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The conceptualization of malaria in Hamar, Swahili, and biomedicine: A linguistic approach to a global health problem

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The conceptualization of malaria in Hamar, Swahili, and biomedicine

A linguistic approach to a global health problem

Essay in partial fulfillment of the requirements for an MA degree in Linguistics

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List of glosses

ACC	accusative case
ALL	allative case
CNV	converb marker
COP	copula
F.S	feminine subject
GEN	genitive case
IPFV	imperfective marker
LOC	locative marker
M	masculine
NOM	nominative case
NMLZ	nominalizer
PASS	passive
PAST.PF	past perfect (subordinative)
PF	perfect
PFV	perfective marker
PRES	present
PROG	progressive marker
SG	singular

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Summary

This thesis studies the conceptualization of malaria in three cultural traditions: Hamar and Swahili, two indigenous East-African languages, and Western biomedicine. It will demonstrate that ideas on malaria vary significantly between these three cultures: in both Hamar and Swahili, malaria is included in a more general category of febrile illnesses, which becomes clear from the linguistic terms and constructions which are used to express 'malaria'. In biomedicine, malaria is regarded as a potentially life-threatening disease which requires immediate treatment in hospital. If it progresses into severe or cerebral malaria, patients may show symptoms such as convulsions. This symptom is not related to malaria in many African cultures, but it is instead often categorized in a domain of spiritual illnesses and as such, requires different treatment, according to their traditional indigenous practices. An attempt will be made to clarify the Hamar, Swahili, and biomedical conceptualization of malaria from a linguistic point of view. This is done by investigating how malaria or febrile illness in general as well as related symptoms are expressed in Hamar and Swahili. For the biomedical perspective, it will not only be examined how malaria is conceptualized, but also the way in which traditional indigenous medical knowledge is considered. Moreover, an important aim of this thesis is to make a proposal of how to bring the different views together in an atmosphere of mutual respect and cooperation, in order to contribute to the global malaria struggle.

1. Introduction

Malaria is a global problem. It is estimated that in 2019, there were 229 million people worldwide who contracted the disease, of whom approximately 409,000 people died. By far the most of these cases and deaths occurred in Africa. The World Health Organization states that it wants to reduce malaria cases and mortality “by at least 90% by 2030”, among other goals (WHO 2021). This plan is itself part of the Sustainable Development Goals; #3 declares that the United Nations desire to “ensure healthy lives and promote well-being for all at all ages” (UN 2021). In order to achieve that goal, a Global Malaria Programme was set up, in which efforts are coordinated to create and implement strategies and keep track of progress, among other things. All of these measures originate and are carried out from a Western¹ biomedical perspective.

As for malaria in sub-Saharan Africa, this raises the question whether it is the best strategy to follow biomedical guidelines only. The WHO may have its own, biomedically founded ideas about malaria and how to solve the problem, but these ideas may not correspond to the views of local indigenous communities struggling with malaria when it comes to their health and well-being. In many (biomedical) studies (e.g. Amadi *et al.* 2018, Spjeldnæs *et al.* 2014, Kizito *et al.* 2012, Maslove *et al.* 2009, Montgomery *et al.* 2006), a clash becomes apparent between what the local population believes concerning malaria etiology and cure vs. what biomedicine teaches about the disease.

This is not just a problem that occurs in the case of malaria. In general, the biomedical view on disease etiologies, preventions, and cures seems to not suit the traditional knowledge of many indigenous African communities, which is why biomedical ideas are often (partially) rejected (e.g. Marks 1997, Foster and Vilendrer 2009). Despite the fact that much effort has been put into ‘educating’ the local population about the biomedical knowledge, many Africans still have great trust in their traditional healers and also visit them when they are ill, for several reasons (Kizito *et al.* 2012, Spjeldnæs *et al.* 2014). This results in an even bigger effort on the side of health care providers and policy makers, Western as well as African, to grasp how to get the biomedical views to the local populations in such a way that they will use hospital facilities rather than traditional healers for (knowledge about) their illnesses.

¹ “Western” is not an unambiguous and uncontroversial term, but I use it in this thesis to indicate the scientific tradition which is common in most of the USA and Europe, also sometimes called ‘Northern’ or ‘Euro-American’.

If we take malaria as an example of this clash, the articles described in the previous paragraph raise the question whether maybe one step was skipped in the process. Many studies on malaria care are merely concerned with the question of how to get the ‘knowledge’ to the population, with knowledge meaning the biomedical ideas, and how to ‘educate’ them in order to get rid of ‘beliefs’ which do not conform to this biomedical view. It remains unclear where in the process the local population was actually consulted when it comes to *their* knowledge on malaria, its cause, how to prevent it (or not), and how to cure it. This is very unfortunate, since there appear to be deeper issues at stake than just the indigenous communities being ‘uneducated’; it has much more to do with cultural values, ideas, and practices regarding well-being and sickness. It is high time the traditional indigenous perspective was examined, in order to better understand it rather than deeming it ‘a lack of understanding’ (as is often done in the biomedical literature, e.g. Amadi *et al.* 2018, Spjeldnæs *et al.* 2014). It is helpful to realize that biomedicine does not just struggle with malaria, but more importantly, with differing underlying ideas when it comes to the disease and its cause, cure, and prevention.

Therefore, it is useful to look at what other scientific disciplines have contributed to the study of health and healing, especially when it comes to malaria. In social science, some of the decision-making pathways and power relations in households and clinical settings have been investigated, clarifying some of the obstacles that biomedical health workers encounter in the battle against malaria (e.g. Colvin *et al.* 2013).

However, there seems to have been little contribution from the humanities in general to the issues mentioned, and specifically linguistics appears to be absent from the investigation of the malaria problem. This is the case despite the fact that there have been attempts to include the humanities in medicine for a couple of decades already, the so-called ‘medical humanities’. Quite recently, it was argued that, although the effort to integrate humanities into the medical science is an important step, ‘medical’ humanities are still not inclusive enough. In order to account for the diversity in approaches and disciplines to study and improve health care, a case was made for a more inclusive and overarching discipline of ‘health humanities’. In this discipline, among other things, a more patient-driven approach is pursued, by studying patients’ experiences as well; also, more disciplines within the humanities are included (Jones *et al.* 2016, Jones, Wear, and Friedman 2014, Crawford *et al.* 2010). However, one of the scientific disciplines that is still largely absent from the health humanities is linguistics.

It is unfortunate that the linguistics have not been involved in the study of health and more specifically malaria care, for in order to really understand the indigenous perspective on malaria (which is the only way to make a community-driven, inclusive strategy to combat malaria possible), the most logical and thorough way to get to it is through language. Language analysis has multiple benefits and valuable contributions to make. First of all, the people can express their ideas in their own words, which gives them the chance to explain what they think and therefore increases our understanding. Second, linguistic analysis is not just about the words people use and their translations; language can be considered a 'library' or 'storehouse' for cultural knowledge, and therefore, studying it gives one a very important and thorough idea of how people think (see, e.g., Enfield (2015) on linguistic relativity and the relationship between language and thought). Third, as will become apparent in section 4.3.2.4, linguistic diversity is usually not taken into account in (global) health issues, which may have important consequences for the communication about malaria policies and strategies too. For these reasons, an in-depth linguistic investigation is essential in order to get a better idea of traditional knowledge on malaria, and to show how profoundly language and linguistic diversity influence the success or failure of malaria strategies.

The aim of this thesis, therefore, is to listen to indigenous African people and their ideas about the etiology, symptoms, and treatment of malaria-like illness. And what better way to listen to them than to investigate their own, unique linguistic expression of these knowledge systems? In doing so, this thesis aims to contribute to the battle against malaria by making it more inclusive. Therefore, the research question is as follows. How is malaria conceptualized in indigenous knowledge systems and from the biomedical perspective, and how is that conceptualization encoded in language? The thesis is divided into two major parts. The indigenous perspective will be explored first, and after that, the biomedical view will be examined. The thesis consists of a literature study concerning the humanities as well as biomedical perspective (Chapters 2 and 4) and, partly, also concerning the indigenous perspective (section 3.2, on Swahili). For the exploration of the traditional indigenous Hamar perspective, an empirical approach was used, by conducting linguistic fieldwork with a consultant whose native language is Hamar, an indigenous Ethiopian language (section 3.1).

The structure of the thesis is as follows. First, in Chapter 2, an anthropological or more generally humanities perspective on biomedical and indigenous medicine will be discussed: How are the different kinds of medicine studied and presented in Western science? In Chapter 3, the East African languages Hamar (Omotic) and Swahili (Bantu) will be investigated in order to explore on

a deeper level what the people who speak them really think when it comes to malaria-like illnesses, their etiology and necessary treatment: How is malaria conceptualized in two local African cultures, and how is that conceptualization expressed through their languages? After that, the biomedical view on malaria as well as on traditional African medicine will be explored in Chapter 4: How is malaria conceptualized in biomedicine? A general introduction on the biomedical explanation of malaria and its challenges will be given, as well as an analysis of the language that is used to describe malaria and what it implies. Furthermore, attention will be paid to the way in which indigenous knowledge is presented in biomedical literature: it will become apparent that often, traditional ideas are deemed a “lack of knowledge”. Chapter 5 entails a comparison of the biomedical vs. indigenous views of malaria and disease and health in general, based on findings from Chapters 3 and 4: How is malaria conceptualized (differently) in Western vs. in two traditional indigenous medical knowledge systems as expressed in Hamar and Swahili, and what similarities and/or differences do the three different systems show? The findings will be summarized in Chapter 6: How is malaria conceptualized in traditional indigenous vs. biomedical medicine, how is that conceptualization encoded in language, and how does a linguistic approach help in the global battle against malaria? This chapter will also include recommendations for further research as well as a proposal of how to start a sustainable cooperation between health care workers from biomedical as well as indigenous traditions.

2. Medicine in the humanities

In order to better understand how malaria is conceptualized in indigenous medical knowledge systems from a linguistic point of view, it is important to first investigate the study of health and medicine from a humanities perspective in general. What have the humanities contributed to the study of health? Whereas biomedicine as a discipline has a more quantitative, empirical, ‘evidence-based’ approach to health, humanities researchers have played their part in the study of health as well, yet with a more qualitative focus.

Since about the 1970s, humanities have started playing a bigger role in medicine and medical education, “in reaction to the increasing power of Western biomedicine over the patient, often raising concerns about excessive paternalism and always advocating for patient autonomy” (Jones *et al.* 2017:933). Jones, Wear, and Friedman (2014), in the introduction to the Medical/Health Humanities Reader, explain why medical or health humanities are relevant and for whom, what the contents of health humanities are, and how they are to be implemented in health education and professions. Many humanistic disciplines are mentioned, such as history, philosophy, and arts, as well as more social-like sciences such as sociology, anthropology, and even psychology. All of these disciplines contribute to a critical reflection on issues in medicine, but also on e.g. power relations.

