 2010). The following is an example of reciprocal care experienced within the context of this study.

The researcher was gifted handmade beadwork from informants on numerous occasions. The beadwork is a Maasai woman's symbol of wealth, personal time, and talent. This act of gifting it to the researcher was a symbol of care and acceptance from the informant to the researcher: a voluntary act toward the researcher in response to the care the Maasai woman sensed had been given.

Assumptive Premises

Assumptive premises emanate from the major tenets of the CCT. Five of the 11 assumptive premises proposed in the CCT were adapted for this research study (Leininger, 2006a). All five premises were upheld.

The first assumptive premise of this study, culture care is the synthesis of two major constructs that guide the researcher to discover, explain, and account for health, well-being, care expressions, and other human conditions within the Maasai context (adapted from Leininger assumption 4, 2006a, p. 18), was supported by all four themes. Within the unique culture and care methods for malaria care in the Maasai culture, this was an overarching assumption required to achieve any level of truthful data.

The second assumptive premise, culture care values, beliefs, and practices of the Maasai are influenced by and embedded in the worldview, social structure factors (e.g., religion, philosophy of life, kinship, politics, economics, education, technology, and cultural values) and the ethnohistorical and environmental contexts (adapted from Leininger assumption 6, 2006a, p. 19), was supported by themes one and two. Herbs, Enkai, community care, and facilitators and barriers to care were all discovered concepts that supported this premise. For example, the first theme was rooted in the environmental context of the Maasai and the social structures of the Maasai community

that were required for care and survival. The second theme was rooted in the Maasai religious and philosophical dimensions of the control of and a trust in their God, Enkai.

Next, the third assumptive premise, the Maasai culture has generic/folk [emic] care and some professional [etic] care to be discovered and used for culturally congruent care practices (adapted from Leininger assumption 7, 2006a, p. 19), was supported by theme three. This assumption was clearly supported by the findings that herbs are used as care and cure, and moderate use of and universal openness to use of professional care/cure practices.

The fourth assumptive premise, culturally congruent and therapeutic care for the Maasai community occurs when culture care values, beliefs, expressions, and patterns are explicitly known and used appropriately, sensitively, and meaningfully (adapted from Leininger assumption 8, 2006a, p. 19), was supported by theme four and the nursing decision and action modes.

Lastly, the fifth assumptive premise, qualitative research paradigmatic methods offer important means to discover largely embedded, covert, epistemic, and ontological culture care knowledge and practices that have previously been unexplored among the Maasai community (adapted from Leininger assumption 10, 2006a, p. 19), was supported by all four themes. The paradigmatic methods useful in this study included the continual referencing of the SRE and the Maa linguistic elements that revealed previously unexplored data related to deep understanding of malaria care. Informants throughout the study asked questions, had suggestions on what they were interested to learn, and offered specifics on how to design a seminar.

Care Constructs

Care constructs are dominant care meanings or actions modes discovered using the CCT and facilitate the nurses understanding of the meaning of care to the culture within the study (Leininger, 2006d). The following seven care constructs describe the core meanings, expressions, and practices of malaria care among the Maasai informants. This study further supported four care constructs found in previous transcultural nursing research and revealed three new care constructs.

Previous care constructs supported. Four care constructs were found that were congruent with findings of ethnonursing researchers in other cultures. These four are among the 175 care/caring constructs previously identified across 58 cultures by researchers who have used the ethnonursing qualitative research method. The care constructs from this study that have previously been revealed as care constructs in other cultures are respect for/about lifeways, acceptance, purging, and interest in/about (Leininger, 2006d). Both key and general informants voiced the need for culturally congruent care for Maasai that would respect and affirm traditional and generic practices and lifeways. Informants consistently expressed an attitude of acceptance. They shared their acceptance of malaria as an illness that was expected to occur in their contextual environment and accepted malaria illness as an occurrence in need of care. Informants described the first act of malaria care as the use of herbs for purging the malaria disease from the body, either through vomiting, diarrhea, or sweating. Purging was shared as a necessary and accepted practice to dispel the malaria illness from the body. Last, key and general informants verbalized curiosity and interest

in/about the malaria disease in order to learn about options for malaria care for their community.

New care constructs discovered. Three new care constructs were discovered: herbs as care, community as care, and praying to/for. Herbs as care was at the forefront of each key informant's description of malaria care. Although the current list of care constructs includes use of folk foods/practices, in this study, herbs as care was a very specific and detailed generic care practice. Herbs were used as additives to traditional foods, such as use in recovery soups; however, the consistent, passionate reference of herbs as the first act of care for persons ill with malaria qualifies this act of care as a care construct that stands alone. The detailed process of herbs as care was the responsibility of the entire community.

When a person was ill with malaria, community members provided physical and spiritual care and completed his/her daily tasks. Therefore, community as care was another new care construct in malaria care. Although community as family has been described as a care construct (Embler, 2012), community as care was a unique concept of care within this study. Community included men, women, children, those sick with malaria, family members, neighbors, and traditional herbalists; all had responsibilities in malaria care. The importance of each community member as an active participant in daily lifeways was a phenomenon of care also found in the Amish culture (Wenger, 1995). For the Amish, survival of the ill was dependent upon the fulfilled roles of each community member. Within the Maasai lifeways, their pattern of care was offered by, within, and for the community towards the well-being of the whole community.

Praying to/for was also found as a new care construct, different from the previously published term, praying with (Leininger, 2006d). The Maasai informants, rather than describing praying with, universally voiced praying to Enkai [God] for healing of the sick and praying for the herbs and/or medicines from the hospital/clinic to heal the patient. The informants also stated that they were praying for the researcher to be successful in the current work of the research and praying for the researcher to return to assist the Maasai in malaria care.

Nursing Practice and Policy Implications

The goal of this study was to discover traditional and professional nursing practices that will promote malaria care that is safe, beneficial, and fits with the people's daily lives. This study revealed that, for malaria care to be culturally congruent among the Maasai people, it should be both respectful between and in a partnership with the traditional and professional care givers. Moving from stranger to trusted friend was imperative in the development of professional care implications. Pragmatic tasks are greatly enhanced when the researcher is accepted as a trusted professional among HCP (Hubbert, 2006; Ray, 2009). To provide education within the professional venues in Kenya, the researcher was informed by current HCP that government permission will be necessary. Candid openness, respect, and sharing of information with local and national decision makers was essential during the research process and will continue to be essential in future malaria care opportunities. The following nursing implications for practice, education, policy, and research were extrapolated.

Practice Implications

Nurses are called to alleviate suffering (Ray, 2010). Nurses use research findings and partner with populations to address issues such as the environment and the prevention of disease (American Nurses Association, 2003). Findings from this study demonstrated that it is important for nurses to partner with the Maasai community and traditional and professional HCP to address malaria care needs. Implications for practice from these findings focus on four topics: respect for the Maasai and the current HCP; strategic and simultaneous education for the Maasai community, and tradition and professional HCP; build upon current knowledge for education format; and development of a malaria care seminar that values the learning styles of the environmental context.

First, respect of Maasai lifeways and practices in traditional malaria care is a preliminary base for professional practice and education. Nursing research studies have repeatedly shown that respect is the most valued and frequently identified care construct (Leininger, 2006c; Mixer, 2011; Mixer et al., 2013; Morris, 2012; Schumacher, 2010; Wehbe-Alamah, 2006). In addition, McFarland and Zehnder (2006) found that culture care for German American elders was grounded in traditional culture. Care ethics demands education must be offered with respect for the vulnerable population, as well as for the HCP (Leininger, 2006a; Mixer et al., 2012). Both key and general informants requested culturally congruent education that exudes respect and affirms safe, generic malaria care practices. Some HCP were saddened to share that professional HCP do not show respect to indigenous Maasai persons. The Maasai informants shared that they were not interested in care or education offered by professional caregivers if the acts did not show respect and care for them as Maasai.

An objective of transcultural care is to avoid causing cultural pain. In the era of globalization and multicultural HCP teams, Hubbert (2006) reminds the nurse from the west to be cognizant to offer culturally congruent care in the culture one is entering. The western nurse needs to gain a depth of knowledge about the culture of the HCP in order to avoid causing cultural pain by using western behaviors that may impose culturally insensitive beliefs, values, and communication processes with HCP (Hubbert).

Second, there is a need to combine generic and professional care practices. Strategic and simultaneous malaria care education for the Maasai community, traditional malaria care providers, and professional HCP could enhance malaria care. For the key and general informants, the meaning of malaria care incorporates the confidence in both knowing what to do and knowing that the sequence of acts of care must be immediate. First acts of care, however, were found to be different between generic and professional care givers. Generic care involved traditional assessment for malaria and herbal care first. Then, they would seek professional care. Professionals valued preventative care and laboratory diagnosis prior to care, and anti-malarial tablets or injections rather than herbs. Similar findings in other cultures have shown a desire for generic and professional care to be combined. An ethnonursing study in the Mississippi Delta discovered the care need for traditional herbalists to contribute to the professional care team and this became a recommendation for negotiation (Gunn & Davis, 2011). In an ethnonursing research study with rural Dominican Republic informants, it was also discovered that they desired generic, spiritual, and professional care to be combined (Schumacher, 2010).

Education should also reflect causes of fevers in children and adults, as all fevers are not a result of malaria. D'Acremont et al. (2014) recent study in Tanzania conducted laboratory investigations on 1005 children and concluded malaria was only the cause of 10.5% of the fevers. Bacterial, viral, and other parasitic infections were determined as factors. This information is crucial for Maasai and HCP. The findings acknowledge that fevers still suggest illnesses that are in need of care and emphasize the importance of accurate assessments toward proper treatment.

Third, education would build upon current knowledge. Informants universally described an environment conducive to malaria and the disease symptoms and causes; however, they frequently asked the researcher questions on these topics. HCP requested education on current policy practices, such as use of RDT and the pharmacological protocol for children and pregnant women. Topics for education would be in response to these findings and could include: cycle of the malaria disease, cause and symptom recognition, generic and professional care practices, prevention options, and medications and dosages for malaria care. Education should include affirmation of beneficial generic care and information about non-beneficial care, such as causing diarrhea with resultant dehydration in children. Ray (2010) emphasized that “to criticize a cultural practice is not to condemn a whole culture; it means that cultures are a mixture of good and bad practices...the key is transcultural ethical caring ” (p.79). Education should focus on culturally congruent care and education needs of the population, and the education plan should be co-created with those within the culture. WHO recommendations for diagnosis and care should also be resourced in malaria care education among the Maasai (WHO, 2014).

Informants' similar and diverse responses to the cause of malaria were realistic conclusions based on the pattern of the disease in their environment and they were similar to early, historic writings. For example, Italians suggested malaria was caused by 'bad air, malaria' and early writings by Romans thought it came from standing water (CDC, 2012d). As scientific writings affirm malaria egg production heightens during rainy season with standing water and tall grass, the Maasai have many accurate concepts of the cause of malaria (WHO, 2013a). Insights from the Maasai current understanding of malaria can offer a base for HCP to build new knowledge on malaria care relevant within their environmental context. In the scientific cycle of malaria, first there must be a source of water (the rains begin). Then the mosquitos lay their eggs and have time to hatch. This would be about the same length of time that it takes for the grasses to grow and the environment to become green in Maasailand. It was amazing to discover that, for the most part without any formal education on the topic, the Maasai have quite an accurate overall understanding about malaria.

Names given by informants for malaria were meaningful Maa words that expressed an aspect of the cause or symptoms of the illness. This knowledge can be built upon to further clarify details of the malaria illness. Just as informants emphasized the art of malaria care and provided the researcher with many hands-on experiences, education seminars should incorporate hands-on opportunities toward culturally congruent education. Relevant active learning examples include hanging and sitting under an ITN. Dramatic scenarios could serve as exemplars for affirming and extending knowledge about current safe practices of malaria care: prayer as co-care act, preparation of recovery soup for the weak, and malaria symptoms. Education should

also address unsafe practices, such as using herbal care for the purpose of purging as the first act of care for children.