In the beginning, medical humanities focused mainly on doctors (and not on e.g. nurses, patients, or physical therapists, etc.) and the disciplinary boundaries between e.g. literature and history were rather rigid, as is evident from e.g. course titles (taught in medical curricula) such as “medical history” and “medicine in literature” etc. Since that time, medical humanities have become more inclusive and multi-/interdisciplinary, focusing on not just one health profession or one humanities discipline at a time, but investigating all of them. Moreover, research has shown that human health and well-being are not just about medicine; in fact, the influence of medicine is rather modest, and the complete picture is much more comprehensive and extensive. There are many aspects to human well-being and these can be investigated from many different perspectives. Therefore, Jones *et al.* (2017) argue for a name change: it is argued that the term ‘health humanities’ is more apt than ‘medical’ humanities.

As for the disciplines included in health humanities, one thing is striking. When it comes to health and language, only literature and narrative science are explored, but linguistics as a discipline appears to be absent from the health humanities. The lack of linguistic studies in health humanities is inexplicable, because language is one of the most profound ways of getting to people’s thinking

and feeling. In that way, linguistic studies can help us better understand what illness and well-being mean to human beings from various cultural backgrounds. Furthermore, paying attention to linguistic background and diversity will enhance health humanities' inclusivity, since it enables us to include the voices of people from numerous backgrounds. For that reason, it is argued that the integration of linguistics in health humanities could be very helpful, relevant, and necessary.

There are not many studies in the area of health from a linguistic perspective; it could be argued that 'health linguistics' is a new field, in which the present study is only a preliminary research. However, some work has been done for HIV/AIDS and language: for instance, a book by Black (2019) on the (socio)linguistics of a gospel choir consisting of people who have HIV/AIDS, an article by Dragojevic, Bell, and McGlone (2014) on the effect of linguistic agency on health messages, in which HIV is discussed as an example, a study by Higgins (2014) on literacy and HIV/AIDS education, and Higgins and Norton (2009), which is a book on HIV/AIDS and language from the perspective of applied linguistics. It falls beyond the scope of this study to discuss in detail what the outcomes of these studies are, but they all demonstrate that studying (socio)linguistics can be very beneficial to improve health care. However, so far, little language analysis has been done.

As there are not many linguistic studies into malaria, this chapter will focus on malaria from the point of view of other disciplines within the humanities. Since the study of humanities implies a critical reflection on people and their products, one would expect a less value-laden approach towards other forms of medicine there, in which traditional medicine is respected as a knowledge system in its own right and explored in a more objective way than in biomedical studies, which often appear to compete with indigenous medicine. Below, I will discuss some articles which deal with the study of health and medicine from a humanities scientific approach in order to investigate how medicine is studied and presented in the humanities. This entails a critical reflection on traditional indigenous medicine as well as biomedicine. The articles were chosen based on several criteria. First and most importantly, articles were selected that critically reviewed current existing strategies or policies in health care or malaria care specifically. Second, the focus of the research should be in Africa or countries with a colonial background more generally. And third, there should be some kind of suggestion for improvement of current health care (be it malaria in particular or health care in general) based on this critical reflection.

This resulted in seven articles which will now be discussed (Obrist and Van Eeuwijk 2020, Clarke, Ghiara, and Russo 2019, Hume, Mulemi, and Sadock 2018, Pentecost *et al.* 2018, Eckl 2017, Foster

and Vilendrer 2009, and Marks 1997). First, a summary of the articles will be given in section 2.1, and after that, it will be evaluated how traditional medicine and biomedicine are presented in these studies in 2.2.

2.1 The articles

The article by Obrist and Van Eeuwijk (2020) discusses the ‘status’ and interpretation of African traditional healing practices with respect to political, social, biomedical and pharmaceutical institutions. It deals with the question of intellectual property/rights, as well as with the concern that global health is mostly set up from a Western biomedical perspective. It also deals with the question of culturalism and how to avoid translating indigenous medicine into biomedicine without losing the ‘indigenous’ in the process.

Clarke, Ghiara, and Russo (2019) also advocate a more integrated approach to health(care) including knowledge from (medical) humanities and social sciences, not just biomedical science. By doing this, they argue, we can account for psychosociocultural factors influencing health.

The article by Hume, Mulemi, and Sadock (2018) describes the experiences of three medical humanities researchers (a historian, an anthropologist, and an applied arts specialist) performing their research in a clinical setting. It provides helpful insights into why certain (methodological, practical, and social) obstacles emerge as well as possible solutions to these hurdles.

Pentecost *et al.* (2018) have written an article on ‘humanizing’ and ‘decolonizing’ health sciences education in South Africa, through the integration of humanities and qualitative (rather than quantitative only, which is common in biomedicine) research in the curricula.

Malaria is not only a medical or sociocultural problem, but there are policy and political issues as well. The study by Eckl (2017) deals with these kinds of issues in global malaria control. He asks questions such as: What needs to be done to control malaria? Is eradication the direct goal? Different institutions and organizations have different ideas on goals and means to achieve that, which result in different strategies. Currently, predominantly biomedical-technological are favored, rather than solutions which are more specifically applied to the local context, such as “sustainable development and inter/multisectoral action at the local level” (Eckl 2017:432).

Foster and Vilendrer (2009) researched caregivers’, medical practitioners’, and traditional healers’ ideas on malaria symptoms and necessary treatment. They did so by interviewing several people belonging to these groups: mostly biomedical health care workers and traditional healers. Special attention is paid to the Swahili terminology which the people use to talk about convulsions, which is a symptom of severe malaria.

Marks (1997), in a paper presented at a conference on Medicine and the Colonies, dives into the history of biomedicine and colonialism and how these two were linked in and even before the nineteenth century, as well as issues of (systematic) racism, the colonialist ideas and motives behind (the initiation of) 'tropical medicine' as a field, indigenous peoples' responses and attitudes towards biomedicine. Eventually, it also touches upon demography; income, education, inequality, etc. as issues explaining differences in health within and across countries.

2.2 Biomedicine and traditional medicine in the humanities

One interesting field where biomedicine and traditional medicine 'meet' is in the field of the so-called 'tropical medicine'. Marks (1997) argues that biomedicine and colonialism emerged in more or less the same time period, and that this has influenced biomedicine, especially the subfield of tropical medicine. This emerged when Western colonizers caught various diseases which did not exist in the places from which they came. This resulted in a whole new 'area of interest' for biomedicine. Marks (1997:213-214) states that 'tropical medicine' as a subfield of biomedicine, even as it is currently practiced, has rather colonial and racist roots. Despite that, indigenous peoples have carefully examined biomedical ideas and integrated into their own systems what they approved of, but kept their own traditions and ideas as the basis.

With the colonizers also came biomedical ideas, biomedical hospitals, and biomedical health workers, in addition to the indigenous health care workers that were already present in these societies. Marks (1997) explores to what extent the local population have switched from their traditional systems towards biomedicine. He cites an interesting quote from White (1995), who discusses the encounter between biomedicine and traditional medicine in Uganda in the early 20th century. At some point, the article aptly depicts what image one gets from oral African accounts concerning the local population and their reaction to Western medicine, in this case, specifically vaccination campaigns:

...an intellectual community [i.e., the local population of southern Uganda] in which aspects of Western biomedicine were unpacked, examined, accepted, and reinterpreted according to local meanings...

White 1995:1396

This gives the impression that those practicing or consuming traditional medicine have to some extent included biomedical ideas in their system, as far as they are compatible. If they are not, these ideas are either disregarded or adapted so that they do 'fit'. This probably applies not only to

vaccination campaigns, which is the topic of the section in which the quote appears, but it may be applicable to indigenous African responses to the coming of biomedicine more generally.

This was the case not only in the nineteenth or twentieth century, but applies to the present day as well. African people have a wide variety of health care options to choose from and they will most likely continue to utilize them. However, the question remains to what extent these different approaches to health care and well-being are integrated in the medical science. For example, Pentecost *et al.* (2018) argue that health sciences education in South Africa needs to be ‘humanitized’ and decolonized. Moreover, Hume, Mulemi, and Sadock (2018), as well as Clarke, Ghiara, and Russo (2019) claim that health care needs a more integrated approach including humanities and social sciences. Pentecost *et al.* (2018) propose to do so by four key points: challenging knowledge hierarchies, improving or making more appropriate the (self-)image of clinicians, cultivating an awareness of social justice and focusing more (in practice) on the relatedness of doctor and patient, which also implies valuing patients’ experiences.

When it comes to examining and appreciating patients’ views, something remarkable in the study by Foster and Vilendrer (2009) is that people were apparently willing to share their non-biomedical ideas and even traditional healers were interviewed. It raises the question: how did they earn their trust? (Foster and Vilendrer 2009: online page 3) In other studies, people were unwilling to share this knowledge for fear of being ridiculed or corrected (Spjeldnaes *et al.* 2014: online page 8). It is mentioned in the article that traditional healers often send their patients to hospital to test for malaria. The assumption is that “traditional healers seem to understand that their unique skills are not as demanded as they once were and are adapting to the new environment by interacting with the biomedical community” (Foster and Vilendrer 2009: online page 5), but it is unclear what the assumption is based on that traditional healers would think that they are now redundant.

Eventually, Foster and Vilendrer conclude that the one biomedical diagnosis of malaria is often perceived as two separate disease entities in many African societies (Foster and Vilendrer 2009: online pages 5-6). However, they are not interested in underlying ideas and knowledge (systems), but only in the eradication of these “beliefs”. Even though this study has the aim to listen to the local population, in a way, and be more sensitive to cultural values, there is still no room for equality of biomedical and traditional medical systems.

The biomedical goal is clearly to eradicate malaria as soon as possible. But the study by Foster and Vilendrer (2009) raises the question: what are the goals of local communities? And how could

biomedicine contribute to these goals, rather than: how can biomedicine convince local communities to change their goals? Biomedicine appears to consider itself superior to other forms of medicine when it comes to knowledge on malaria, and this attitude becomes apparent in the discipline of the humanities as well. For that reason, Marks (1997) provides helpful insights in that it is critical of biomedicine as being superior to indigenous medicine. One question that remains, however, is: how exactly, then, do indigenous people view health and sickness? This will be explored in the next chapter.

3. Malaria in Hamar and Swahili

So far, the literature discussed has merely observed and evaluated indigenous medicine from a Western, biomedical perspective. It is now time to turn to the people whose ideas are being observed, and to hear from them what they think and how they express these ideas in their own languages. There is some paradox in this research, because it intends to critically reflect on Western (medical) science's bias and negative attitude towards indigenous medicine by investigating the language. However, it is important to keep in mind that this research, too, is done by a Western researcher, educated in the Western scientific tradition. But still, it could be argued that a close examination of people's language gets the closest look into their actual ideas (rather than translating them in various ways). The question that will be answered in this chapter, is: How is malaria conceptualized in two indigenous African languages, Hamar and Swahili?

Hamar is a South Omotic language from the Cushitic family, spoken by around 81,520 people in the southern part of Ethiopia, near the Omo river (Petrollino 2016, Eberhard, Simons, and Fennig 2021). I investigated the conceptualization of malaria in Hamar with Gele Hailu, who is originally from the Hamar ethnic group in Ethiopia but who has been living in the Netherlands for a couple of years. Hamar will be investigated in section 3.1.

Swahili is a Bantu language from the Niger-Congo language family; it is spoken in many East African countries. The literature used for the present study focused mainly on Swahili as it is spoken in Tanzania; there, it is spoken by approximately 47 million people (Eberhard, Simons, and Fennig 2021). Dictionaries as well as articles on (mostly) anthropological studies, in which indigenous terms are mentioned, are used to get a preliminary understanding of the conceptualization of malaria in the Swahili language. This will be presented in section 3.2.

An important issue to bear in mind is that the statements about Hamar that will be made in the following are based on linguistic fieldwork conducted with the help of just one speaker. His thoughts and words are very valuable because he knows indigenous traditions and practices well, since he grew up amidst them, but at the same time this limits the research in that it is only one speaker. Ideally, one would interview many more speakers to attain a more complete and comprehensive view on traditional indigenous medicine as it operates in Hamar society. It would be best to conceive of what follows as a preliminary investigation into the way in which ideas on malaria, how it comes about and how to identify it are expressed in a local indigenous African language. Needless to say, there is much need for more thorough linguistic investigations into

Hamar as well as many other languages, in order to get a deeper understanding of how health, sickness, and medicine are conceptualized and practiced in indigenous African societies.

As for the fieldwork on the Hamar language, I focused just on malaria at first, but then I discovered that, logically, in order to understand malaria, one needs to understand sickness more generally as well. That is why I elicited all kinds of diseases. This is done in order to get a more comprehensive view on Hamar ideas of diseases, how they come about and what can be done about them, so that the data on *gíbaḩ* (a Hamar term which is often used as a translation for ‘malaria’) can be placed into the right perspective. That way, the investigation of other diseases could help in getting at the conceptualization of malaria.

Due to the fact that it was not possible to conduct linguistic fieldwork for Swahili, section 3.2 will focus mostly on malaria and convulsions, and not as much on other related symptoms.

3.1 Malaria in Hamar

In this section, the Hamar perspective on malaria-like illness and related symptoms will be discussed. First, a general overview of the language will be presented, based on Petrollino (2016). Hamar has 26 consonants and 7 vowels, which can be found in Tables 1 and 2 below.

	Bilabial	Alveolar	Palato-alveolar	Velar	Uvular	Glottal
Stops	p ² b	t d	c ³ j ⁴	k g	q	
Implosives	ɓ	ɗ		(ɠ)		
Ejectives		tʼ	cʼ ⁵			
Fricatives		s z	ʃ ⁶	x		
Nasals	m	n	ɲ			
Liquids		l, r				
Glides	w		y ⁷			ʔ, h ⁸

Table 1. Hamar consonant phonemes (taken from Petrollino 2016:9)

² Can be realized as [p] or [ɸ]; may be transcribed as <f> when pronounced [ɸ]

³ Phonetically [tʃ]

⁴ Phonetically [dʒ]

⁵ Phonetically [tʃʼ]

⁶ Phonetically [ʃ]

⁷ Phonetically [j]

⁸ Phonetically [h]

	Front	Central	Back
High	i		u
Mid High	e		o
Mid Low	ɛ		ɔ
Low		a	

Table 2. Hamar vowel phonemes (taken from Petrollino 2016:29)

The symbols in Tables 1 and 2 correspond to the IPA symbols except for those which are mentioned in the footnotes. I follow Petrollino's (2016) orthographic choices for words that were included in her grammar; as for terms which are not found in this grammar, I have transcribed them based on this same orthography.

There are four syllable types in Hamar: CV, CVV, CVC, and CVVC. As for prosody, Hamar has (lexical and morphological) stress and tone. The basic word order in Hamar is SOV. It is important to note also that Hamar has quite an extensive case system. For the purpose of this thesis, it will suffice to mention the following:

1. nominative case for subject marking
2. accusative case for object marking
3. genitive case for possessive constructions
4. allative case for movement towards a goal

These cases occur in the example sentences that will be discussed in the following.

3.1.1 *Gibaz*

First, malaria will be discussed. When asked for the word for 'malaria', Gele immediately mentioned *gibaz* and provided the following sentence:

- (1) *inta gibazidine*
 ínta gíbaz-idí-ne
 1SG have.malaria-PF-COP
 'I have malaria'

There are also other ways to say 'I have *gibaz*':

(2) *gíbaʒ idán kiyedade*

gíbaz í=ɗan ki=yeda-de
gíbaʒ 1SG=ACC 3SG.M=catch-PFV
'Gíbaʒ caught me', 'I have *gíbaʒ*'

Besides '(to have) malaria', *gíbaʒ* can also mean 'to shiver', and it may be used to say that one is feeling cold.

(3) *qajaise gíbaʒidine*

qaja-ise gíbaz-idí-ne
be.cold-CNV shiver-PF-COP
'I'm cold and shivering'

When it comes to the cause, cure, and contagiousness of this disease, Gele mentioned several things. According to Gele, *gíbaʒ* is not a serious disease. It is caused by a mosquito bite. The mosquito may bite a person when they are sleeping outside without clothes or when they are at water places. After the bite, one will be sick for only a few days, with symptoms such as *t'a* 'to vomit' and *metí burqa* 'to have a headache' (these will be elaborated upon later on). It is contagious through wearing one another's clothes or using the same toilet.

The fact that *gíbaʒ* can mean both 'to shiver' and 'to have malaria', may indicate that it has a more general meaning of 'to have fever', or 'febrile illness' if it occurs as a noun: one well-known symptom of malaria is fever (see section 4.1) and fever may make one shiver. However, Gele said that *gíbaʒ* does not exist in the Netherlands, only in Africa. This is rather contradictory to the hypothesis that *gíbaʒ* could mean 'febrile illness' in general, since fever does exist in the Netherlands. On another occasion, though, Gele appeared to translate *ínta gíbaʒidine* 'I have *gíbaʒ*' into English 'I have fever'. So there does seem to be at least some overlap between *gíbaʒ*, malaria, and febrile illness in general. It appears that prototypical *gíbaʒ* is conceptualized more in terms of a bodily experience of shaking or shivering, and not so much in terms of bodily temperature. That is one important difference with the English term 'fever', which typically implies a certain rise in bodily temperature more so than it indicates a feeling of shaking (one can have *fever* without shivering, but perhaps one may not be able to say they have *gíbaʒ* without the feeling of shivering).

According to Gele, symptoms of *gíbaʒ* can be any or a combination of the following:

- *gubá*, which he translated ‘a running nose’; Petrollino (2016:304) translates it ‘cold or flu, illness’
- *piskill* ‘to cough’
- *oid* ‘to be hot, to be warm’. As suggested above, the English concept of ‘having fever’ is most likely conceptualized differently in Hamar: the feeling of shivering is expressed by the term *gibaz*, and the feeling of being hot can be expressed by *oid* ‘to be hot’.
- *t’a* ‘to vomit’. Gele said that vomiting also helps one to get better. If one’s body does not automatically vomit, one may make oneself vomit, which will help to get better.
- *meti burqad* ‘headache’, consists of *meti* ‘head’ and *burqad* ‘to hurt’

These symptoms, as well as some additional and related illnesses, will be discussed further in section 3.1.4.

3.1.2 *Galáp gibaz*

Moreover, Gele said that there are two forms of *gibaz*. One is the innocent form, discussed above. But there is also a more serious form: *galáp gibaz*. The crucial symptom by which one can learn that somebody’s *gibaz* has progressed into *galáp* is the color of their eyes: when the eyes turn yellow (*galáp* in Hamar), it has turned into *galáp (gibaz)*. This is a far more serious disease and people often die from it. Gele called it ‘the strong one’. Except for the color of the sclerae, *galáp* symptoms are similar to those of *gibaz*. When asked how to say ‘I have *galáp*’, Gele said:

(4) *gibazji galafa idan yedade*

gibaz galáp í=ɗan yedá-de

gibaz yellow 1SG=ACC catch-PFV

‘I have *galáp gibaz*’, ‘yellow *gibaz* caught me’

This is a similar construction to (2). Concerning the combination of *gibaz* + *galáp*, Gele said that *galáp* does not come immediately, but instead, it is the same as *gibaz* which then becomes more severe (‘stronger’ according to Gele) over time. After a couple of days, it results in *galáp (gibaz)*. Since *galáp* means ‘yellow’, it is probably not a disease term in itself, but just an adjective to *gibaz* to indicate a specific kind of *gibaz*. Interestingly, this appears to be a calque from ‘yellow fever’, which according to Sara Petrollino is also present in Amharic, another widely used language in Ethiopia (p.c.). Gele sometimes translated *galáp gibaz* into ‘yellow malaria’. When it comes to symptoms, *galáp* appears to show some similarities with the biomedical disease of yellow fever. This disease is also

spread by infected mosquitoes and may also result in high fevers, though in the case of yellow fever, it is often accompanied by jaundice (hence the name), so it shows some clinical resemblance to malaria as well. It is interesting that Gele also considers *galáp* and *gíbaʒ*/malaria to be (more or less) the same disease, except for the ‘strength’ of the disease.

3.1.3 Long vs. short illness

One interesting distinction that is made in Hamar is the difference between short-time illness and diseases that take longer to heal.

(5) *inta aajaǰidíne*

ínta aajaǰ-idí-ne

1SG be.sick-PF-COP

‘I am sick’ (unwell for a few days)

(6) *inta burqaǰidíne*

ínta burqaǰ-idí-ne

1SG be.sick-PF-COP

‘I am sick’ (for weeks or months already)

Petrollino (2016:300) translates *burqaǰ* ‘to hurt’; it is the verb *burq-* which means ‘to boil’, combined with the passive derivation suffix *-ad*; literally, it means ‘to be boiled, boiling’, but it now means ‘to hurt’. Gele, too, mentioned ‘pain in the body’ as a possible translation for this word. But he also used it to describe illnesses due to which people are bedridden for weeks or months in a row. Sara Petrollino mentioned that possibly, disease is conceptualized in terms of ‘pain in the body’ in the Hamar culture (p.c.). That could be an explanation for the fact that Gele uses a verb which primarily means ‘to hurt’ to describe illness that takes a long time to heal. As for *gíbaʒ*, Gele said that one would use *aajaǰ* to talk about this disease if they are sick for only a few days, which is the usual course of the disease. If one became very ill for more than a few days, it could be called *burqaǰ*.