Fourth, a seminar format is an appropriate venue for malaria care education for Maasai in this region. Data affirmed 100% of key and general informants were willing to attend and/or to assist in the leadership of a seminar. Informants shared convenient locations for seminars included buildings, such as churches or schools, and outside spaces near villages. The Maasai general informant's shared their knowledge through storytelling or demonstrations, while the non-Maasai general informants used a scientific description. In education, it is important to address the perspectives of the audience. For an indigenous audience, culturally congruent malaria education would be based on stories set in the Maasai cultural context. Generic care knowledge is passed from generation to generation in this same format (Saitoti & Beckwith, 1980). In this study, generic care was also passed from the emic to the etic, from the cultural knower of the key informant, to the outside seeker of knowing, the researcher. The first question of each interview was to tell the researcher their story of malaria. The response began with a visual of the symptoms, descriptors, colors, body language, or dramatic acts. There was a universal progression of the cause of the disease, the symptoms of the disease, and only a small diversity from the overall process of malaria care. The environment, as cause of malaria was visually described as cold, rain, green, mosquitoes, and then malaria. Maasai accept malaria; therefore, education endeavors must begin using this philosophical stance as well.

Policy implications

Implications for policy to promote malaria care that is safe, beneficial, and fits with the daily lives of the Maasai were garnered from this study. Findings confirmed that malaria is a complex health and policy issue (KFF, 2014; PMI, 2012; WHO, 2014). Key and general informants stated that malaria symptoms occur frequently in children and adults. General HCP informants acknowledged that Maasai present to professional care facilities with malaria symptoms, yet test negative. They are requested to return to be retested in several days, but HCP say Maasai are not able to return due to environmental and financial factors. Malaria care was reported by key and general informants as an economic burden. Their lack of access to care, lack of availability of quality medications, and inability to afford malaria care were inextricably linked with poverty. These discoveries agreed with the literature (CDC, 2014; World Bank, 2014; WHO, 2014). Maasai who live far from professional services confessed that it is difficult to afford the expense of a vehicle to take sick persons to care. They live too far away and it is too far to walk. They also said this process takes time because they may need to sell livestock for the funds.

Most key informants did not acknowledge that malaria was preventable. Preventable communicable diseases, including malaria, remain a priority area for WHO (2014). Malaria, the leading cause of hospitalization, mortality, and morbidity in children in Sub-Saharan Africa, is preventable with ITN and IRS (Aduddell, 2008). Needs for malaria care preventive measures in Maasailand are congruent with global strategies. However, scarce resources influence the distribution of malaria care. Over 70% of the Kenyan population suffer at least one malaria infection yearly (Fosu & Mwabu, 2007).

Malaria is endemic in Maasailand and, in the Kajaido district of this study, 11.7% of children tested were positive for the parasite (Fosu & Mwabu). The scope of need for malaria care among the Maasai community is beyond their local resources. Their professional care options are under the umbrella of the local, national, and global policy decisions and resources.

Policy implications relevant to malaria care in Maasailand include addressing barriers to professional care, such as: Maasai expectations that all community members use traditional care practices; unavailable affordable, quality medications and preventative measures; and inaccessible and unavailable quality professional care. Findings from this study agreed with other recorded barriers to use of professional health facilities, which included cost, uncaring acts by HCP, and suspicion of counterfeit drugs (Graz, Kitua, & Malebo, 2011).

A policy window of opportunity occurs when problems, solutions and political circumstances converge and policy formation can occur (Longest, 2010). There is currently a window of opportunity to address traditional tribal policies toward malaria care. Maasai elder key informants, the traditional decision makers, voiced an interest to learn about malaria care options and asked the researcher many questions. Study findings indicated cultural changes are taking place in Maasailand, such as periodic use of ITN and use of health facilities. Although not all key informants currently used professional care/cure practices in malaria care, all were open to and interested in learning more about professional malaria care options.

Policy changes to be addressed within the traditional lifeways of the Maasai would be to sleep under ITN and to seek professional malaria care, especially as a first

care act in children. Similar to the findings in this study, other studies in African countries have found that the first line treatment for 60% of children with a high malaria fever is tradition herbal care (Johnson, 2008). This traditional medicinal care act has been used for thousands of years in Africa because it is trusted, available and affordable (Graz et al., 2011). Maasai key informants commented on the importance of knowing different herb uses and dosages of herbs unique to the needs of children in order to avoid harm. This suggests an understanding that care for children is different than that for adults. With knowledge of these truths, nurses have an opportunity to guide new traditional policies toward a change. Although this was not a study focused on ethnobotany, findings supported previous studies that discovered Kenyan traditional groups have extensive plant knowledge and use specific species for medicinal herbal remedies in malaria care (Nguta, Mbaria, Gakuya, Gathumbi, and Kiama, 2010).

Policy makers uphold research that states “the well-being of mothers, infants, and children determines the health of the next generation and can help predict future public health challenges for families, communities, and the medical care system” (Healthy People, 2013). This is not a unique health care need in the United States, but relevant as a global health concern for all mothers and children and includes those ill with malaria in Maasailand (Global Health, 2013). The malaria disease poses greatest risk of morbidity and mortality to children because they are often undernourished, anemic, of low birth weight, or not yet of an age to have acquired immunity to combat the parasites (CDC, 2012c). The use of purging to cause diarrhea is an important issue to address because adding dehydration to this already compromised young one is not safe generic practice. The use of traditional herbs for first line treatment may be

effective in persons with partial immunity, which occurs after repeated malaria infections, but not relevant to children (Graz et al., 2011; CDC, 2014). This would support a repatterning of first line treatment for children to be professional care and not herbal care.

General informant HCP confirmed national policies for ITN, RDT, and ITPp. However, they all stated that current policies have not fully been implemented. Key informants often affirmed knowledge of the importance of ITN use for women and children. However, most did not have access to an ITN. Key and general informants recognized that the challenges to malaria care in Maasailand are vast. Many informants requested the need for professional care and asked for assistance to voice their needs and concerns to the local chief.

Nurses can seek opportunities to bridge traditional and professional interest groups. Traditional Maasai leadership can represent the Maasai population and partner with interested local, national, and global NGO's in a quest to meet their malaria care needs. General informant HCP shared of a deep interest to work with the Maasai. Some mentioned recently acquired grants relevant to Maasai that can assist in resources toward education for indigenous groups, HCP, and a funding stream for resourcing and distributing ITN in Maasailand.

Nurses should collaborate with the local and national health leadership in Kenya to educate professional HCP in areas that serve the Maasai communities. This would include an exploration of effective behavior change communication (BCC), a specific interest of the United States Agency for International Development (USAID) toward use of prevention measures in vulnerable people groups (USAID, 3013). In addition to the

policy implications noted above, a long-term policy focus could address issues relevant to malaria care in the environmental context of Maasailand. These challenges include (a) poverty, (b) weak infrastructure, health care systems, and surveillance capabilities, and (c) adequate quality and availability of drug, insecticide, diagnostics, and ITN (KFF, 2013).

Future Research Implications

Numerous future research implications flow from this study. Future researchers can repeat the study in other regions of Maasailand and compare results. Quantitative studies using the CCT could examine the effect of malaria education seminars, the use of prevention measures, the availability, affordability, and access to prevention measures, and the occurrence of malaria in a manner that is culturally congruent for the Maasai (WHO, 2012). Quantitative numbers often address policy implications more effectively than words alone (Fosu & Mwabu, 2007).

Future researchers can explore the use of technology for malaria education and BCC. Mobile phones were a common possession of the Maasai. This is an untapped personal resource toward malaria care and no studies were found in the literature relevant to use of phones in malaria care. Radios were available to many informants. Research exploring the use of mobile phones and radio spots to both offer Malaria information and advertise informational seminars could also enhance safe and beneficial malaria care.

Lastly, nurse researchers are responsible for disseminating research findings through publication. This contributes to future research and malaria care among the

Maasai and may transfer to other vulnerable populations who also continue to suffer from the preventable and treatable malaria illness.

Reflections of the Study

The goal of this study was to discover traditional and professional nursing practices that promote malaria care that is safe, beneficial, and fits with the people's daily lives. The data analysis revealed traditional and professional nursing malaria care practices that were both safe and un-safe, both beneficial and not beneficial, and both fit and did not fit within the daily lives of the Maasai. These findings were analyzed using the ethnonursing research method and the results led to the development of culturally congruent nursing care modes and to nursing practice, education, policy, and future research implications.

The willingness of the informants and interpreters to participate in this study was overwhelming. Each morning, persons from nearby villages were waiting to speak to the researcher, often volunteering to be a participant in the study or just desiring to share some knowledge they thought would be of interest on the topic of malaria care. Each evening, during and after dinner, some general informants gathered for several hours to debrief the day with the researcher and ensure that full understanding had occurred, whether of words heard, concepts uncovered, or observations made.

The Maasai shared their gratefulness toward the researcher for expressing an interest in their malaria care needs. A Maasai man, who could not understand how the researcher had survived without the mixing tool to make the medicinal and recovery soup, came to the researcher's camp with his carving knife and the appropriate woods he had gathered in the forest, and made the tool for her to take home to her country. He

taught her the word for the small wooden implement, olkipire [stirrer]. He also instructed on the proper use of the tool and had the researcher practice the technique until he was satisfied of her skill. The researcher gratefully accepted this deep expression of care: care that she had the knowledge of the tool and its use, and care that she would be enabled, in his eyes, to be ready to prepare the herbs properly in the act of malaria care for her community in America. He was caring for her and preparing her for survival in the future.

The women, who spit on the researcher, expressed a beautiful and a precious gift. This was an affirmation that the white, Western educated woman had entered the world of this Maasai grandmother, shown respect for her traditional knowledge, and valued her lifeways. The kokoo responded to the care she felt she had received by offering the highest blessing she could bestow, taking the hands of the researcher and covering them with a part of herself. The basic tenets of the CCT, fully respect culture and care while in the process of discovering culture and care, enabled such a relationship to develop in just a few hours of contact. Beyond the overwhelming experience of compassion, these above examples also affirmed that the researcher had moved from stranger to trusted friend, an important step in attaining rigor within the ethnonursing research process.

Community members in the Kimana area fully embraced the researcher and invited her to participate in daily events, such as the making of traditional foods, holding a newborn baby, attending a wedding, and participating in worship. From the completion of each daily task to the infrequent big event, it was observed that life was fully celebrated by the Maasai (see Figure 13).



Figure 13. Maasai Women's Choir. Maasai women singing praises of thanksgiving to Enkai [God] and imploring blessings upon the wedding about to take place.

The informants in this study desired to share their story. The Maasai encountered were fully committed to achieving the goal of malaria care. They are not content to live with the illness if there is a way to care more fully or prevent the disease. Their firm determination to successfully deal with malaria in their community was evident and continually reaffirmed by each informant as they confirmed interest in learning more about care and prevention. With the exception of sporadic use of ITN by mothers and children, or herbal use as a prevention measure by moran during certain age passage ceremonies, preventive measures in malaria care were not discovered to be usual care practices. However, vast interest to learn more about malaria prevention and professional care was expressed, by both key and general informants.

Limitations

This study was limited by the primary investigator's (PI) non-fluency in the Maa language. An interpreter was used for interviews when an informant did not speak fluent English. The interpreter was an accurate speaker of Maa and English and understood the concepts of both translation and interpretation. As a non-Kenyan resident and non-Maasai, the researcher was an etic guest and not familiar with the differences of malaria care among the Maasai. The researcher took steps to mitigate this limitation by moving from stranger to trusted friend within the Maasai community and immersing herself within the unique culture to uncover the Maasai emic perspective of malaria care.

Conclusion

This qualitative ethnonursing study discovered and described the meanings, expressions, and practices of malaria care among the Maasai. The CCT with the Sunrise Enabler and the ethnonursing research method provided a framework that translated care throughout the study. To exude and seek culturally congruent care is essential for the discovery of the care needs of a vulnerable population. The findings further supported the CCT as appropriate and useful in nursing research and contributed to the body of nursing knowledge and caring practice. No previous transcultural nursing studies have been published in the literature related to the Maasai population. This study was the first use of the CCT and ethnonursing method within the Maasai culture and in exploration of the malaria topic. Implications for future practice, policy, and research endeavors are recommended. These discoveries are useful for nurses and other HCP to further understand the Maasai cultural values, beliefs, and lifeways and offer culturally congruent malaria care to the Maasai community.