3.1.4 Other diseases

Since there seem to be a lot of possible symptoms for *gíbaʒ*, it is likely that it is more like a group of symptoms or febrile illness in general (suggested by the alternative meaning ‘to shiver’), just like ‘a cold’ or ‘stomach flu’ in English, rather than a ‘literal translation’ (as far as that exists at all) of the biomedical diagnosis of malaria. This is also suggested by the fact that Gele once said ‘from

malaria, you have many diseases coming’; apparently, to him, malaria/*gíbaʒ* is just a general illness category which may result in other, more specific symptoms or diseases. In order to get a more complete view of the entire field of sickness in the Hamar culture, more disease terms were elicited so as to relate *gíbaʒ* symptoms to other diseases as well. In order to find these kinds of relations, further probing is necessary, which is why Gele was asked to name as many diseases as he could think of.

He mentioned a variety of other diseases and symptoms, which will be elaborated upon now. Some of them were already briefly mentioned in 3.1.1. The term will be given, then an explanation will be provided of what it means and how it is caused, and then some example sentences in Hamar are analyzed. These example sentences were obtained as follows: first, Gele was asked for every disease that he had mentioned: How would you say ‘I have X’ or ‘I am X-ing’? Then, it became clear that he used several different grammatical constructions depending on the disease/symptom:

- | | | | | |
|----|---------|-----------------|-----------------|--------------------------------------------------------|
| 1) | 1SG.NOM | X- <i>idíne</i> | | e.g. <i>ínta gíbaʒidíne</i> ‘I have <i>gíbaʒ</i> ’ |
| 2) | X | 1SG=ACC | <i>kiyedáde</i> | e.g. <i>gúlpá ídan kiyedáde</i> ‘I have <i>gúlpá</i> ’ |
| 3) | X | 1SG=ALL | <i>utaisaxa</i> | e.g. <i>dárca idar utaisaxa</i> ‘I have <i>dárca</i> ’ |
| 4) | 1SG.NOM | X- <i>te</i> | <i>idáade</i> | e.g. <i>ínta piskilleti dáade</i> ‘I am coughing’ |
| 5) | 1SG.NOM | X= <i>ida</i> | X- <i>é</i> | e.g. <i>ínta haaráida haaré</i> ‘I am “diarrhoeing”’ |

In this, X denotes the disease term. In the first construction, the disease is expressed a stative verb, which conveys a meaning similar to English ‘I am sick’. Often, a passive derivation marker *ad* is attached to the disease term, rendering a verb indicating ‘to have X’, ‘to be affected by X’, ‘to be sick from X’; cf. section 3.1.3, in which the same marker is found in *aajad* ‘to be sick’ and *burqad* ‘to hurt’. In the second construction, the disease is the subject, and the verb *yed-* means ‘to catch’. So the focus is on the disease as catching and having control over the person who experiences it. In the third construction, the disease is also the subject and the verb *ut-* is used, which has a wide semantic range. In this case, it means something like ‘to come out’. An allative pronoun is used which accompanies the meaning of the verb: ‘(out) of me’. The subordinative marker *-isaxa* is used, so actually this is just part of a full sentence: ‘When I have *dárca*...’ The fourth construction denotes that the person is ‘in’ something, because the locative marker *-te* is used. In the fifth construction, the disease is a verb which is reduplicated, combined with a progressive marker *=i* and an imperfective marker *-da*; this denotes that the action is repeated.

For constructions 1)-3), I composed sentences for all of the diseases and asked Gele for every disease about all of the three sentences if they are correct or not. These will be explored in more detail in the following sections. For constructions 4) and 5), since they were discovered later, there was no more time to investigate whether they could be used for all of the diseases. A table summarizing the findings for constructions 1)-3) will be provided in section 3.1.4.10. In the following sections, the diseases will be listed in the order in which they were mentioned by Gele.

3.1.4.1 *Gulpá*

Gulpá means something like ‘a running nose’, ‘a cold’, probably a flu-like illness. When asked how to say ‘I have *gulpá*’, Gele said the following:

- (7) *gulpá idan kiyedade*
 gulpá í=ɗan ki=yedá-de
gulpá 1SG=ACC 3SG.M=catch-PFV
 ‘*Gulpá* caught me’, ‘I have *gulpá*’

According to Gele, this means something like ‘the disease got me’. In this case, *gulpá* seems to be the active agent. When I elicited the following sentences, he said these are also possible:

- (8) *inta gulpáɗɗine*
 ínta gulpá-aɗ-ídí-ne
 1SG have.*gulpá*-PASS-PF-COP
 ‘I have *gulpá*’

However, there was one construction that was ungrammatical to him.

- (9) **gulpá idar utaisaxa ...*
 gulpá í=dar utá-isaxa
gulpá 1SG=ALL come.out-PAST.PF
 ‘*Gulpá* is coming out of me’, ‘I have *gulpá*’

This may be due to the fact that *gulpá* is not considered something that comes out of a person, unlike e.g. *ɗarca* (cf. section 3.1.4.5).

3.1.4.2 *Piskill*

Piskill means ‘to cough’. When I asked Gele how to say ‘I am coughing’, he said the following:

(10) *inta piskilleida piskille*

ínta piskille=i-da piskille-é
1SG cough=1SG.PROG-IPFV cough-PRES
‘I am coughing’

When Gele was asked what exactly this sentence means, he replied that it implies a repetitive or ongoing action: ‘I keep coughing’ or ‘I am coughing all the time’. Gele also mentioned the following construction:

(11) *inta piskilletidaade*

inta piskille-te i=dáa-de
1SG cough-LOC 1SG.PROG=exist-PFV
‘I am coughing’, ‘I am in (the middle of) coughing’

When asked specifically if the following sentences are also correct, he said that these are indeed possible as well:

(12) *inta piskillidine*

ínta piskill-idí-ne
1SG cough-PF-COP
‘I am coughing’

(13) *piskill idan kiyedade*

piskill í=ɗan ki=yedá-de
cough 1SG=ACC 3SG.M=catch-PFV
‘I am coughing’, ‘a cough caught me’

However, the following construction is considered ungrammatical.

(14) **piskill idar utaisaxa ...*

pi skill í=dar utá-isaxa
 cough 1SG=ALL come.out-PAST.PF
 ‘I am coughing’, ‘a cough comes out of me’

Apparently, cough(ing) is not considered something that comes out of the body.

3.1.4.3 *Péensa baino*

Péensa bainuru or *péensa baino* means ‘weather sickness’, which one can get when they move from one place to another where the weather is different. Gele said that he had *péensa bainuru* during the first winter when he moved to the Netherlands, because he was used to hot weather in Ethiopia and in the Netherlands it was very cold.

(15) *peensa baino wanawana kotaxa inta aajaɗidíne*

péen-sa hai-no wána wána kotaxa ínta aajaɗ-ídí-ne
 country-GEN sun/weather-F.S difference because 1SG be.sick-PF-COP
 ‘Because of the different weather, I am sick’

It is striking that *péensa bainuru* or *péensa baino*, literally translated, means ‘a country’s weather’. So it does not appear to indicate a disease. However, it is one of the first things Gele mentioned when asked to name all diseases he could think of, so apparently, it is thought of as being unwell in a way.

3.1.4.4 *T’a*

Another symptom that Gele mentioned several times when talking about *gíbaɣ* is *t’a*, ‘to vomit’.

(16) *inta t’atidaade*

ínta t’a-te i=dáa-de
 1SG vomit-LOC 1SG.PROG=exist-PFV
 ‘I am vomiting’

The following constructions are also possible.

(17) *inta t’aidíne*

ínta t'a-idí-ne
 1SG vomit-PF-COP
 'I am vomiting'

(18) *inta t'aida t'e*
 ínta t'a=i-da t'a-é
 1SG vomit=1SG.PROG-IPFV vomit-PRES
 'I am vomiting'

Sentence (18) involves the repeated or ongoing action which was also seen in section 3.1.4.2.

Once Gele mentioned the word *t'ainte* as a noun. It appears that the suffix *-nte/-inte* marks nominalization, similar to *haara-nte* 'diarrhoea' (cf. section 3.1.4.8). Therefore, this nominalized form was used to test the constructions with *yed-* 'to catch' and *ut-* 'to come out'. Unlike for most other diseases, however, for which only one sentence is ungrammatical, Gele considers both of the following sentences to be incorrect with *t'ainte*.

(19) **t'ainte idan kiyedade*
 t'a-inte í=ɗan ki=yedá-de
 vomit-NMLZ 1SG=ACC 3SG.M=catch-PFV
 'I am vomiting', 'vomit caught me'

(20) **t'ainte idar utaisaxa ...*
 t'a-inte í=ɗar utá-isaxa
 vomit-NMLZ 1SG=ALL come.out-PAST.PF
 'I am vomiting', 'vomit comes out of me'

It does not come out of you and apparently it cannot catch you either. This may have to do with *(i)nte* as a nominalizer, which then signifies the product: in this case, the vomit. This cannot 'catch' or 'exit' you.

3.1.4.5 *dárca*

Another term Gele mentioned is *dárca*. At first, it appeared to mean a disease or symptom similar to 'an ulcer' or 'puss'. However, later on, Gele indicated that it is a kind of worm that invades the body and comes out of it again, perhaps similar to guinea worms. Since Gele usually pointed at the

neck or buttocks when explaining what the term means, I assume that this disease mainly affects soft tissue. He gestured about a body part swelling up and said ‘it comes out’. It can be caused by an animal bite, tree scratch, or an internal trigger inside your body. People sometimes die from it. When asked how to say ‘I have (a) *dárca*’, Gele always mentioned this construction at first:

- (21) *dárca idar utaisaxa ...*
dárca *í=dar* *utá-isaxa*
dárca 1SG=ALL come.out-PAST.PF
‘*dárca* is coming out of me’, ‘I have *dárca*’

It was the only occasion in which he used the construction containing the first person allative pronoun first. This probably has to do with the fact that *dárca* is something that specifically comes out of the body, which is indicated by the allative case. The fact that the construction with the allative *ídar* is grammatical for this disease could have to do with the case of the pronoun or with the verb in the sentence. The verb he uses, *ut-*, means ‘to come out’, among other things, so it is logical that this should get an allative case.

However, interestingly, one other well-attested construction is not grammatical for this disease:

- (22) **inta darcadidine*
ínta *dárca-ad-idí-ne*
1SG *dárca*-PF-COP
‘I have (a) *dárca*’

Unlike for most other diseases, you cannot say *inta + dárca + ad-idí-ne* to indicate ‘I have *dárca*’. Gele was very determined that this is not a good sentence. Perhaps this signifies that *dárca* is a different kind of disease; it is not the person itself who is doing something, but rather the disease (or, in the case that *dárca* indicates worms, the worm itself) is doing something to the person; more specifically, it is coming out of a particular body part. Probably for that same reason, the following sentence is possible:

- (23) *dárca idan kiyedade*

dǎrca í=dán ki=yedá-de
dǎrca 1SG=ACC 3SG.M=catch-PFV
 ‘*dǎrca* caught me’, ‘I have *dǎrca*’

3.1.4.6 *Ara*

Ara probably means something like ‘hydrops/edema’ and/or ‘jaundice’; in case of the former use, it signifies an illness that makes the body swell up. Gele explicitly said that this disease requires traditional treatment. At clinics, they have no cure for this illness, so you will die from it if you go there. A traditional healer massages your body with butter and afterwards, makes several cuts in your arms, in which he puts a goat horn by which blood or other bodily fluids (possibly, edema?) can be sucked out of the swollen arm.

As mentioned, *ara* may also mean ‘change of color in the eyes’, which sounds like it could mean ‘jaundice’. This is also a symptom of *galáp gíbaʒ* as discussed in section 3.1.2. Gele’s description of the change in color of the eyes is not always consistent, as he sometimes mentions yellow, whereas on other occasions he uses the terms green or blue. This probably has to do with a different conceptualization of colors in Hamar than in English. The explanation that *ara* has some overlap with *galáp gíbaʒ* corresponds with what Paulos *et al.* (2016:5) describe when they state that *ara* means ‘jaundice’. It has not been entirely clarified yet in what way the ‘jaundice’ interpretation of *ara* is related to the abovementioned bloating of the body. The following sentences express ‘I have *ara*’:

(24) *inta aradidine*

ínta ara-aḏ-idí-ne
 1SG ara-PASS-PF-COP
 ‘I have *ara*’

(25) *ara idan kiyedade*

ara í=dán ki=yedá-de
ara 1SG=ACC 3SG.M=catch-PFV
 ‘*Ara* caught me’, ‘I have *ara*’

On the contrary, it is not possible to say ‘*ara* is coming out of me’ to indicate that one has *ara*:

(26) **ara idar utaisaxa ...*

ara í=dar utá-isaxa

ara 1SG=ALL come.out-PAST.PF
 ‘I have *ara*’

Concerning this last sentence, it was very clear to Gele that this is not grammatical. *Ara* is not something that comes out of you, but it is related to the bloating of the body. Therefore, you cannot use an expression that indicates something ‘coming out’.

3.1.4.7 *Metí burqa*

Gele translated ‘a headache’ into Hamar *metí burqa(ma)*. When asked how to say ‘I have a headache’, this is what he said:

(27) *isa metida burqaǎe*
 í=sa metí-da burqaǎ-e
 1SG=GEN head-IPFV hurt-PRES
 ‘My head hurts’, ‘I have a headache’

When asked if the following are also possible, he said that that is indeed the case:

(28) *inta meti (isa) burqaǎidine*
 ínta metí (í=sa) burqaǎ-ídí-ne
 1SG head 1SG=GEN hurt-PF-COP
 ‘My head hurts’, ‘I have a headache’

(29) *meti burqa idan kiyedade*
 metí burqa í=ǎan ki=yedá-de
 head pain 1SG=ACC 3SG.M=catch-PFV
 ‘I have a headache’, ‘a headache caught me’

Gele was not sure whether the following is a grammatical construction or not.

(30) ?*meti burqa idar utaisaxa ...*
 metí burqa í=dar utá-isaxa

head pain 1SG=ALL come.out-PAST.PF
 ‘A headache is coming out of me’, ‘I have a headache’

It is interesting to consider why this should be the case. For most other diseases except for *dárca*, Gele was always very determined about the ungrammaticality of the construction with *ut-* and *ídar*. He appeared to be in doubt about this one and it remains unclear for now why, since a headache is not typically something coming out of a body. For now, this remains an unanswered question.

3.1.4.8 *Iixánde* and *baaránte*

Another illness listed by Gele is *iixánde*, similar to English ‘stomachache’, ‘diarrhoea’, or ‘stomach flu’; however, he also mentioned *baaránte* as a term denoting this kind of illness. Initially, it was not entirely clear what the difference between *iixánde* and *baaránte* is because Gele used both of them for illness involving the bowels. However, at some point Gele said of *baaránte* that the excrements are like water, which I assume indicates diarrhoea, so perhaps *iixánde* denotes that which precedes *baaránte*. They can be caused by bad food or bad water (i.e. dirty water which became hot due to the sun; if not boiled before consumption, it can make you sick). It may involve nausea and vomiting. *Iixánde/baaránte* may be symptoms of *gíbaz*, too. When I asked Gele how to say ‘I have *iixánde*’, he uttered the following sentence.

- (31) *inta í=ɗan iixánde yedá-isaxa róoro wul haará=i-da*
 1SG 1SG.ACC *iixánde* catch-PAST.PF day all diarrhoea=1SG.PROG-IPFV
haar-é
 diarrhoea-PRES
 ‘When *iixánde* catches me, I am *baar*-ing all day’

This sentence involves *baaránte* as well (and note that Gele uses a construction similar to the ones in sentences (10) with *piskill* and (18) with *t’a*, indicating the repetitive action). For that reason, this section includes both *iixánde* and *baaránte*, since the terms are related. They both have to do with upset bowels which may result in watery excrements. But from sentence (31), it appears that *iixánde* mostly denotes ‘what happens inside’ and *baaránte* is rather the result: the diarrhoea, the passing of watery excrements.

When it comes to *iixánde*, it is interesting to note that this term is hard to analyze. The Hamar word for ‘stomach’ is *ii* (Petrollino 2016:330), but for now it remains unclear what *-xánde* signifies

(perhaps including instrumental/perlative marker *-xa*, Petrollino (2016:xiii)). The following two constructions can express ‘I have *iixánde*’:

(32) *inta iixánde dine*

ínta iixánde-idí-ne

1SG *iixánde*-PF-COP

‘I have *iixánde*’, ~‘I am in a state of having stomachache’

(33) *iixánde idán kiyedade*

iixánde í=đán ki=yedá-de

iixánde 1SG=ACC 3SG.M=catch-PFV

‘*iixánde* caught me’, ‘I have *iixánde*’

The construction meaning ‘X comes out of me’ is ungrammatical in the case of *iixánde*.

(34) **iixánde idar utaisaxa...*

iixánde í=dar utá-isaxa

iixánde 1SG=ALL come.out-PAST.PF

‘*iixánde* comes out of me’, ‘I have *iixánde*’

Most likely, this sentence is incorrect because a stomachache is not perceived to come out of someone; it just indicates a pain inside the body.

Haaránte means ‘diarrhoea’, which according to Gele follows *iixánde*. He used the following construction when asked how to say ‘I have *haaránte*’.

(35) *inta haaridine*

ínta haar-idí-ne

1SG have.*haaránte*-PF-COP

‘I have *haaránte*’, ~‘I am *haar*-ing’

In this case, ‘I have diarrhoea’ would be a somewhat awkward translation, since a stative verb is used in the Hamar sentence.

(36) *haarante idan kiyedade*

haaránte í=ɗan ki=yedá-de
haaránte 1SG=ACC 3SG.M=catch-PFV
'*Haaránte* caught me', 'I have *haaránte*'

It is interesting that this construction is possible, even though a similar construction is not possible for *t'a* 'to vomit' (cf. sentence (19) in section 3.1.4.4). Also similar to *iixánde*, the following sentence is not possible:

(37) **haarante idar utaisaxa ...*

haaránte í=ɗar utá-isaxa
haaránte 1SG=ALL come.out-PAST.PF
'I have *haaránte*'

This is striking, since it could be argued that diarrhoea is something that comes out of your body, just like *dárva* (which can in fact appear with the verb *ut-* 'to come out' and the allative pronoun, as became clear in section 3.1.4.5). However, it appears that *haaránte* is considered something different from *dárva*. This finding is consistent with what was found to be true for *t'ainte* 'vomit' (cf. sentence (20) in section 3.1.4.4), which is also not grammatical in a construction including *ut-*, even though it indicates the product rather than the action.

3.1.4.9 *Baré*

So far, mainly physical symptoms were discussed. When I specifically asked Gele about it, he mentioned one other disease: *baré*. It has spiritual connotations, which is also relevant for the present research: malaria, when it remains untreated, can progress into cerebral malaria (see section 4.1). This may result in symptoms such as convulsions, which are often regarded as a spiritual disease and not related to malaria in many African societies (see e.g. Spjeldnæs *et al.* 2014). The fact that Gele only mentioned this disease after he was explicitly asked if he knew any spiritual illnesses as well, could reveal that spiritual ailments or 'craziness' in Gele's own words, are conceptualized as a different category of 'being unwell', not necessarily as a disease similar to the ones discussed in the previous sections, in Hamar culture. Therefore, it is all the more interesting to see if one can use the same types of constructions to express that one has *baré*. The following sentences can express 'I am crazy', 'I have *baré*':

(38) *inta bardidine*

ínta baré-ad-ídí-ne

1SG *baré*-PASS-PF-COP

‘I am crazy’, ‘I have *baré*’, or ‘I am drunk’

(39) *baré idan kiyedade*

baré í=ɗán ki=yedá-de

baré 1SG=ACC 3SG.M=catch-PFV

‘*Baré* caught me’, ‘I have *baré*’

The following sentence is ungrammatical.

(40) **baré idar utaisaxa ...*

baré í=ɗar utá-isaxa

baré 1SG=ALL come.out-PAST.PF

‘I have *baré*’

Apparently, *baré* is not considered something that comes out of your body.

Baré has two meanings: 1) drunkenness and 2) madness. One can get ‘drunk *baré*’ (as Gele calls it) from drinking too much alcohol. However, when a normal person suddenly becomes mad, that is also called ‘(crazy) *baré*’. Gele said that something comes into your body, e.g. due to family issues, and this ghost makes you talk and act in a strange way. All in all, it appears to signify something like ‘to be possessed (by a spirit)’.

At first, what Gele listed as *baré* ‘symptoms’ did not seem to be related to malaria. However, at some point Gele mentioned that people sometimes fall to the ground and start shaking, at which he gestured in such a way that it was strongly reminiscent of convulsions. This is a well-known symptom of (biomedical) severe/cerebral malaria (NB: not *gǎbaʒ*), and in that way, *baré* may have to do with malaria. For this ‘crazy *baré*’, one always needs traditional treatment, which will be discussed in more detail in section 3.1.5.

‘Crazy *baré*’ in Hamar is *méeshi baré*, which literally means ‘ghost craziness’, including *méeshi* ‘evil spirit’, Petrollino (2016:309). Gele said that there is ‘poison inside you from a ghost’. It can be transmitted if somebody who has it bites you. Gele compared this to something that reminded me

of biomedical rabies; he said, ‘if a crazy dog bites you, you have to go to a hospital or you will become crazy yourself’. This is similar to when a crazy person bites another person: they may become mad themselves too.