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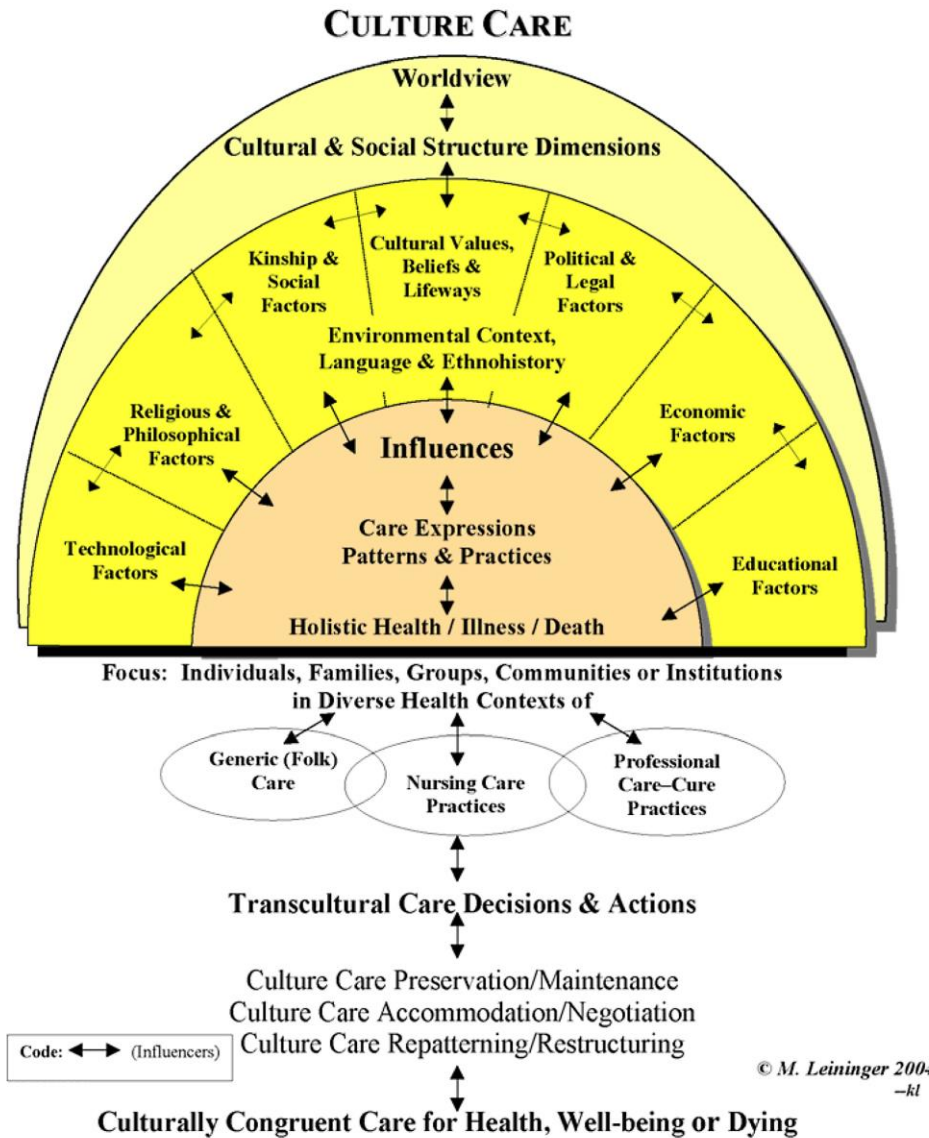
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Appendices

Appendix A

Sunrise Enabler

Leininger's Sunrise Enabler to Discover Culture Care



From *Culture care diversity and universality: A worldwide nursing theory* (2nd ed., p. 25), by M. M. Leininger and M. R. McFarland, 2006, Sudbury, MA: Jones and Bartlett. Used with permission.

Appendix B
Malaria Web-Quest Matrix

Malaria Web-Quest Matrix

Organization and Website Address	Description of Content	Functions	Resources/Links	Notes
Government Agencies: <u>CDC</u> Centers for Disease Control http://www.cdc.gov/malaria	Information on: malaria history, life cycle, diagnosis, treatment, prevention, worldwide; travel health care and risk by country; malaria care for immigrants, refugees, and pregnant women; and diagnostic procedures.	Nation's health protection agency with mission to provide health information dissemination, preparedness, prevention, research, and surveillance. Reliable resource for up-to-date information for health care providers, travelers, policy makers, educators, and any interested person.	Facts, maps, current research, and in depth pharmacology.	CDC activities in Kenya: collaborate with Kenya Medical Research Institute to develop trained staff who also survey for emerging infectious diseases; malaria rapid diagnostic test (RDT) evaluation; malaria vaccine trial preparation; transmission reduction.
<u>NIAID/NIH</u> National Institute of Allergy and Infectious Diseases/National Institutes of Health http://www.niaid.nih.gov/	Contains agenda and strategic plan for malaria research.	Research institute to understand biology, treat, and prevent infectious, immunologic, and allergic diseases. Develop tools, support research infrastructure in malaria-endemic countries, and encourage global cooperation toward care and eradication of disease. Supplies research	Malaria facts, current research. Link to malaria research program: www.niaid.nih.gov/topics/malaria/Pages/default.aspx	31 page Understanding Malaria booklet.

<u>PMI</u> President's Malaria Initiative http://www.pmi.gov/	Lists PMI's news, programs, activities, history; malaria global facts; and disease interventions.	funding. Conducts and supports research. US government initiative to halve malaria deaths in sub-Saharan Africa. PMI helps countries scale up access to prevention and care interventions. Supports four proven and cost-effective prevention and treatment interventions: insecticide-treated mosquito nets (ITN), indoor residual spraying, intermittent preventive treatment for pregnant women, and prompt treatment using artemisinin-based combination therapies for those diagnosed with malaria.	Use US resources to reduce the burden of malaria. Uses less than 0.5% of federal budget or \$1.2 billion expansion of US resources. Links to publications, jobs, history, in depth global tasks info. Direct link to Malaria Journal and numerous websites.	Led by USAID and CDC. Developed by Bush and Gates in 2005. In Kenya, supports improvements in health, economic growth, security, and education. Site includes info and statistics on Kenyan profile and economy. Extensive listing of lifesaving interventions such as IRS, ITN, diagnosis, and treatments.
<u>USAID</u> United States Agency for International Development http://www.usaid.gov/	Assist five regions: Sub-Saharan Africa, Asia, Americas, Europe, and Middle East.	Twofold purpose: economic and humanitarian assistance to further US foreign policy interests in expanding democracy and free markets and	Policy speeches and testimonies.	Head office in Washington DC, but global offices. Support international agencies, universities, and indigenous organizations.

Malaria No More Policy Center http://www.malariapolicycenter.org/	Up-to-date news and statistics on malaria worldwide.	improve lives of the citizens of the developing world including global health. Raise awareness and gain support for global fight against malaria among policy leaders. Educates policy makers and media on scope and impact of and needed interventions for malaria.	Links to blog and press releases. Linked to www.malarianomore.org/	Policy directed! Collaborator: UNICEF
Healthy People 2020 http://www.healthypeople.gov/2020/	Objectives and topics to encourage healthy Americans from access to health care to food safety to oral health to global health.	Improve the health of Americans. Reduce number of malaria cases in US. Global health objective is to strengthen national security through global disease detection, response, prevention, and control strategies.	Provides links to numerous health topics and lists overview, objectives, interventions, and resources to each.	Approximately 1300 cases of malaria in US in 2008.
Global Health Policy http://csis.org/program/global-health-policy-center	Includes information specific to regions, programs, publications, and press releases.	Policy research institute to build bipartisan awareness of global health and importance of health toward US national security. Works	Extensive news releases. Includes link to Center for Strategic and International Studies (CSIS) who	Includes US policies toward Africa and security and infectious disease.

		with global and national policy makers to work with diverse stakeholders to make US global health efforts more strategic, integrated, and sustainable long term.	aim to affect policy nationally and globally.	
Special Interest Groups: <u>WHO</u> World Health Organization http://www.who.int/ <u>KFF</u> Kaiser Family Foundation http://www.kff.org/ <u>ICN</u> International Council of Nurses http://www.icn.ch/	Includes health topics, data, statistics, and publications. Provides in depth information on key health policy issues both nationally and globally for policy makers, media, and general public. Offers a policy tracker to search topics for decisions made on Capitol Hill. To motivate and align efforts of nurses worldwide through networks to encourage support for nurses globally, such as listing global events for nurses,	Notes disease outbreaks and emergencies. Lists global resources. Has 21700 search results for malaria. Non-profit, private foundation created in 1948 to offer non-partisan research and facts to meet unmet health care issues/needs. Founded in 1899, ICN represents 13 million nurses worldwide and works to ensure quality nursing care for all, and sound health policies globally, the	Link to WHO global fund proposal development policy brief on malaria, July 2011. Offers RSS policy tracker feed. ICN Code of Ethics.	Notes need to change malaria treatment and intervention policies as noted in proposal. Malaria statistics: 5% deaths, 30% outpatient visits. Malaria, TB, HIV/AIDS destabilize social and economic sector.

	global projects, publications, and global interest news.	advancement of nursing knowledge, and the presence worldwide of a respected nursing profession and a competent and satisfied nursing workforce.		
<u>UN</u> United Nations http://www.un.org/	Lists UN history, governing body, resources, current issues.	International organization with 193 member states. Support global partnerships including interest in international health to decrease malaria, specifically distribution of ITN.	Includes numerous human rights and international law resources.	Includes policy discussions on malaria care in Kenya.
World Vision http://www.worldvision.org/	Includes how to sponsor a child, how world vision transforms communities.	Christian humanitarian organization in 100 countries build a better world for children to meet diverse needs including faith, education, justice, and health care.		Supports universal coverage of LLIN.
<u>UNICEF</u> United Nations International Emergency Fund	International information site describing who, what, where, why active aid is occurring. Donation site	Offers aid to over 150 nations to promote a healthy childhood, including health care,	Provides current videos and press releases.	Partners include Walt Disney, Pier 1, Delta Airlines, Toys R Us, TBS, Johnson & Johnson.

http://www.unicef.org/	for humanitarian relief for children with special interest in decreasing global child mortality.	clean water, nutrition, education, protection. Donation site.		
Nothing But Nets www.nothingbutnets.net/	Presents malaria facts and ITN facts. Donation site to purchase nets.	Donation site to purchase ITN.	Link to UN as this is a UN campaign. Link to net distribution map.	Partners include NBA, United Methodist Church, Sports Illustrated, Boy Scouts, Orkin Exterminators.
Bite Back Malaria www.biteback.net/	Provides malaria facts, statistics, videos, and stories. Donation site to purchase fund raising items or nets.	Promote malaria education, fund raising ventures to provide prevention measures to those in need.	Link to Compassion International as this is an outreach of their organization.	Compassion intervenes by providing ITN, educating families on malaria prevention, treating malaria sufferers.
Roll Back Malaria www.rbm.who.int/	Provides endemic country and commodity facts, maps, and media on malaria. Donation center for ITN.	Supports global action to combat malaria. Assists countries through manufacturing, transport, and distribution of malaria prevention measures.	Link to toolbox for policy and strategy development on the topic of malaria.	Outreach program of WHO/Global Malaria Programme.
Citizen Groups:				
Gates Foundation www.gatesfoundation.org/	Fact sheets, programs and partnerships, progress reports, and research	Work to help all people lead healthy, productive lives. Provides grants to	Infographics, videos, news.	Over half of \$25 billion funds spent since 1998 have gone towards

General Assembly Mission Council Presbyterian Church USA gamc.pcusa.org/ministries/internationalhealth/networkers/	evaluation. Calls others to invest in proven malaria-control programs and promising research.	over 100 countries toward global health (including malaria), poverty and development, and education. Advertise ‘Nickels for Nets’ campaign to raise awareness and funding for ITN and malaria education for women in malarious countries.	Outlines a policy statement to assist those seeking involvement in global health.	global health. Enable and support mission outreach to those with malaria.
Corporate Entities: Exxon Mobil www.exxonmobil.com/Corporate/community_malaria_initiative.aspx World Bank web.worldbank.org/	Shares their interest in global business, community relationships, and direct impact of disease on success of business activities. Includes history, guiding principles, current issues. Inform public on role of World Bank activities.	As a major employer and investor in Africa, ExxonMobil is interested in malaria prevention and search for a cure. Supports partners to provide prevention tools, increase malaria control, and monitor progress in disease elimination. World Bank offers financial and technical assistance to developing	Links to Malaria Initiative and World Malaria Day.	Worlds largest publically traded international oil and gas and company. Partners include Africare, Roll Back Malaria, UN and Nothing But Nets, Malaria No More, Harvard school of Public Health, USAID. Interested in evidence-based approach toward policy issues for