3.1.4.10 Different diseases, different constructions

It is interesting to see that Gele uses different kinds of constructions to express the different diseases. For most diseases, 2 out of 3 constructions are considered grammatical. But he usually mentions one when asked how to say ‘I have X’ or ‘I am X-ing’. Also, the construction with the allative pronoun was only fully grammatical in the case of *dárca*, and possibly so in the case of *metí burqa*. Table 3 below summarizes the results of most of the elicited example sentences listed in the previous sections 3.1.1-3.1.4.9.

<i>gíbaz</i> ‘to shiver’	<i>gulpá</i> ‘a cold’	<i>piskill</i> ‘to cough’	<i>t’a</i> ‘to vomit’	<i>dárca</i> ‘worm’ (?)
ínta gibazidíne	ínta gulpádidíne	ínta piskillidíne	ínta t’aidíne	ínta dárcaidíne
gíbaz íðan kiyedáde	gulpá íðan kiyedáde	piskill íðan kiyedáde	t’ainte íðan kiyedáde	dárca íðan kiyedáde
gíbaz ídar utáisaxa...	gulpá ídar utáisaxa...	piskill ídar utáisaxa...	t’ainte ídar utáisaxa...	dárca ídar utáisaxa...

<i>ara</i> ‘jaundice/hydrops’	<i>metí burqa</i> ‘headache’	<i>iixánde</i> ‘stomachache’	<i>haaránte</i> ‘diarrhoea’	<i>baré</i> ‘craziness’
ínta aradidíne	ínta metí burqadidíne	ínta iixándeidíne	ínta haaridíne	ínta bardidíne
ara íðan kiyedáde	metí burqa íðan kiyedáde	iixánde íðan kiyedáde	haaránte íðan kiyedáde	baré íðan kiyedáde
ara ídar utáisaxa...	metí burqa ídar utáisaxa...	iixánde ídar utáisaxa...	haaránte ídar utáisaxa...	baré ídar utáisaxa...

Table 3. Elicited Hamar illnesses/symptoms and grammatical constructions

In this table, green indicates that the sentence is considered grammatical by Gele, red denotes ungrammaticality, and orange means that Gele is unsure whether it is correct or not. It is interesting to see that all of them allow constructions with *yed* ‘to catch’, except for *t’a* ‘to vomit’. Also, all of them except for *dárca* allow the construction in which the symptom is expressed as a stative verb. These appear to be the most common ways to express illness in Hamar. *Péensa baino* ‘weather

sickness, country's weather', as discussed in section 3.1.4.3, was not included in the table because it is a different kind of expression which does not fit in this category; in order to express the illness, one needs a sentence including *aajad* 'to be sick'.

3.1.5 Traditional medicine

The list above is most likely incomplete. However, it does provide an insight into Hamar ideas about sickness and how they can be caused and related to one another. One step further is to analyze the traditional way in which Hamar people deal with their ailments. Herbal as well as spiritual treatments are discussed.

3.1.5.1 Herbal and animal therapies

As for cures for all of the diseases that were mentioned, there are several options, according to Gele. First of all, Hamar people can take certain medicinal plant or tree leaves and crush them. From this, a tea-like liquid is made, which is helpful for many symptoms. The identification of these specific plant species falls beyond the scope of this thesis, but this has been researched in more detail in Paulos *et al.* (2016).

Second, when someone is sick, a goat will often be killed, which can serve different purposes afterwards. One may cover the affected person's face in the goat's stomach. This is done because goats eat a lot of (medicinal) plants, which will help the affected person. The goat blood may be drunk as well. This is a cure for many diseases except for *dárca*, because one should not consume blood when they have that. In addition to that, one can "use" the goat by making soup out of it. According to Gele, this is especially effective for *ara*, because it cleans your insides. This suggests that *ara* is a problem that originates from the inside, which is consistent with what Gele said about it as discussed in 3.1.4.6.

Álla, which is honey wine, is also said to have a healing effect. Gele says that it strengthens the bones, cleans your inside, and makes you come back to life. It should not be consumed, however, in the case of *dárca*, because if you are suffering from this disease, you should not eat meat or drink alcohol. It is not beneficial when you have *baré* either, because it will only make you more crazy or drunk. It does work for *gíbaʒ*, for *gúlpá*, for *ara* (sometimes), *iixándé*, and for bone or joint pains.

3.1.5.2 Spiritual therapies

Baré seems to be a different kind of disease, as becomes apparent from the cures that Gele listed. Aloe vera is often mentioned as a 'cleaning tool'; especially for *baré*, but possibly for other diseases

too. It is not consumed, but circled around the head by a traditional healer and afterwards thrown away with force. Also, for *baré*, some people lit a match or cigarette and put it in the nose of the affected person when they are lying on the ground convulsing. The smoke is supposed to scare away the ghost.

Going to a traditional healer is another option for sick people. Gele compares a traditional healer to a Dutch psychologist. You go there for e.g. advice on what to do, to obtain an explanation for certain issues in your life or in your family, because medicine men ‘know everything’, according to Gele. They can tell you what is the matter with you and what to do about it, which often consists of cleaning oneself with aloe vera or by killing a goat. This is a remedy for spiritual illness.

3.1.5.3 Hamar medicine

Paulos *et al.* (2016) conducted an ethnopharmacological study in which the traditional medical system of the Hamar is explored. It uses qualitative methods to investigate what kinds of plants and herbs are utilized and which parts of them (e.g. the roots or leaves), and with what methods they are ‘transformed’ into medications. Besides that, it also gives a statistic overview of what treatment options the Hamar people prefer when they are ill. It is rather unsatisfactory that they do not really specify for *which* disease people want *which kind of* medical help (traditional or medical, or home-made); only percentages are given (e.g. half of the population went to a hospital when they were sick in the past two weeks). Moreover, they concluded that people with higher socio-economic status (i.e. higher education and income) are more likely to opt for biomedical facilities than people with lower SES. This is more or less what was already expected since education often also implies biomedical education (and trivialization of or, at least, an implicit negative attitude towards traditional medicine and indigenous ideas about sickness and healing), so people who have had more of that kind of education will probably be more prone to seek biomedical rather than traditional aid. Also, it may have a somewhat stigmatizing effect as well; believing in traditional indigenous medicine may be associated with being underdeveloped or having low socio-economic status. However, the present investigation with the help of Gele has shown that the Hamar have their own unique way of expressing how they feel when they are sick and it also confirms the findings from Paulos *et al.* (2016) that the Hamar traditional and herbal medical practices are flourishing to this day.

3.2 Malaria in Swahili

The present section consists of a (very basic and incomplete) first investigation into the conceptualization of malaria in the Swahili language. Unfortunately, it was not possible to conduct

fieldwork to investigate the conceptualization of malaria in the Swahili language. However, secondary literature was consulted, from which several terms were collected. They will be discussed below in order to achieve an understanding of how malaria is conceptualized in Swahili, albeit a very basic and incomplete understanding and less extensive than that of Hamar. First, in section 3.2.1, Swahili translation equivalents of ‘malaria’ will be given based on terminology found in dictionaries, and after that, the conceptualization of convulsions will be discussed in section 3.2.2, based upon mostly anthropological studies. A short summary will be provided in section 3.2.3.

3.2.1 Malaria terminology

Since it was not possible to conduct linguistic fieldwork, multiple dictionaries were consulted in order to achieve a comprehension of how ‘malaria’ or ‘febrile illness’ is expressed in Swahili. In the English-Swahili dictionary compiled by Johnson (1939:334), ‘malaria’ is translated as *homa iletwayo na namna ya mbu*, which, rather than a disease term, appears to signify something like ‘fever caused by mosquitoes’ (with *homa* ‘fever’ and *mbu* ‘mosquito’). The following terms were found in other dictionaries:

- *Homa* is translated as ‘fever, temperature’ or ‘malaria’ in Awde (2000).
- In Höftman and Herms (2010), *homa* is translated as ‘fever’. *Homa ya malaria* and *homa ya mbu* (literally: ‘mosquito fever’) are mentioned as indicating ‘malaria’.
- *Homa* is translated “fever; any sickness with a high temperature”; *homa ya malaria* means ‘malaria fever’ (Knappert *et al.* 2010:182).
- *Homa ya mbu* is also mentioned by Cosmo (2017:238) as indicating ‘malaria’.

From these terms, it becomes apparent that ‘malaria’ seems to be conceptualized as a febrile illness (the category of different kinds of *homa*). Some dictionaries (Awde 2000, Knappert *et al.* 2010) seem to imply that *homa* by itself can also signify malaria, without the specification of *–ya mbu* or *–ya malaria*. Interestingly, malaria is apparently related to mosquitoes, as becomes apparent from the term *homa ya mbu* ‘mosquito fever’.

3.2.2 Convulsions and their associations

The terms listed in the previous section are mainly concerned with malaria as a febrile illness. But malaria can also progress and lead to severe symptoms such as convulsions. In order to investigate

whether people in Tanzania view convulsions as a symptom of malaria or as a different, unrelated disease (as happens more often in African cultures), Foster and Vilendrer (2009) conducted a study in which they asked the local population about what they knew of convulsions. The following terms were collected (Foster and Vilendrer 2009: online page 4), and as far as a definition was found in a dictionary, this is mentioned next to the term:

- *dege dege* ‘convulsions’ (Awde 2000, Cosmo 2017)
- *mchango* ‘worm’ (Awde 2000, Cosmo 2017)
- *uchawi* ‘sorcery, poison’ (Awde 2000); ‘sorcery, magic’ (Cosmo 2017)
- *upepo* ‘wind’ (Awde 2000, Cosmo 2017)
- *zongo* not found

The terms are described as follows in the article:

In order to assess the influence of malaria symptoms on treatment-seeking behavior, it is necessary to develop a vocabulary of specific malaria terms in Swahili ... Interviews with research participants revealed a set of Swahili words used to describe convulsions and their associated illness. Female caregivers were initially reluctant to mention terms relating to severe malaria, likely because of their spiritual connotations. However, when prompted, the two terms most frequently employed were *dege dege* and *mchango*, both of which have a variety of definitions and strong associations with spiritual affliction. Some female caregivers offered explanations of these two terms, claiming that the specific presentation of *dege dege* or *mchango* depends on the child, "for one baby, it is turning the eyes upside down. For another one it is high fever" (Caregiver #10). Other Swahili words mentioned in association with convulsions included *uchawi*, *upepo*, and *zongo*. The definition of each of these terms and their level of association with malaria varied significantly between each individual caregiver.

Foster and Vilendrer (2009: online page 4)

It is rather unsatisfactory that these terms are said to “have a variety of definitions” without a detailed investigation into what exactly they mean; a linguistic analysis would be helpful here. Furthermore, it is interesting that there appears to be a taboo concerning the terms indicating spiritual illnesses. Possibly, this indicates what people believe concerning these diseases when it comes to how they come about: perhaps, mentioning the term may bring about the disease.