Global Fund www.theglobalfund.org/	Info on how to apply for grant monies. Info on current grant statuses.	countries to help people help themselves. International financing institution that invests world's monies to save lives. Fight AIDS, TB, and malaria.	Link to Guidance Notes for expenditures toward development programs and assistance. Links to specific countries for information and grant applications.	malaria care.
Other Stakeholders: National Malaria Control Program, Kenya www.nmcp.or.ke/section.asp?ID=4 Maasai People None, but needed!	Information on malaria in Kenya, including malaria in pregnancy, vector control, monitoring and evaluation, epidemic preparedness, research, and global partners.	Inform population and global interested persons. Notes malaria facts and statistics specific to Kenya.	Provides links to global partners websites.	Acknowledges invaluable support from global partners including CDC, WHO, Global Fund, PMI, USAID. Kenyan tribe of approximately 1 million who suffer from

Other Non-government Organizations interested in malaria: <u>KeNAMM</u> Kenya NGO's Alliance Against Malaria www.kenamm.org/	Resource of Kenyan malaria statistics, policy ventures, resource needs.	Advocate in country and internationally as a voice for the voiceless who suffer from malaria in an effort toward malaria control.	Link to Kenyan malaria policy documents: Kenya National Malaria Strategy 2009-2017; Kenya Malaria Monitoring and Evaluation; Kenya Malaria Indicator Survey.	malaria. Partners include: community based organizations; other NGO's such as AMREF and Samaritan Purse Kenya; Kenya Red Cross; Malaria No More; PATH. Note that malaria control is "stymied by insufficient resources and inadequate awareness." Also, report ITN and medication distribution not reaching many communities secondary to lack of stock.
<u>AED</u> Academy for Education Development http://aed.org/News/Releases/staff-appointments.cfm	Describes program, approaches to education, lists locals of projects,	Non-profit organization that works globally to improve education, health, civil society and economic development.	Links to news and publication sites that support education in global locations for unique purposes,	Works specifically with behavior change strategies.

Other Research Entities with Malaria Interest: Walter Reed Army Institute of Research Wrair-www.army.mil/ <u>JHMRI</u> Johns Hopkins Malaria Research Institute malaria.jhsph.edu/			including communication toward education on malaria.	
	Up-to-date global health news and WRAIR research, and recent publications.	Department of Defense biomedical research organization toward relevant global medical solutions, including malaria control as life-saving product for care of military serving in malaria endemic areas. Conducts a complete spectrum of malaria research.	Offer 5 day, hands-on tropical medicine course.	Trialing malaria vaccine in Kenya.
	Information on malaria disease, statistics, current research and researchers.	State of the art facility to enable multidisciplinary researchers to investigate malaria treatment, control, prevention, and cure.	Extensive listing and links to malaria information sites.	

<u>TDR</u> Tropical Disease Research and Training apps.who.int/tdr/	Describes organization, and reasons for focus research areas.	Global collaborative program to combat major diseases of the poor and disadvantaged. Research and development goals aim toward sustainable care specific to people's needs. One focus is vector-borne diseases.	Grant application form. Extensive reference page on malaria topic.	Based at and executed by WHO in collaboration with WHO, UN, UNICEF, and World Bank. TDR won Gates Award for Global Health, 2011.
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Appendix C

Observation-Participation-Reflection Enabler

Phases 1  2  3  4			
Focus			
Primary <i>Observation and Active Listening</i> (no active participation)	Primary <i>Observation</i> with limited participation	Primary <i>Participation</i> with continued observations	Primary <i>Reflection and Reconfirmation</i> of findings with informants

From *Culture care diversity and universality: A worldwide nursing theory* (2nd ed., p. 52), by M. M. Leininger and M. R. McFarland, 2006, Sudbury, MA: Jones and Bartlett. Used with permission.

Appendix D

Stranger to Trusted Friend Enabler

The purpose of this enabler is to facilitate the researcher (or it can be used by a clinician) to move from mainly distrusted stranger to a trusted friend in order to obtain authentic, credible, and dependable data (or establish favorable relationships as a clinician); The user assesses him or herself by reflecting on the indicators as he/she moves from stranger to friend.			
Indicators of Stranger (Largely <i>etic</i> or outsider's views) Informant(s) or people are:	Date Noted	Indicators as a Trusted Friend (Largely <i>emic</i> or insider's views) Informant(s) or people are:	Date Noted
1. Active to protect self and others. They are "gate keepers" and guard against outside intrusions. Suspicious and questioning.		1. Less active to protect self. More trusting of researchers (their 'gate keeping is down or less'). Less suspicious and less questioning of researcher.	
2. Actively watch and are attentive to what researcher does and says. Limited signs of trusting the researcher or stranger.		2. Less watching the researcher's words and actions. More signs of trusting and accepting a new friend.	
3. Skeptical about the researcher's motives and work. May question how findings will be used by the researcher or stranger.		3. Less questioning of the researcher's motives, work, and behavior. Signs of working with and helping the researcher as a friend.	
4. Reluctant to share cultural secrets and views as private knowledge. Protective of local lifeways, values and beliefs. Dislikes probing by the researcher or stranger.		4. Willing to share cultural secrets and private world information and experiences. Offers most local views, values, and interpretations spontaneously or without probes.	
5. Uncomfortable to become a friend or to confide in stranger. May come late, be absent, and withdraw at times from researcher.		5. Signs of being comfortable and enjoying friends and a sharing relationship. Gives presence, on time, and gives evidence of being a 'genuine friend.'	
6. Tends to offer inaccurate data. Modifies 'truths' to protect self, family, community, and cultural lifeways. <i>Emic</i> values, beliefs, and practices are not shared spontaneously.		6. Wants research 'truths' to be accurate regarding beliefs, people, values, and lifeways. Explains and interprets <i>emic</i> ideas so researcher has accurate data.	

From *Culture care diversity and universality: A worldwide nursing theory* (2nd ed., p. 51), by M. M. Leininger and M. R. McFarland, 2006, Sudbury, MA: Jones and Bartlett. Used with permission.

Appendix E-1

Inquiry Guide in English

Ethnodemographics of Inquiry Guide

1. Gender
2. Age
3. Religion
4. Source of Water
5. Source of Cooking Fuel
6. Access to Telephone
7. Access to Radio
8. Do you live in a Maasai cultural home?
9. Do you live in a traditional Maasai village?
10. Have you been to school? What level did you complete?
11. What type of toilet facility do you have near your home?
12. How many children have you had? How many are living? How many 'moved on' from malaria? Do you remember their age?
13. Do you own an insecticide treated net? How many? Do you use the insecticide treated net? Who slept under the net last night?

Inquiry Guide

- To Discover Malaria Care Expressions, Patterns, & Practices among Maasai
- To Discover Folk Care and Professional Malaria Care-Cure Practices Within the Maasai Tradition
- To Discover Knowledge of Malaria Disease among Maasai

Cultural Values, Beliefs, & Lifeways

1. Tell me about malaria in the Maasai community.
2. What is it like for your family member/child to have malaria?
3. Tell me about the malaria disease.
4. What can you tell me about the causes and symptoms of malaria?
5. Tell me about your personal experience with malaria. As a person, a mother, a father?
6. Do you know anyone who has 'moved on' from malaria? Would you tell me the story?

Economic Factors

1. Tell me about how you pay for traditional medicines.
2. What can you tell me about the medical clinic? Is it available and affordable to you?

Educational Factors

1. From whom have you learned about malaria?
2. Would you be interested in learning about care for malaria? Tell me what you would like to know.

Care Expressions, Patterns, & Practices

1. Tell me how you care for a child with malaria.
2. Tell me how you care for an adult with malaria.
3. Tell me about where you go for care when you are sick.
4. Tell me about the traditional medicines used to treat malaria.
5. What can you tell me about any ways malaria can be prevented?

6. Tell me about insecticide treated nets.
7. Have you ever received education about the insecticide treated net? By whom?

Kinship & Social Factors

1. Tell me about who lives in your home.
2. Tell me about who lives in your village.
3. If you are sick, who cares for you?

Religious & Philosophical Factors

1. Describe your spiritual or religious beliefs.
2. How do your beliefs influence your care for malaria for yourself or for your family members?
3. Describe specific ways you prevent, treat, or recover from malaria.
4. Tell me about care for someone who has 'moved on' from malaria.

Technological Factors

1. What technology do you use?
2. Tell me about any form of technology you use to obtain information about malaria.

Political & Legal Factors

1. Tell me about the role of the Maasai chief in health care among the Maasai community.
2. How can NGO's or elected officials help with health care for the Maasai community?

Appendix E-2

Inquiry Guide in Maa

Maa Ethnodemographics of Inquiry Guide

1. Empukunoto e tung'ani / Olee arashu eng'uruei?
2. Kaja Ilarin linono?
3. Olkereti
Eira tung'ani le kanisa arashu tung'ani osuj Enkai too Ikuaak loo Imaasai li apa?
Ore te nira oltung'ani le kanisa, kaa abila ina anisa?
4. Ei ti ai nioku enkare te nkang ino?
5. Kainyoo oshi ninok pee iyierishorere anaa enkima? Ilkeek? Gas? Eilaata oltaa?
6. Iata esimu ashu cell/mobile anaake
Keata likai tung'ani esimu ashu cell/mobile ashu esimu niasishore ti ang?
7. Iata eradio anaake?
8. Kenkang oo Maasai nikimanya?
9. Kenkang ol kuaak loo Maasai imanya arashu enkaji naibor?
10. Ishomo aikata sukul? Kaja ikilasini nitabayie?
11. Iatata choo te enkang inyi?
12. Kaja inkera inono? Keton eishu pooki?
Kaja inkera nashomo (nemeishu) tenkaraki enkojong'ani?
Kaja ilarin lenye pee epuo? Kaja apa ilarin ilarin lenye pee epuo?
13. Iata iyie eneti natipikaki olchani?
Kaja?
Iasishore ina neti, aitoipore te nkata naishiaakino?
Kaing'ai nairraga abori e neti duo kewarie?

Inquiry Guide

Kayieu najur inkibelekenyat, olmoniek, olkuaki loo Imaasai ti alo eramatare e nkojong'ani.

Kayieu naineneng' eretoto o dupoto oo lkuak loo Maasai ti alo eramatare e enkojong'ani te nebo eretoto o dupoto le embaare e Sipitali.

Kayieu nayiolou enkiteng'ena e mueyian e nkojongani tiatua il Maasai.

Cultural Values, Beliefs, and Lifeways

1. Tolikioki ilomon oopirta enkojong'ani te nkop oo lMaasai.
2. Kaji eikununo te nemueyu oltung'ani linyi ashu enkerai ino enkojong'ani?
3. Tolikioki enaikununo ena mueyian e nkojong'ani.
4. Tolikioki imbaa naepu enkojong'ani oo lbulabul lenyena
5. Tolikioki induaat niimayie naaipirta emueyian enkojong'ani-- ira oltugani, yieyo (enkitok), orashu mpapa (olee).
6. Iyiolo oltugani oshomo pi tenkaraki enkojong'ani? Tolikioki imbaa naaipirta ele tung'ani apa pee emueyieu?

Economic Factors

1. Kainyo elaata (bei) te ninyang'u ilkeek loo Lmaasai e nkojong'ani? Kaji eikununo ele chani?
2. Kaji eikununo embaare e Sipitali ti alo enkojong'ani? Ketumoyu eretoto oshi ake te sipitali? Kaja erupiyani naainosie eramatare te sipitali? Kelelek? Kegol?

Educational Factors

1. Kaing'ai nikiteng'ena mbaa naipirta ele tikana le nkojong'ani?
2. Iyieu enkiteng'enare naaipirta eramatare e nkojong'ani? Tolikioki imbaa niyieu niyiou.

Care Expressions, Patterns, & Practices

1. Tolikioki eninko te niramat enkerai naata enkojong'ani.
2. Tolikioki eninko te niramat oltung'ani botor ooata enkojong'ani.
3. Tolikioki ewueji oshi nilo pee kibakieki te nimueiyu.
4. Tolikioki ilkeek oo lmaasai oobakiaki enkojong'ani?

5. Kakua oitoi nikiboorie enkojong'ani?
6. Tolikioki enaikununo e neti natipikaki olchani.
7. Ekiteng'enaki aikata imbaa e neti natipikaki olchani? Kaing'ai likiteng'ena?
8. Tolikioki ajo kaing'ai oishaa orusa tenaa keitoiporeki eneti ashu meitoiporeki te nkang ino.

Kinship & Social Factors

1. Tolikioki ajo kaing'ai ishulare te nkaji ino.
2. Tolikioki ajo kaing'ai ishulare te latia.
3. Amaa tenimueyu, kaing'ai likibak?

Religious & Philosophical Factors

1. Tolikioki indamunot niata ti alo Enkai oo lomon ooipirta ekirukoto nimbung'ita.
2. Keata enkirukoto e Nkai tipat ti alo eninko pee iramat kewan te nimueyiu arashu te niramat oltamueiyai to Imarei lino?
3. Tiakaki eninko pee imbok enkojong'ani pee mejing tung'ani. Kaji inko to niramat ilo tung'ani aibung'a enkojong'ani neishu.
4. Tolikioki eninko te neany oltameuyai aikashu, neye. Kaji inko ti alo osesen/osoit o lmeneng'ani?

Technological Factors

1. Kaa ng'eno (osek) iyasishore iyie?

Kaa ngeno oo mpukunot oo ntokitin iyashishorere? 2. Tiakaki eng'eno etaata (osek) nindim ataa iyiolo iasishore atumie ilkiliku naipirta enkojong'ani.

Political and Legal Factors

1. Tolikioki esiai naas Olaiguenani le murua inyi lo Imaasai ti alo eramatare o embiotisho to losho loo Maasai.
2. Kaa naidim inkompanini naaretishoriki arashu ilarikok oogeluno nataas pee eretu te rematare o embiotisho to losho loo Maasai?

Appendix F

Permission Letter from Maasai Chief



**OFFICE OF THE PRESIDENT
MINISTRY OF INTERIOR AND NATIONAL COORDINATION**

THE AREA CHIEF
KIMANA LOCATION
P.O BOX 384-00209
LOITOKITOK.
18TH JUNE 2013.

REF NO: LTK/KMN/CORR/3/1/VOL1

TO WHOM IT MAY CONCERN

Dear Sir/Madam

RE: MS. CECILY STRANG

This is to confirm that the above mentioned is a student of the University of Tennessee U.S.A doing a P.H.D in Nursing. Ms. Strang is hereby permitted to undertake qualitative research study about Malaria. Any assistance accorded to her is highly appreciated and welcomed.
Thank You.

Yours Faithfully


Snr. Chief John Lalaito.

AREA CHIEF
KIMANA LOCATION
P.O. BOX 1, LTK.

Appendix G**University of Tennessee Knoxville Institutional Review Board Form B****FORM B**

IRB # _____

Date Received in OR _____

THE UNIVERSITY OF TENNESSEE*Application for Review of Research Involving Human Subjects*

I. IDENTIFICATION OF PROJECT**1. Principal Investigator:**

Cecily Strang, PhD(c), MSN, RN
Doctoral Candidate, College of Nursing
University of Tennessee, Knoxville
Home address: 1177 Holston Avenue
Bristol, TN 37620
Phone: 423-341-1624
cstrang4@utk.edu

Faculty Advisor:

Sandra J. Mixer, PhD, RN, CTN-A
Assistant Professor of Nursing
University of Tennessee
1200 Volunteer Boulevard
Knoxville, TN 37996
Phone: 865-974-9430
smixer@utk.edu

Department:

College of Nursing

2. Project Classification:

Dissertation

3. Title of Project:

Discovery of the Meanings, Expressions, and Practices Related to Malaria Care Among
the Maasai

4. Starting Date:

Upon IRB Approval

5. Estimated Completion Date:

May 10, 2014

6. External Funding: none

II. PROJECT OBJECTIVES

The purpose of this qualitative, ethnonursing study is to discover, describe, and systematically analyze meanings, expressions, and practices related to malaria care among the Maasai men and women who reside in the Kisongo Maasai villages in Kimana region of Southern Kenya. The domain of inquiry (DOI) is culturally congruent malaria care among the Maasai people. The goal of this study is to discover traditional and professional nursing practices that will promote malaria care that is safe, beneficial, and fits with the people's daily lives. Within the context of this study, malaria care will refer to any cultural, indigenous, folk, or professional meanings, expressions, or practices related to prevention of malaria, treatment for malaria, care of those who have died, and/or after effects of the malaria disease within individual members or the Maasai community as a whole.

The research questions are:

5. What are the meanings, expressions, and practices related to malaria care among the Maasai?
6. How do the Maasai worldview, culture and social structure, environmental context, and ethnohistory influence malaria care?
7. What are the generic (folk) care and professional care/cure practices related to malaria care among the Maasai community?
8. What nursing care actions and decisions would promote culturally congruent malaria care for the Maasai of the Kisongo Maasai villages in the Kimana region of Southern Kenya?

Malaria is a complicated illness that includes a parasitic life cycle requiring both a human host and a female *Anopheles* mosquito vector, and a suitable environment (World Health Organization (WHO), 2013a). Malaria is a preventable and treatable disease and global interest in malaria encompasses prevention, treatment, and eradication. Yet, malaria remains in the top 10 causes of sickness and death in developing, low-income countries (WHO, 2012). Twenty percent of all childhood deaths are attributed to malaria, with 90% of these deaths in children under 5 years old in sub-Saharan Africa (WHO, 2013b). Malaria is a determinant of the poverty cycle with loss in health, productive work time, local and foreign investment, and education (Nothing But Nets, 2012).

All who reside in Maasailand in Kenya and Tanzania live at risk for malaria (KMIS, 2011). Malaria is curable if diagnosed promptly and treated correctly. Classic symptoms include a cold stage (chills and shivering), a hot stage (fever, headaches, nausea and vomiting), and a sweating stage (return to normal temperature and general malaise) (Centers for Disease Control [CDC], 2010). Severe malaria can occur within 24-48 hours of initial symptoms and may include cerebral malaria, severe anemia, abnormal blood coagulation, permanent neurologic damage, coma, and/or death (CDC). President's Malaria Initiative and Kenya National Malaria Control Strategy promote malaria care and support use of insecticide treated nets (ITN), indoor room spray (IRS), intermittent preventative treatment during pregnancy (IPTp), rapid diagnosis for fevers (RDT), and treatment with artemisinin-based combination therapy (ACT) as first-line treatment for uncomplicated *P. falciparum* malaria (Arguin & Mali, 2011; Kenya, 2012; WHO, 2013).

The primary investigator (PI) has noted little discussion among the Maasai about malaria care on visits over the past 25 years to Maasailand; however, she did hear great concern expressed by the Maasai community when someone was ill with malaria. Consequences of morbidity and mortality affect their health and economic status. Malaria care among the Maasai is unknown. The literature search revealed a dearth of information on the topic of Maasai and malaria. Several ethnobotanical studies noted Maasai have accurate knowledge of herbs that are selective to the malaria parasite (Bussmann et al., 2006; Koch et al., 2005). One study sought the perceptions of Kenyan Maasai toward professional health care, which included malaria care (Wanzala et al., 2005). A mixed methods study referenced the knowledge and practices of malaria among the Maasai in Tanzania (Malisa & Ndukai, 2009).

The Maasai continue to suffer incessantly from malaria. Geographic location and traditional lifeways place the Maasai at high risk for malaria infectivity, morbidity, and mortality; yet, few research studies on malaria-related issues were found specific to their geographic location or tribe. Maasai are an underserved population in need of research on the topic of malaria care.

No studies were found that explored current malaria care, why Kenyan Maasai are not using known professional prevention and treatment modalities, or why morbidity and mortality has not decreased among the Maasai in Kimana region. This study will be the first ethnonursing study conducted to discover the meanings, expressions, and practices of malaria care among the Maasai in Kenya. Also, this will be the first study to use the theory of Culture Care Diversity and Universality (CCT) in the Maasai culture and on the topic of malaria. This researcher will also seek traditional artifacts symbolic of malaria care, so photography may be a form of data collection. Therefore, participants will be given opportunity to consent to have their photograph taken.

Malaria care within Maasailand should incorporate the specific needs unique to their culture and context. It is not known what folk care, professional care, or global malaria care initiatives are used in the Kimana region of Maasailand. What is known in the literature on malaria care prevention and treatment may be relevant to malaria care for these traditional Maasai who suffer from endemic malaria. This study is essential to build on the known scholarly works toward discovery of the unknown, in the quest to offer the Maasai culturally congruent malaria care. Findings from this study will contribute to knowledge necessary for nurses and professional health care workers in the Maasai community to develop culturally congruent malaria care. Qualitative findings will provide a basis for recommendations for prevention education, treatment of active disease, and policy related to best practice malaria care (Morse, 2002).

III. DESCRIPTION AND SOURCE OF RESEARCH PARTICIPANTS

First, the PI entered the culture to gain gatekeeper permission to conduct this research study in the Maasai district. The PI secured verbal agreement from Maasai elders and written official permission from the senior chief of the Kisongo area (Appendix A).

After permission to conduct the study has been granted by the UTK IRB, the PI will travel to the region and recruit persons for the study. The PI will visit area villages, share information regarding the study, and seek participants. The PI holds no authority position within the villages; therefore, there is minimal possibility of coercion. Information regarding the research study will be disseminated primarily by word of mouth, from the PI to villagers. An exact script will be used to disseminate information to describe the study to all potential participants (Appendix B). Interview dates and locations will be arranged by PI, either through face-to-face conversations or through use of a cell phone. Many Maasai own mobile phones, so contacts and interview dates may be scheduled or confirmed between PI and informants in this manner. Purposive sampling will be used to obtain informants from this region who will come forward voluntarily. Men and women who self-identify as Maasai, speak fluent Maa, and live in a Kisongo Maasai village will be invited to participate as key informants. Key informants are primary informants who have emic knowledge of experiencing malaria and offering malaria care in Maasailand; these will number 10-12 persons with the goal of 4 men and 8 women. The one-third: two-third ratio was chosen to show respect to the patriarchal culture, yet ensure inclusion of women who are the primary care givers to children, yet who may not be given a voice. Inclusion of men and women will also give opportunity to discover similarities and diversities of malaria care among the Maasai men and women. General informants are persons with general knowledge about malaria care among the Maasai and may or may not speak Maa. These informants may be community health care providers, religious leaders, teachers, and store or pharmacy owners. There will be 16-20 general informants, approximately twice the number of key informants. The general informants will offer confirmatory data and clarify diverse and universal concepts about the meanings, expressions, and practices of malaria care among the Maasai. The aim will be data saturation in which the PI will be convinced the analysis is credible and fully reflective of the DOI, thus the need for a range on the number of informants. Saturation will be noted by redundancy and duplication of data gathered from observations and from the informant interviews.

In the traditional Maasai culture, a mother and her daughters are the primary caregivers to children; also, a female is eligible for marriage and child bearing after onset of menses, between 9 and 16 years of age (Archambault, 2011; Saitoti & Beckwith, 1980). The age of mothers and fathers in the Kisongo villages is unknown. Given the high malaria mortality and morbidity statistics for children under 5 years old and given the childbirth and childcare responsibilities within the traditional Maasai lifeways occur at an early age, discovery of data related to malaria care would be limited if the age of informants were limited to a minimum of 18 years old, the United States definition of an adult. Therefore, key and general informants for this study will include men and women equal to or greater than 18 years of age and will also include persons age 12 to 17 who are mothers or fathers caring for their own children. By the age of 12 and above, some traditional Maasai may have completed the ceremonial process for marriage and some of these women have borne a child.

Interviews with key informants will be conducted within an individual context. Interviews with general informants will be conducted within individual and group contexts, with approximately five individual and four focus groups of 3-4 informants per group. Small focus groups will afford feasibility of time for each participant to share their perspective on malaria care and allow for time for the use of an interpreter, if necessary. Focus groups may include a cluster of persons with similar interests such as Maasai elders or health care workers. The inclusion of focus groups will show respect for the traditional decision-making process of the Maasai culture and show value for the community voice, thus strengthening credibility of the data.

IV. METHODS AND PROCEDURES

After IRB approval, the PI will travel to Maasailand, Kenya to conduct this ethnonursing research with face-to-face interviews. Maasai informants will be asked to participate in this study and to tell their stories of malaria care. The inquiry guide will be referenced for both the key and general informants interviews (Appendix C). The four phases of the Ethnonursing Analysis for Qualitative Data will guide this study (Appendix D). In the first key informant interview, semi-structured, open-ended questions will direct the inquiry and the informant will also be free to tell their story. This interview will be in the presence of the PI and, if the informant is not fluent in English, a Maa language interpreter (Appendix E). The interview will take place at a private location convenient to the informant and will last no longer than 2 hours. There may be a need for follow-up meetings for data clarification. There would be a maximum of two follow-up meetings that would last no longer than 1 hour.