A different study in which some of the terms listed above also occur was conducted by Feierman (1981), who discusses traditional indigenous ways of diagnosis and treatment in Tanzania. He

mentions different categories of diseases and their Swahili terms, one of which is the so-called *utamu wa Muungu* ‘illnesses of God’, which signifies all kinds of diseases that in English could be called ‘natural’; ‘they just happen’, as opposed to *utamu wa mntu* ‘illnesses of man’ (see below). Interestingly, *mbu* ‘the mosquito’, a term to indicate a disease similar to malaria (i.e. fever episodes), is also considered to be such a ‘disease of God’ (Feierman 1981:355).

Another category of illnesses which is mentioned is *ndoghwa* or *ushai* or *utamu wa mntu* (literally: ‘illnesses of man’), all expressing a meaning similar to ‘sorcery’. Interestingly, the term *zongo* is mentioned here as well:

The attribution [of the illness category] can come in an enormous variety of forms. The kind of sorcery is sometimes identified by the symptom, as in *kiwete*, a limp or a crippled leg. Sometimes it is defined in terms of the social characteristics of the victim and of the presumed sorcerer, as in *zongo*, which explains the illness of a young child in terms of attack by a mature woman. Some forms of sorcery are identified by symptoms within the category ‘illnesses of God’, ... but with the illness in this case ultimately induced by the sorcerer, so that both the ‘natural’ course of the illness and the sorcerer’s attack must be treated.

Feierman (1981:355)

This shows something about the conceptualization of *zongo* as ‘one form of sorcery’ which causes convulsions. Moreover, *degedege* is also mentioned in this paper:

One [of the traditional healers which are discussed in the section] treats most of the village’s cases of *degedege*, or *ndeghe* (literally ‘the bird’)--convulsive movements of infants and young children--but also treats a wide range of other illnesses brought to him.

Feierman (1981:356)

It is not elaborated upon what the term exactly means, but nonetheless the quote demonstrates that the people in this district of Tanzania make use of traditional healers for the treatment of convulsions, rather than going to hospital.

3.2.3 Malaria and convulsions in Swahili

This section has shown that the Swahili term *boma* is related to the biomedical disease ‘malaria’, but that it is not a literal translation. The prototypical meaning of *boma* appears to be ‘febrile illness’,

which may then be specified by terms such as *malaria* or *mbu* to indicate malaria as ‘one febrile illness belonging to this category’.

With respect to convulsions as a symptom of malaria, several issues from Foster and Vilendrer (2009) as well as Feierman (1981) are striking. First of all, there are strong beliefs in spiritual illnesses in the communities in which the studies were conducted. There even seem to be several kinds of spiritual illnesses (Feierman 1981:355, including these caused by sorcery, spirits, and one individual’s curse). Second, there appear to be multiple terms expressing something like ‘convulsions’. It would be helpful to know what each of them exactly means and what they are associated with. All of the terms and findings in the whole of section 3.2 would have to be confirmed and further explored by a much more thorough linguistic analysis. In Chapter 5, the Swahili and Hamar perspectives will be compared to each other as well as to the biomedical views on malaria-like illness.

4. Malaria in biomedicine

Now that the indigenous Hamar and Swahili perspectives have been explored in the previous chapter, we will turn to the biomedical explanation of malaria, and investigate what this implies about the biomedical conceptualization of the disease. This will be discussed in section 4.1. Section 4.2 entails a critical reflection on the language that is used in biomedical literature and what it shows about the ‘self-image’ of biomedicine as a discipline. It will become clear that there is a strong perceived link between biomedicine and truth. Lastly, in section 4.3, it will be discussed how traditional indigenous medicine is presented based on the biomedical conceptualization of truth, and what this implies for malaria care in Africa.

4.1 Malaria in biomedicine

According to the biomedical explanation, malaria is caused by a mosquito, who carries the *Plasmodium* parasite in her saliva, which is injected in the human blood after a mosquito bite. The parasite further develops in the liver and afterwards infects the red blood cells (Garcia 2010:94-95).

Garcia (2010:98-101, 107-110) discusses five *Plasmodium* species known to cause malaria symptoms in human beings. The nature and severity of these symptoms may vary depending on the *Plasmodium* species, but can include so-called *paroxysms* (meaning fever episodes, consisting of a cold stage, high fever, and sweats) or a steady low-grade fever (especially in the early stages of infection) or small random fever peaks throughout the day (this, too, especially applies to the early stages), lethargy, loss of appetite, nausea, vomiting, diarrhoea, and a headache; the symptoms may (especially at first, when the typical fever episodes have not yet occurred) be reminiscent of a stomach flu, pneumonia, infections in the brain such as meningitis, or hepatitis. On a hematologic level, anemia may occur, or a decrease in white blood cells or platelets. Besides these more general symptoms, ‘species-specific’ symptoms may occur as well.

The disease comes in attacks of fever, mostly irregularly at first. This is called periodicity. After this, a stage begins in which attacks occur regularly once every few days, the amount of which depending on the *Plasmodium* species that causes the infection. It may take days, usually at least one week, for the infected individual to start showing symptoms, but sometimes the incubation period will last up to weeks, months, or even years (Garcia 2010:99).

Two species are the most dangerous: *Plasmodium falciparum* and *Plasmodium knowlesi*, with the other three (*Plasmodium vivax*, *Plasmodium ovale*, and *Plasmodium malariae*, as discussed by Garcia (2010))

being relatively mild. Species may be differentiated by light microscopy or PCR, which is a technique that detects DNA. Diagnosis is often done by examining blood smears under a microscope; each species shows different characteristics which can help distinguish between them (Garcia 2010:106-107). This distinction is important for the choice of therapy. Besides blood smears, information on patient characteristics, travel and residence history, as well as symptoms are relevant to diagnose the patient with (one specific type of) malaria. Furthermore, newer, more technological diagnostic tools continue to be developed to help make diagnostics faster, cheaper, and more reliable (Garcia 2010:118-120).

Apart from the symptoms mentioned above, when malaria is not treated in time, it can develop into cerebral malaria. This is most likely caused by red blood cells infected with *Plasmodium falciparum* which are surrounded by several uninfected red blood cells. These complexes then start clotting in smaller vessels, e.g. in the brain. Additionally, inflammatory elements in the human blood are also likely to stimulate the development of cerebral malaria. Symptoms may include disoriented or violent behavior, severe headaches, and eventually coma. It's striking that Garcia (2010:107) does not mention convulsions among the possible symptoms of cerebral malaria, since this is in fact a well-documented symptom (e.g. Spjeldnæs *et al.* 2014). Extreme fevers, 41.7°C or higher, may be seen in 'relatively uncomplicated malaria attacks' but may also develop in cases of cerebral malaria. Cerebral malaria is most commonly caused by the *falciparum* species, but can occasionally develop in the case of an infection with other species as well.

When it comes to therapy, there are several antimalarial drugs (Garcia 2010:112-113). However, some of the *Plasmodium* species have developed a tolerance or resistance to some of these in certain areas of the world. This poses a serious threat to the effective treatment of malaria. Garcia (2010:122-123) also discusses hematologic deficiencies and genetic alterations (in human populations) which are proven or thought to protect against the development of malaria to some degree. These alterations occur most frequently in areas of the world where malaria is endemic too. It seems, therefore, to be a form of natural immunity.

Relapses and reinfection-after-cure do occur, depending on several factors such as the (severity of the) species and the treatment used. For this, compliance to the therapy as well as resistance are important. These two factors are related: to prevent the parasite from being able to get accustomed to the medication and developing a resistance against it, it is highly important that patients adhere

to the dosage scheme and, especially, that they finish the therapy, in order to ensure that no parasites remain in the blood.

Garcia (2010:98) briefly mentions malaria vaccination, describing several requirements that an ideal vaccine should have. If a malaria vaccine could be invented, that could provide a form of immunity against the disease, thereby reducing the disease burden. However, this is not easy to develop, since it should ideally act against all *Plasmodium* species and all life stages of the parasite. Recently, a new vaccine was developed, and a trial has demonstrated that it appears to be effective in children (Dattoo *et al.* 2021). Nevertheless, it should be noted that the vaccine only acts against *Plasmodium falciparum* and only against the so-called pre-erythrocytic stage (meaning before it infects the red blood cells), so not against all phases, as Garcia (2010) states to be preferable. But in favor of this study, the pre-erythrocytic stage is in a way the most important one since a vaccine working against aims to prevent the parasite from invading the human body. Also, it is likely that it is the *falciparum* species which has the highest disease load in Burkina Faso, which is the area where this study was conducted.

4.2 Biomedicine, truth, and language

When reading the biomedical literature on malaria, multiple issues are striking, which will be discussed below.

4.2.1 Biomedical practice

First of all, there appears to be a clear distinction between the visible and the invisible when it comes to malaria. Symptoms are mostly visible to the unassisted eye, such as vomiting, fever, etc. However, some are not, such as a decrease in white blood cells; for this, blood analysis with the help of medical-technological devices is necessary. The *Plasmodium* parasite is not visible to the naked eye; one needs to have a microscope to be able to see it and besides that, even more advanced technological means (such as PCR) are necessary to distinguish between different species. And yet, PCR is considered to be one of the most reliable means of diagnosing someone with malaria. This is striking, because it shows that biomedicine appears to rely heavily on technological aids, devices to help measure symptoms and parasite loads and blood cell counts etc., rather than just clinical examination, for diagnostics. You cannot diagnose someone with malaria without the help of technological equipment, and the patient history is only considered background information that is important but not *the* most important aspect (Garcia 2010:114-121). The Dutch saying *meten is weten* “to measure equals to know”, “the numbers tell the tale” applies very much to biomedicine.

It is striking that what cannot be *seen* by the human eye but can be *measured* through equipment is considered better grounds for the diagnosis than what can be seen, at least in the case of malaria. This is understandable in terms of technological developments in recent times, but at the same time it enlarges the gap between biomedicine and traditional medicine. As we have seen in Chapter 3, fever or febrile illness and malaria are sometimes used interchangeably in Hamar and Swahili. However, in the biomedical tradition, it is very important to distinguish between different kinds of fever and they are not perceived as belonging to the same category.

Related to that, another aspect of biomedicine is its pursuit of underlying causes for ‘superficial’ symptoms. For biomedicine, fever is not just fever; it ought to be specified what causes the fever and treat that underlying pathogen or other cause. In the case of malaria, a parasite causes the fever (and other symptoms, if present), so one should not just treat the fever but more importantly, the parasite.