For general informant interviews, whether individual or a focus group, semi-structured, open-ended questions will direct the inquiry and the informants will also be free to tell their story. This interview will be in the presence of the PI and, if the informants are not fluent in English, a Maa language interpreter will also be present (Appendix E). The interview will take place at a private location convenient to the informants and will last no longer than 2 hours. The PI will usually only conduct one general informant session, with a maximum of two sessions if there is a need for data clarification. The second session would be a maximum of 1 hour. Participants in the focus groups will be requested not to discuss any information which was discussed in the focus group outside of the group interview. They will be reminded that anonymity cannot be maintained. For all interviews, the PI will take notes before, during, and after the interview and also ask permission to audio record the conversation. This digital recording will be transcribed by the PI and used to clarify accuracy of the language interpretation and for data analysis. The use of one researcher and one translator will ensure consistency in the data collection. If the informant does not give permission for audio recording, the PI will take notes and make extensive additional notes in a field journal immediately following the interview. Ideally, one interview per day will occur; however due to the harshness of the environment, transportation challenges, or schedules of ceremonies or informants, exceptions may be necessary. A maximum of three interviews per day will occur.

Following Maasai tradition for the content of a conversation, it is also appropriate and expected to ask questions about family and children. Ethnodemographic questions will be asked (Appendix C). Major tenets of the Culture Care Theory were resourced to guide the formation of a comprehensive and

respectful inquiry guide (Appendix C). All questions were worded with cultural sensitivity. The informants will be reassured at the beginning of the interview that they may choose not to answer any questions that they interpret as inappropriate and they may end participation in study at any time without consequences. Study participants will be compensated for time and transportation expenses to and from the interview site, equivalent to \$5 US. \$5 was carefully selected to cover reimbursement for a full days wage and transportation to and from interview location and their home village. This is an appropriate amount to offer the participants for their willingness to participate in this study. \$5 will cover reimbursement for a full days wage that will be lost while taking a day to travel to, participate in, and return to their home village. It will also cover their transportation cost. As is culturally expected within the Maasai tradition, the researcher will serve chai, a hot tea with milk and sugar, and cookies when she hosts the interview.

In addition to interviews, general observations by the PI, focused on the DOI, will be conducted within public, such as the market day, and private contexts. The intent of these observations will be to gain understanding of the broader environment and cultural aspects specific to the context of the Maasai culture and community. This broader understanding will assist the PI in understanding the context of the interview and the cultural perspective of the Maasai. Observations within private settings may occur within villages, local health care centers, worship services, and when specifically invited, in attendance at celebrations of the community. PI will gain access to these contexts by asking permission from the gatekeeper of the context, explaining that she is doing research on malaria care, and describing that the purpose of the observation will be to gain understanding of the environment, the culture, and the community. She will make most of these contacts by making an in-person visit. She will schedule a future day and time, and respect the decision of the gatekeeper if they request that she not observe within their context. The PI may ask an elder for permission to visit his village or the director of the health care center for permission to tour the health care center or a pastor to visit his church. When the PI is observing in private contexts, such as Maasai villages, local health care centers, worship services, or community celebrations, a local leader of that context, such as an elder, director, or pastor, will inform those in attendance that the PI is in the area to conduct research on malaria care in the Maasai communities. This announcement will also be made in advance of the PI's visit.

The PI will use a field note journal to record observations, to note reflections pre and post interviews, and to record insights and themes during the data analysis process. This is referred to as an audit trail and is a form of qualitative rigor. After completion of the study, the transcribed data, digital audio files, observation field notes, and password protected zip drives with data will be held in the PI's secured office in a locked cabinet. All digital files will be erased and all papers will be shredded after analysis is complete and the research is published. The consent forms will be held in Dr. Mixer's locked office in a locked file cabinet for 3 years; they will then be shredded.

V. SPECIFIC RISKS AND PROTECTION MEASURES

Participation in this study involves minimal risk. Talking about malaria care may raise issues or concerns that the informant has not previously discussed or considered. In the course of the interview discussion, PI will mention local resources available to the informant with whom they can discuss their concerns or learn more about malaria care. These resources may include a village elder, a traditional healer, or the personnel at local health clinic. The PI does not speak fluent Maa, so if the participant does not understand a question or if the PI does not understand the answer, the participant may become frustrated. Using a translator will help everyone to best understand the questions and answers. The PI will ask questions that might make the participant uncomfortable and permission will be clearly given to the participant that they may refuse to answer any question. The participant may decline to participate or withdraw from the study at any time without penalty.

The translator will be D. Kanchani. She is a Maasai woman, fluent in English and Maa, and has served the Maasai community as a community health worker for over 30 years. In her daily work, she has the role as a health care translator in the assessment of people's health care needs, beliefs, and practices. As a Maasai and health worker, she is fully qualified to translate terminology to both represent the Maasai traditional perspective as well as the health perspective. The PI has known D. Kanchani for 25 years. She

is an honest and trusted member of the Maasai community. She has agreed to be a translator during the entirety of the research study. It is appropriate to have a female translate to both males and females in the Maasai culture. The PI met with her in June 2011 to ask her to participate as translator for this research study. The PI, in September 2013, confirmed through phone conversation that she remains willing to act as translator for the study. PI has reviewed the inquiry guide with her, and she has stated she is comfortable with this line of interviewing.

The Maasai gatekeepers' permission for the research study will offer credibility with the villagers for the researcher to receive truthful answers and to travel safely in the area. The information gathered for the study will be kept confidential. The translator will sign a confidentiality statement (Appendix E). All informant data on the inquiry guide, field notes, and audio recordings will be de-identified. The data and signed forms will be stored securely in a locked box in a locked vehicle. The informant's signature, mark, or witnessed verbal agreement will indicate he/she has received and carefully read or had the consent form verbally explained and agrees to participate. An agreement will be confirmed either by signature or personal mark, if the participant reads and writes, or by saying yes and reciting a statement noted on consent form, if the participant does not read or write. A verbal agreement will be witnessed, signed, and dated by the PI. The PI will use a password-protected computer and zip drives to store data. The field notes journal will remain either with the PI in a bag on her person while in the field, or in the secured location of a locked box in a locked vehicle. All information in the journal pertaining to the informants will be de-identified and coded with a numeric identifier. Identifier codes for key and general informants will be stored securely in a locked box in a locked vehicle. This will be a separate locked box from the secure space used for the computer and other data records.

No reference will be made in oral or written reports that could link the informant's name to the study; a private identifier number unique to each informant will be used to label all information so identity will be kept private; this identifier number with name of participant will be kept in a separate file in a separate locked box in a locked vehicle and only made available to PI and her advisor. Also, consent forms with personal information will be kept in a locked vehicle in a locked box. During the study, digital audio and written data will be stored securely in a locked box separate from the consent form box in a locked vehicle and will be made available only to PI and her advisor. The PI will also use a password protected personal computer and password protected zip drives for data storage of digital audio and photograph data, typed data, and data analysis. The computer and zip drives will be kept in a locked box in a locked vehicle.

There is some risk to the PI to conduct research in Maasailand, Kenya. However, to maintain the highest possible personal safety, several protective measures are planned. PI will hire a guard around the clock, 7 days a week to watch over the place where she and the translator will be staying. This person will guard for protection against intruders and wild animals. In addition, a male driver will be hired to transport and protect the PI and the translator. Also, the village elders have given permission for PI to conduct research in their region. They are waiting for the PI to advise when she will arrive and they will make the community aware of the reason for her presence. At that time, they will travel to all area villages and tell the residents of the villages and also persons in the nearby town that PI is in the area to conduct research and that she has their permission to be in the area.

VI. BENEFITS

Individual participants will not receive any direct benefit from participation in this study. However, informants may be encouraged that the researcher recognized the value and importance of the Maasai malaria care story. Future benefits may result from gathering information about malaria from the Maasai stories. This information may help health care workers understand the Maasai story and guide them to provide specific information for the Maasai people about culturally congruent malaria care and malaria prevention.

VII. METHODS FOR OBTAINING "INFORMED CONSENT" FROM PARTICIPANTS

A conscientious effort will be made by the PI to conduct a culturally respectful research study that protects all participants. The translation processes of forward, back, and monolingual translation from source language of English to target language of Maa have already been conducted for the informed consent (Appendix F) and for the inquiry guide (Appendix C). An interpreter fluent in English and Maa will be present for all interviews where the participant does not speak fluent English. The informed consent form will be available in English and Maa and will disclose the study purpose, risks, and benefits.

At the beginning of a scheduled meeting with the informant, chai and cookies will be served and the informant will be given reimbursement for travel expenses, equivalent to \$5 US. Next, prior to beginning the interview, informed consent will be obtained. Either English or Maa will be used to obtain consent and for the interview. Each informant may read the consent form, which will be available in English and Maa. If the informant cannot read and speaks fluent English, the PI will read consent form. If the informant does not speak fluent English and does not read Maa, a Maasai interpreter will read consent form and assist with translation during the interview. The participant will have an opportunity to ask any questions, reflect on whether he/she wants to participate or decline participation in the study, and will be informed he/she is free to end the interview at any time without penalty. The PI will answer all informant questions about the study before the participant gives consent. If the participant agrees to an interview, he/she will sign the consent form. The signed informed consent, either by signature, personal mark, or verbal agreement witnessed by the PI and interpreter, will signify understanding of the study and full consent to participate.

VIII. QUALIFICATIONS OF THE INVESTIGATOR TO CONDUCT RESEARCH

C. Strang, the PI, is qualified to conduct this research study. She has a Masters degree in nursing, is a PhD candidate at the University of Tennessee, and has been mentored by expert nurse scientists, researchers, and educators. She has also lived among, worked with, and visited the Maasai people for over 25 years. She is respected by the Maasai community, local health care workers, and village elders. She is known in the Maasai area by her Maasai name, *Naserian*. To receive a Maasai name from the community is an honor and she accepts high ethical responsibility to respect their unique culture as a primary focus while conducting the research study. The PI's respect among the Maasai community will add credibility to the quality of data collected. She has obtained full support and permission from Maasai senior chief and village elders to conduct this research in their district.

Dissertation Committee:

UTK College of Nursing

Chair – Sandra J. Mixer, PhD, RN, CTN-A. Expertise: Transcultural Nursing, ethnonursing research method.

Tami H. Wyatt, PhD, RN, CNE, ANEF. Expertise: Nurse researcher, educator, and instructional designer; UTK IRB committee member with expertise regarding protection of human subjects and confidentiality.

Sadie P. Hutson, PhD, RN, WHNP, BC. Expertise: Women's health; chronic illness in rural/underserved populations.

External Member, UTK Department of Public Health

Paul C. Erwin, MD, DrPH. Expertise: Evidence-based health policy that derives from and impacts public health; health disparities nationally and internationally, particularly among rural poor; community-based health assessment and planning.

Expert mentor:

Sandra J. Mixer, PhD, RN, CTN-A

Assistant Professor, College of Nursing, University of Tennessee, Knoxville, TN

PhD, University of Northern Colorado 2008

MSN, University of Texas at Arlington 1996

BSN, Saginaw Valley State University 1987

RN, Diploma Mercy Central Nursing School 1980
 ELNEC, Certified Trainer for End-of-Life Nursing Education Curriculum
 CTN-A, Certified Transcultural Nurse—Advanced

IX. FACILITIES AND EQUIPMENT TO BE USED IN THE RESEARCH

This study will be conducted among the Kisongo Maasai villages in the Kimana region of Southern Kenya, East Africa. Semi-structured, open-ended questions will guide the interviews (Appendix C). Most individual interviews will be conducted in a camp where the researcher will be residing. This camp is centrally located to Kisongo area villages and conducive to private conversation. This camp environment has large trees for shade, toilets, an outdoor kitchen, and clean spring water. When requested, the PI will travel to the informant's village and the interview will take place in a private outside location, likely under a tree near the Maasai home. An interpreter who is fluent in English and Maa will be present for all interviews where participant does not speak fluent English, will sign a confidentiality statement (Appendix E), and will be compensated at an hourly rate. It will be necessary to have a consent form in English and Maa languages. All translations will be confirmed using forward translation, back translation, and a monolingual test. The translation process for the consent form (Appendix G) and inquiry guide (Appendix H), from English into the target language of Maa, will be conducted by the PI, traditional Maasai, and by Maasai who have graduated from Form 4. (Form 4 is equivalent to a high school graduate status in the USA and graduation signifies fluency in English.) A copy of the back translation of the informed consent is included in the Appendices (Appendix I). The researcher will use a field note journal during the observation, interview, and data analysis process to record data, researcher insights, and observations from the field. The PI's personal computer will be used to store data and data analysis. The ATLAS.ti © computer data analysis and research software program will be used. Computer use will be password coded and only available to the researcher. The computer and password will be kept in a locked, secure location. Audio recordings per digital recorder will also be used to clarify language interpretation and for data analysis. The audio recordings will be transcribed by PI and will be erased at the end of the study.

With permission, the use of photography is culturally appropriate in Maasailand. Images of the traditional lifeways of the Maasai culture and malaria care will enhance the discovery and description of this ethnonursing research study. Those who sign the informed consent will also be given the consent option to be photographed. A separate consent specifically for take and use of photographs will be used (Appendix J, English and Appendix K, Maa). The photography consent was written with cultural sensitivity in mind. The consent was forward translated from English to Maa by a Maasai translator, an elder fluent in English and Maa. The Maa translation of the photography consent also went through the monolingual translation process. The translator read the consent to a traditional, non-formally educated Maasai warrior who acknowledged full understanding of the content. The consent will include permission to use photographs in the dissertation and in future presentations and publications related to the study. If an informant does not consent to photography, no photographs will be taken. A digital camera will be used to take photographs. Following an interview, photographs will be immediately transferred to ATLAS.ti © computer data analysis and research software program in a password protected computer and then deleted from camera.

X. RESPONSIBILITY OF THE PRINCIPAL INVESTIGATOR

By compliance with the policies established by the Institutional Review Board of The University of Tennessee the principal investigator(s) subscribe to the principles stated in "The Belmont Report" and standards of professional ethics in all research, development, and related activities involving human subjects under the auspices of The University of Tennessee. The principal investigator(s) further agree that:

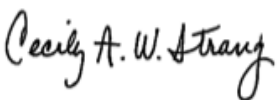
- 1. Approval will be obtained from the Institutional Review Board prior to instituting any change in this research project.**
- 2. Development of any unexpected risks will be immediately reported to Research Compliance Services.**

3. An annual review and progress report (Form R) will be completed and submitted when requested by the Institutional Review Board.
4. Signed informed consent documents will be kept for the duration of the project and for at least three years thereafter at a location approved by the Institutional Review Board.

XI. SIGNATURES

ALL SIGNATURES MUST BE ORIGINAL. The Principal Investigator should keep the original copy of the Form B and submit a copy with original signatures for review. Type the name of each individual above the appropriate signature line. Add signature lines for all Co-Principal Investigators, collaborating and student investigators, faculty advisor(s), department head of the Principal Investigator, and the Chair of the Departmental Review Committee.

Principal Investigator: Cecily Strang, PhD(c), MSN, RN

Signature:  Date: _____

Faculty Advisor: Sandra Mixer, PhD, RN, CTN-A

Signature: _____ Date: _____

XII. DEPARTMENT REVIEW AND APPROVAL

The application described above has been reviewed by the IRB departmental review committee and has been approved. The DRC further recommends that this application be reviewed as:

☐ Expedited Review -- Category(s): _____

OR

☐ Full IRB Review

Chair, DRC: _____

Signature: _____ Date: _____

Department Head: _____

Signature: _____ Date: _____

Protocol sent to Research Compliance Services for final approval on (Date): _____

Approved:
Research Compliance Services
Office of Research
1534 White Avenue

Signature: _____ Date: _____

Appendix H

IRB Approval Letter with Consents

THE UNIVERSITY of TENNESSEE 
KNOXVILLE
Office of Research & Engagement
INSTITUTIONAL REVIEW BOARD (IRB)

1534 White Ave.
Knoxville, TN 37996-1529
865-974-7697
fax 865-974-7400

DATE: October 29, 2013

IRB# 9290 B

TITLE: Discovery of the Meanings, Expressions, and Practices Related to Malaria Care among the Maasai

Cecily Strang
Nursing
1177 Holston Avenue
Bristol, TN 37620

Sandra Mixer
Nursing
1200 Volunteer Blvd.
Campus - 4180

The points of clarification you submitted to this office regarding the above-captioned project satisfied the concerns of the reviewers and the IRB thus, your project has been granted approval.

Approval is for a period ending one year from the date of this letter. Please make timely submission of renewal or prompt notification of project termination (see item #3 below).

Responsibilities of the investigator during the conduct of this project include the following:

1. To obtain prior approval from the Committee before instituting any changes in the project.
2. To retain signed consent forms from subjects for at least three years following completion of the project.
3. To submit a Form D to report changes in the project or to report termination at 12-month or less intervals.

The committee wishes you every success in your research endeavor. This office will send you a renewal notice on the anniversary of your approval date.

Sincerely,



Brenda Lawson
Compliances

Enclosure

Appendix F

Informed Consent StatementDiscovery of the Meanings, Expressions, and Practices
Related to Malaria Care Among the Maasai

Thank you for expressing interest in participation in this research study. Maasai men and women, age of 18 and over and persons age 12 to 17 who are mothers or fathers caring for their own children, are invited to participate. The purpose of this study is to discover the cultural expressions, patterns, and practices related to malaria care among the Kisongo Maasai villages in the Kimana region of Southern Kenya.

INFORMATION ABOUT PARTICIPANTS' INVOLVEMENT IN THE STUDY

The Maasai chief and elders and the researcher's university have given permission to conduct this research study in your district. You are asked to participate in this study by telling your story of malaria. In the first interview, you will be asked a few questions and will also be free to tell your story. This interview will be in the presence of Cecily Strang (Naserian), and may include a Maasai language translator if you do not speak fluent English. The interview will take place at a location convenient to you and will last no longer than 2 hours. It may be necessary to ask more questions to clarify the information, so you are also asked to give permission to be contacted again. You will only be asked to meet with Naserian two more times and no longer than 1 hour each time. Naserian will take notes during the interview and also ask permission to audio record the conversation. This recording will be used for language interpretation and the recording will be destroyed at the end of this study. The English portion of the interview will be put into written form. Your story and information will be labeled with a number so your identity can remain private; your real name will not be used when the information from this research is shared. If you are a participant in a focus group interview, in addition to the above information, you will be in a group setting with 3-4 persons of similar interest, therefore anonymity cannot be maintained. You are asked not to share personal information with others that was discussed during interview.

RISKS

There are small risks to participate in the study. Talking about malaria may raise issues or concerns that you have not discussed or considered. Local resources are available where you can discuss your concerns or learn more about malaria care, such as the village elder, a traditional healer, or the personnel at the local health clinic. Naserian will ask questions that might make you uncomfortable and you have permission to refuse to answer any question or end your participation at any time. Naserian does not speak fluent Maa, so the interpreter will help everyone to best understand the questions and answers.

Participant's initials

UTK IRB Approval:

OCT 29 2013 - OCT 29 2014

BENEFITS

You will have the opportunity to share your story. There may be no immediate benefit to you. Your information will help health care workers understand the Maasai story and guide them to provide specific care and/or information for the Maasai people about malaria care.

CONFIDENTIALITY

The information gathered for the study will be kept confidential. The researcher will protect all information you give her by storing all information in locked file boxes that will be locked in her vehicle. The researcher will also identify your information with a unique number and not your name. The researcher and her university advisor will be the only two people who have access to the list that relates you to your unique number. After the researcher returns to the U.S., all research information will be kept in a locked cabinet in her secure office until the report is finished and consent forms will be kept in a locked cabinet in her advisor's secure office at the University of Tennessee for 3 years.

COMPENSATION

Travel expenses equivalent to \$5 US will be reimbursed at the beginning of each interview. There will be no additional compensation for participation in this study.

CONTACT INFORMATION

If you have questions at any time about the study, you may contact the researcher, Cecily Strang (Naserian), at her hotel or call or send text to her cell phone, which is dedicated to the study only, at _____.

If you have any questions about your rights as a participant, please call Benjamin Turarri at this mobile phone number: _____.

PARTICIPATION

Your participation in this study is voluntary; you may decline to participate without penalty. If you decide to participate, you may withdraw from the study at any time without penalty. If you withdraw from the study before data collection is completed, the information you have given will be destroyed and will not be included in the study.

This Participant is a (check one):

Individual Key Informant _____ Participant's Initials

Individual General Informant _____ Participant's Initials

Focus Group General Informant _____ Participant's Initials

_____ Participant's initials

UTK IRB Approval:

OCT 29 2013 - OCT 29 2014

CONSENT

A. I have read the above information. All my questions have been answered. I understand this information and the risks and benefits. I have received a copy of this form. I willingly participate in this study to discuss malaria care and I know that I can stop at any time without penalty.

Participant's signature _____ Date _____

Investigator's signature _____ Date _____

I agree to be audio recorded. _____ Participant's initials

For focus group participant:

I agree to participate with up to 3 other people and I agree not to discuss content of focus group outside the focus group. _____ Participant's initials

OR

B. The consent has been read to the participant and the participant has agreed to participate in this study by reciting the following:

"Naserian and/or interpreter has read a consent to me. I understand this information and the risks and benefits. All my questions have been answered. I have received a copy of this form. I willingly participate in this study to discuss malaria care and I know that I can stop at any time without penalty."

I agree to be audio recorded. _____ Investigator initials
 _____ Witness initials

For focus group participant, the participant will also recite:

"I agree to participate with up to 3 other people and I agree not to discuss content of focus group outside the focus group."

Name _____

Date _____

Time _____

Investigator Signature _____

Witness Signature _____

UTK IRB Approval:

OCT 29 2013 - OCT 29 2014

Appendix G

Informed Consent: Maa Translation

ERAMATARE ENKOJONG'ANI (OLTIKANA) TOO LMAASAI: ILOMON LOO EYIOLOUNOTO OO ENKIRPITA OO NKIASIN

Ashe intodolutua eyieunoto tena siai enjurore. Kintoomon intai--llewa oo ntasati oo Lmaasai oo larin tomon o esiet negiroo, tenebo iltung'ana oo larin tomon o are o metabaiki ilarin tomon o opishana laa ilpayiani oo ntomonok naaitubulu inkera enye kintoomon intai tenebo. Ore enkipirta ena kisoma naa pee kiyiolou enaikununo ilkuaak o nkiasin ti alo eramatare Enkogong'ani (Oltikana) too nkang'itie oolmaasai loo Lkisonko te murua e Kimana emoikuape olosho le Kenya. Kiyieu nikiyiolou enaiko Ilmaasai te nebak iltamueyia oojing Nkojong'ani (oltikana). Kiyieu nikisipu enaajo Ilmaasai ti alo eramatare oo ltameuyia too sipitalini arashu te nebakini oltamueyia too lkuaak loo Lmaasai li apa too nkang'itie. Kiyieu nikiyiolou enaas Ilmaasai pee emitiki Enkojong'ani (oltikana) metijing'a oltung'ani. Kiyieu sii nikiyiolou ilkuaak oo Lmaasai te neany oltamueyia eikashu.

ILOMON OOIPARTA ILTUNG'ANA OOAKU ILARETOK TEINA JUORE

Eishorutua ilaiguenak loo Lmaasai oo lpayiani le murua tenebo sukuul oo lajurok (University of Tennessee te America) mataas ena juore too lkerenget linyi. Eomoni intai pee kiaku nabo tena kiteng'enare pee ilimu imbaa niyiolo naaipirta eramatare e Nkojong'ani (Oltikana) tiatua Ilmaasai. Ore ena kilikikuanare naa keasi tedukuya e Cecily Strang (Naserian) te nebo olaibelekenyani le nkutuk oo Lmaasai te nimiroro inkutuk oo Lashumpa. Ore enkilikuanare naa keyauni emurua nikitaaniki nemeya erishata naado nalang isaai are. Kintoomon intai orusa pee kintoki aairorie ti ai olong, ' pee kimbalye ilomon leitu kisip te rishata e dukuya. Te neririkino pee kingil intumoritin ang, kiomon pee itumore Naserian te kulie olongi katitin are, nemeya erishata naado alang esaa nabo te nkata. Keigerisho Naserian imbaa nilimu tene kilikuanare, neomonu sii orusa pee eyayie oltoilo le nkiroroto te ntep. Ore ilo toilo oyai naa keretu tenkibelakenyata oo rorei, naa ore ilo toilo kepuoi aajut te nkiting'oto ena kisoma. Ore ilomon linosu, neibelekenyi pee eigeri te Kingeresa. Ore ilomon lirorie, naa keishori esiana pee mikiyiolouni. Ore enkarna ino nemeimakini eisumitai ena juore. Tena ira obo le lelo otii olturrur e nkikikuanare tenebo kulikai tung'ana (focus group), keitutumi intae to lturur looltunganak okuni ashu ooguan onyaanyuk eyieuna, metaa ore enkisudoroto o ltung'ani meidimayu teina rishata. Kiomoni pee minosaki oltungani kuna baa nikiimakita tena kilikikuanare.

UTK IRB Approval:

OCT 29 2013 - OCT 29 2014

INYAMALARITIN?

Ketii kulie baa naaidim aayau enyamali tiatua ena kisoma . Te ning'ar ilomon ooiporta eramatare e Nkojong'ani (Oltikana) keidim ayaua imbaa neitu kinosakino ashu neitu kintaa enetipat . Itumutum eretoto te murua inyi te niyieu nirorie ilomon ooiporta eramatare e Nkojong'ani (Oltikana). Ketumi eretoto tiatua inkang'itie, nitum sii eretoto te sipitali te murua inyi. Keikilikuano Naserian inkilikuanata oidim aataa egol awalu naa iata orusa nindim atanya iwalu ashu indim atung'uai ina kiroroto tenkata pookin. Meiro Naserian kiMaasai pookin neaku keretu intae oltung'ani oning'u kiMaasai pee ining'ining'u inkilikuanat oo iwalat.

IRETOT OO ENA JURORE

Iata erishata nindim atolimunyie ilomon ooiporta Enkojong'ani te nkang'itie oo Lmaasai oo eramatare oo ltung'ana oojing nkojong'ani. Ebaiki nimitum dupoto tena rishata te nirorie ltung'ana leina jurore, kake ore ele omoni linosu naa keret ilaasak le sipitali pee eyiolou enaiko lmaasai pee eramat iltamueyia, naa nerikoo ninche te nkitayunoto eramatare ele omoni le nkojong'ani too lmaasai.

IMBAA OO NKISUDOROT

Ore kulo omon ooitururuoki tena kisoma naa keshumi tenkisudoroto. Ore olajuroni naa keshum kulo omon pookin linchosho tiatua sandukuni oikeno otii atua engarri enye. Ore olajuroni, naa kelo ajurru ilomon linyi too namba naisudoro neme enkarna ino. Ore olajuroni te nevo olkitok lenye le sukul/university, naa ninche ake pokira are oota orusa ajurr ilkigerot likimpirta iyie te nena baa. Ore pee eshuko olajuroni enkop oolamerikani (US), ore ilomon pookin lenjurore naa keshumi te wueji neikenoro tenkofisi enye omeidipi enjurore oompala enyoraroto. Keshumi ilarin uni te sukul naji University of Tennessee.

KETUMI ELAATA?

Ore te nejing oltung'ani esirit eina jurore, kelaakini dolai imiet e nkop oolamerikani (US) te nikinteru enkilikuanare. Meetai eponaroto elaata ti ai rishata.

KAJI ETUMI NASERIAN (CECILY STRANG)?

Teniyata ilkiliku te nkata pookin ooiporta ena kisoma, indim aikilikuan olajurroni Cecily Strang (Naserian) te hoteli enye ashu iosshoki esimu ashu nirriuaki olkilikuai te simu enye (SMS) too kuna amba: _____

Te niata inkilikuanat naaipirta ena jurore, iata elakunoto pee irorie Benjamin Turarri. Mobile phone number _____.

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OLNING'O LANG TI ALO EASATA INO

Ore easata ena kisoma naa eyieunoto ino metii elaata. Naa indim sii atanya ias nimikintaasi ai. Teninyoraa aas, indim nintiaa ena kisoma te rishata pookin nimikintaasi ai. Naa ore pee intiak ena kisoma eton eitu aidip esotore olomon , ore lelo omon litolimuo naa kejuti nemepiki atua ena jurore.

ORE ELE LIKIORONI, NAA (TEGELU NABO):

Olalikioroni ledukuya le tipat -----Ingero enkarna e dukuya

Olalikioroni le pookin -----Ilkigerot ledukuya lenkarna

Olalikioroni lo lturrur -----Ilkigerot ledukuya lenkarna

OLNING'O

Aisoma kulo oomon pookin. Ore inkikilikuanat laainei pookin, newalikini. Atayiolu ele omoni pooki: enyamali o esidano. Anoto enkitanyaanyukoto ena palai. Ore nanu te yieuno ai naa kaas ena kisoma kinosakino lomom oopirta Enkojong'ani oo eramatare e nkojong'ani (oltikana) ti atua inkang'itie oo Lmaasai, naa kayiolu ajo kaidim aitasheiyie ena kisoma nemaaisaai ae.

Olama lolkimojino lolalikioroni -----entarakini-----

Enkarna o lajurruri -----entarakini-----

Atonyorrayie pee epiki oltoilo lai te ntepi. _____ Ilkigerot ledukuya lenkarna

TE NITII OBO LO LTURRUR OOIMAKI ERAMATARE:

Atonyorrayie aas enkisoma te nebo enkulie tung'anak okuni, natonyorrayie pee maimaki imbaa nikiimaki ti atua ele turrur.

, _____ Ilkigerot olalikioroni ledukuya lenkarna.

(ASHU)

Aisomakaki ilaasak kulo oomon, netonyorraitie ilaasak aas ena kisoma. Aisomaki ilaasak kuna baa neitoki aajo:

"Aisumaka Naserian ashu olaretoni lenye kulo omon. Natayiolu kulo oomon o enyamali o esidano. Atawalakaki ilkiliku pookin , anoto sii enkitanyaanyukoto ena palai. Ore nanu te yieuno ai naa kaas ena kisoma kinosakino ilomon leramatare e nkojong'ani (oltikana),

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te nebo inkiaasin oo lkuaak oo Lmaasai ti alo Enkojong'ani (oltikana), naa kayiolo ajo
kaidim aitasheyie ena kisoma nemaitaasi ae."

Kanyoraa paayae pee epik oltoilo entepi _____

Ilkigerot ledukuya lenkarna olajuroni _____

Ilkigerot ledukuya lenkarna olotoduaka _____

TE NETII TUNG'ANI OLTURRUR, ISOMAKI PEE ELIKI OLAJURRONI:

Atonyorraiye aas enkisoma o kulie tunganak okuni. Nanyoraa amiki embae e tipat
nemaaimaki atua kulie tung'ana lemeyiolo.

Enkarna _____

Ndarakini _____

Esaa _____

Olama Loikimojino lolajuroni _____

Olama Lolkimojino olotoduaka _____

Appendix J

Photograph Consent and Release Statement

I _____ give permission to have my photograph taken. I understand that the photograph will be personally identifying. I agree to waive confidentiality in the use of my photograph.

I give Cecily Strang (Naserian) permission to use, copy, edit, publish, or communicate any of the photographs taken for the purpose of this study. I also give Cecily Strang (Naserian) permission to use any photograph that may include the image of me as long as I am not identified by name. I agree that these photographs may be used for:

- Defense and publication of dissertation manuscript
- Research presentations local, regional, national, and international
- Publication of research findings in scholarly journals or books.

I agree to waive the right to inspect or approve the finished photographs, printed products, or electronic matter. I understand that I will not receive any payment from anyone for these photographs.

By signing below, I willingly give permission to have my photograph taken. I fully understand this Photograph Release Statement.

Name _____
 Date _____
 Time _____
 Witness _____

If the participant does not read, but has agreed to participate in this study and agreed to be photographed, the participant will ensure he/she fully understands the consent by reciting the following:

"Naserian has read the consent to me and all my questions have been answered. I willingly give permission to have my photograph taken. I agree that my photograph be used in publications and presentations. I understand my name will not be attached to the photo."

Name _____
 Date _____
 Time _____
 Investigator Signature _____
 Witness Signature _____

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Appendix K

Photograph Consent and Release Statement in Maa

Ore nanu _____ aishooiyie orusa peeyae empisha ai. Ore nanu naakayiolu ajo ore ina pisha naa nanu kewonai aetodolu. Ore nanu naakanyoraa pee aetodoluni ashu aetoduari metii enyamali.

Ore nanu aishoo Cecily Strang (Naserian) osura loasishore asho oirorie imbaa naipirta imbishai naatosho tengaraki enajurore engojongani. Naa aishoo si Cecily Strang (Naserian) orusa loasishore imbishai natii kake melimu ashu aipotie enkarna ai. Ore Nanu atonyoraiye pee easishoreki kuna pishai:

- tenkitashekinoto otoolkigerot looitasheki enakitenkenare.
- Elimunoto enjurore toowejitin napaasha onkuapi naapasha
- Enkigerore enjurore oobukui enkisuma ashu oobukui.

Ore nanu natonyorayie peemainkuraa ipishai naidipate ashu ilkinkerot oitayioki temashini ashu tositima. Naa kayiolu ajo mangamu iropiyiani tepookigai tookuna pishai.

Ore atutukunya abori tene, naa atonyoraiya nayiolou ena kitayunoto ena pisha.

Enkarna _____

Entariki _____

Esaa _____

Olaitashekinoni _____

Olaitashekinoni _____

Appendix I

Confidentiality Statement for Interpreter

I understand that, as an interpreter for this research study, I will hear information that is private to the informant and to the Kisongo villages. I promise to keep all data collected from each informant confidential and all discussions with the research confidential.

Interpreter's signature _____ Date _____

Investigator's signature _____ Date _____

Appendix J

Leininger's Phases of Ethnonursing Analysis for Qualitative Data

Fourth Phase

Major Themes, Research Findings, Theoretical Formulations, and Recommendations

This is the highest phase of data analysis, synthesis, and interpretation. It requires synthesis of thinking, configuration analysis, interpreting findings, and creative formulation from data of the previous phases. The researcher's task is to abstract and present major themes, research findings, recommendations, and sometimes theoretical formulations.

Third Phase

Pattern and Contextual Analysis

Data are scrutinized to discover saturation ideas and recurrent patterns of similar or different meanings, expressions, structural forms, interpretations, or explanations of data related to the domain of inquiry. Data are also examined to show patterning with respect to meanings-in-context and along with further credibility and confirmation of findings.

Second Phase

Identification and Categorization of Descriptors and Components

Data are coded and classified as related to the domain of inquiry and sometimes the questions under study. *Emic* or *etic* descriptors are studied within context and for similarities and differences. Recurrent components are studied for their meanings.

First Phase

Collecting, Describing, and Documenting Raw Data (Use of Field Journal and Computer)

The researcher collects, describes, records, and begins to analyze data related to the purposes, domain of inquiry, or questions under study. This phase includes: recording interview data from *key* and *general* informants; making observations, and having participatory experiences; identifying contextual meanings; making preliminary interpretations; identifying symbols; and recording data related to the phenomenon under study, mainly from an *emic* focus, but attentive to *etic* ideas. Field data from the condensed and full field journal is processed directly into the computer code.

From *Culture care diversity and universality: A worldwide nursing theory* (2nd ed., p. 62),
by M. M. Leininger and M. R. McFarland, 2006, Sudbury, MA: Jones and Bartlett. Used
with permission.

Vita

Cecily Weller Strang was born and raised in the Appalachian mountain regions of West Virginia and Kentucky. Raised by missionaries, she was steeped in cross-cultural experiences all her life. Cecily has traveled extensively outside of the United States. As a full and part-time missionary and community health worker, she and her family have worked within Maasailand, Kenya for 26 years. Cecily's burden for vulnerable populations led to a career in health care and a continued pursuit in academia of knowledge relevant to culturally congruent nursing care.

Cecily graduated with a Bachelors of Nursing from University of Tennessee, Knoxville (UTK) in 1981. In 2009 she obtained a Master's of Nursing in Education from King University, Bristol, TN and in 2013 obtained a Post Master's Certificate in Nursing Education from UTK. Currently, Cecily is pursuing a Health Policy Graduate Certificate at UTK. This dissertation work fulfills the completion of a doctoral degree in nursing from the University of Tennessee, Knoxville in 2014.