4.2.2 Biomedical evidence and truth

This section entails a more general reflection on the relationship between biomedicine and perceptions of truth; it will be applied to the case of malaria in section 4.3. The current focus on ‘evidence-based medicine’ reveals that biomedicine is mostly founded on scientific research aimed at finding the truth based on what we can see (whether that means seeing with the unassisted eye, with the help of technological aids, or with the help of statistics). This is then called ‘evidence’ (cf. Wierzbicka (2010) on the Anglocultural roots of the term ‘evidence’). ‘Evidence-based medicine’ also implies that there are other ways of practicing medicine, but that these are inherently ‘lesser’ forms of medicine, for they do not live up to the standards set by modern biomedicine. The word ‘evidence’ comes from the Latin *evidentia* which itself is derived from *videre* ‘to see’. This is just to show that ‘seeing’ is related to ‘knowing’ in many western cultures (see, e.g., Viberg (1983)), and this applies to modern biomedicine as well. However, this is different in many other cultures; seeing may not be the best or the only or even a source at all of knowledge. Therefore, biomedicine is not open to other forms of medicine which have other traditions. These are then deemed ‘alternative’, or just ‘misconceptions’ and ‘myths’, which will be explored in more detail in section 4.3.2.3.

There is a notion about biomedicine that it considers itself to be God’s truth and other forms of medicine are not to be taken seriously. In his article on medical science, culture, and truth, Gillett (2006) critically reflects on biomedicine and truth. Biomedicine claims to pursue ‘the truth’, but what exactly is truth? Gillett (2006) argues that truth is closely related to language. Language enables

'signifiers', i.e. people, to categorize objects, events, and ideas (the 'signified') in the real world, which then develop into a cognitive network of observations and beliefs which are held to be 'true'. The confirmation of such paradigms (as is often done in biomedical scientific research such as trials) is usually thought to prove the truth of these paradigms. However, the author challenges this idea by arguing that real truth lies not in the confirmation of existing knowledge paradigms, for they are just one way of looking at it:

Medicine has adopted the scientific model of truth but that model is challenged when the tuche [encounter with the real world] declares itself and alerts us to the fact that our categories are not the thing in itself but only a provisional and partial signification of it.

Gillett (2006:10)

He goes on to say that truth lies much more in the encounter with, and adaptation to, phenomena in the real world which cannot be explained or signified by these existing (biomedical) knowledge paradigms. The example of chronic fatigue syndrome is mentioned: it is a disease, it leads to human suffering, but there is no way in which biomedicine can satisfactorily explain it. In biomedical terms, this disease does not confirm existing patterns, for there is no biomedical explanation for it. In a way, one could say that it is therefore not a real disease. However, Gillett (2006) argues that precisely because it does not 'fit' into the existing biomedical knowledge paradigms, it reflects more truth than diseases that do, because it shows us the real world beyond the existing significations that have been composed to interpret it. In a way, this could be extended to other forms of medicine as well; beliefs in sorcery do not fit into the biomedical framework, but exactly for that reason they may show 'truth' about (how people perceive) the real world.

4.2.3 Truth and language

But what is the role of language in the pursuit of truth? This is discussed by Bikfalvi (2018) as well, albeit briefly, in his article on the relationship between science, truth, and beliefs:

Une autre aspect à prendre en considération est l'influence du langage dans l'acquisition des connaissances dans les sciences. Ce langage peut être mathématique pour certaines d'entre elles. Pour une (grande) partie des sciences (notamment les sciences du vivant), il est surtout nominal. On nomme les choses et étiquette, pour ainsi-dire, une entité ou un fait. Les objets ainsi nommés sont ensuite mis en relation. On peut alors se demander si l'utilisation de notre langage influence ce que nous voulons connaître, et orienter la façon par laquelle nous pratiquons la science.

Bikfalvi (2018:992)⁹

This is an excellent point, as it acknowledges the role language has in the way in which we categorize the world. However, Bikfalvi (2018) does not take his statement very far, as he only makes his point when discussing the example of labeling one chemical in the human body depending on the system in which it was first found. (This particular chemical occurs in both the neurological as well as vascular system, but was found first in the vascular system; therefore, it received a name only suggesting it operates in the vascular system, but in reality it also occurs in other systems. This has influenced the way in which the chemical was further investigated.) He does not, however, recognize how profoundly language influences the way in which we categorize the world:

Je ne dis pas que le fait de nommer va significativement altérer ce que nous recherchons, je dis seulement que l'orientation des recherches peut être influencée par la manière dont nous étiquettons un objet.

Bikfalvi (2018:992)¹⁰

He fails to acknowledge that language does in fact influence if not determine the way in which people are able to talk about categories, and therefore, conduct research. For language -and research- is not just about “labeling objects”, which is only a very small part of what language does, but it is the medium which human beings use to communicate, to think, to research. When one does research in a particular cultural-linguistic tradition, one uses the tools available in that tradition, which allows one to only discover part of the entire reality. Therefore, language does in fact influence the truths we are able to discover, hold, and challenge, and this applies to biomedicine as much as it does to any other area of life.

This is especially applicable when we want to compare biomedicine and traditional indigenous medicine. Biomedicine may consider itself to hold the truth, but this is only so because biomedicine has its own knowledge paradigms which are defined by the scientific language. Traditional indigenous medicine, too, has its own truth. However, in different cultures in which different languages are spoken, truth is defined completely differently from the biomedical approach.

⁹ “Another aspect to take into consideration is the influence of language on the acquisition of knowledge in science. This language can be mathematical for some of the scientific disciplines. For many, the language is mainly nominal: we name things and label, so to speak, an entity or a fact. We can ask ourselves if the use of language influences what we want to know and how we practice science.” [translation by G.H.]

¹⁰ “I am not saying that the naming of things will significantly alter what we research; I am only saying that the orientation of research could be influenced by the way in which we label an object.” [translation by G.H.]

4.3 Traditional medicine in medical literature

4.3.1 The study of traditional medicine by Western science

Now that the underlying issues of truth and language in biomedical science have been examined, the question remains how biomedicine relates to other forms of medicine. This section aims to evaluate how traditional medicine is presented in Western biomedicine. Biomedicine and traditional African medicine differ from each other in several respects. This has been described and analyzed to some extent by Western scientists. Both biomedical as well as humanities scholars have attempted to study traditional medicine to some extent, in an effort to better understand local populations. However, in biomedical literature, traditional medicine is often (more or less subtly) trivialized. Biomedicine appears to be considered the undisputed 'gold standard' and the rest are just 'lesser alternatives', and the goal of the study of traditional medicine seems to be how to get the population to 'believe in' biomedicine.

4.3.2 Traditional medicine in biomedical literature

In order to explore how biomedicine views traditional indigenous medical knowledge on malaria, a few articles on malaria care in Africa were selected and analyzed. They were selected based on several criteria: the studies should discuss different aspects of challenges in the battle against malaria and offer possible solutions. Moreover, some kind of clash between biomedical ideas and practices and traditional indigenous medical ideas and practices should be present and discussed from a biomedical perspective. Lastly, the research ought to have taken place in, or with the help of data from, African countries.

Based on the criteria listed above, five biomedical articles were selected (Amadi *et al.* 2018, Spjeldnæs *et al.* 2014, Kizito *et al.* 2012, Maslove *et al.* 2009, and Montgomery *et al.* 2006). All of them discuss challenges in malaria care in African countries from different perspectives. Issues such as knowledge, patient preferences, decision making and power relations, and even language are explored. The aim of these studies is to investigate how to improve malaria care on the points mentioned.

As for the latter point, the struggle of biomedical health workers to motivate the local communities to seek biomedical rather than traditional treatment is evident in all studies. In order to get an idea of what the clash between biomedicine and indigenous medicine is about, it is helpful to look at one exemplary remark from Spjeldnæs *et al.* (2014), who studied patients' preferred treatment for

different forms of malaria. They state that in some previous studies, “[indigenous] people were unwilling to talk about traditional medicine in fear of **negative reactions** from health workers” [emphasis added by G.H.] (Spjeldnæs *et al.* 2014: online page 8). The following questions arise when reading the articles and will be addressed in what follows after the article summaries: Where did this fear of ‘negative reactions’ come from? What kind of experience did the indigenous people have with other health workers? Were these just coincidentally angry or aggressive health workers, or is there a deeper issue at stake? I.e. how is traditional knowledge regarded from the point of view of biomedicine? Where do these “negative reactions” come from? In the biomedical literature on how to improve malaria care in African countries, this negative attitude of biomedical facilities’ staff towards traditional medical knowledge becomes apparent in several ways. It will become clear that, as discussed in section 4.2, this is a systemic problem since it appears to be inherent in biomedicine that it considers itself to be the truth, and therefore, any deviation from that truth is not supported and often, even actively contested.

4.3.2.1 The articles

First, the five articles mentioned in the previous section will be briefly summarized, and after that, the way in which they present traditional ideas will be elaborated upon. In sections 4.3.2.2 – 4.3.2.5, issues arising from the studies will be reviewed.

In Amadi *et al.* (2018), challenges in malaria control in the Baringo county of Kenya are discussed. These challenges involve different ideas about the etiology of malaria between health workers and the local population, a lack of sufficient drugs, chaotic communication and governance, among other issues. It also provides possible solutions to these problems, such as education, smoother communication and collaboration between institutions, etc.

Spjeldnæs *et al.* (2014) carried out a study to ‘assess knowledge’ of the population of the Rufiji district in Tanzania. It focuses specifically on the differences between mild and severe malaria and how these are interpreted and perceived by the population. It appears that febrile illnesses, as seen with mild malaria, are often conceived of as a different disease with a different cause and cure than convulsions (or *degedege*, cf. section 3.2.2), as seen with severe or cerebral malaria.

The study by Kizito *et al.* (2012) reviews existing literature from malaria research in multiple African countries from the point of view of what attracts patients to different types of health care providers rather than what should be changed about them (the latter often happens in many studies, according to the authors). Patients’ wishes and preferences with respect to health care options are examined in this study, for which it takes into account both biomedical as well as traditional health facilities.

Maslove *et al.* (2009) summarize and evaluate several other studies (qualitative research in multiple African countries) discussing local ideas about malaria etiology, treatment, and prevention. The goal is to account for the sociocultural context in the battle against malaria, so as to better connect to indigenous people in their ideas about malaria.

The article by Montgomery *et al.* (2006) discusses power relations on a household as well as doctor-patient level in the Tanga district in Tanzania, and its influence on treatment-seeking behavior for childhood malaria.

What becomes apparent from the studies discussed above is that many indigenous African people appear to use multiple health facilities that are available to them. They do not just go to traditional healers, nor do they rely solely on biomedical facilities. It seems that they utilize a variety of resources and that they carefully assess the facilities in the process of deciding what kind of medical help they need. Also, issues such as power relations and beliefs in a spiritual world are much more present in many of the African communities discussed in the studies than in the biomedical world view.

4.3.2.2 Appreciation of local conditions and beliefs

On a superficial level, it appears that the authors of the abovementioned articles are sympathetic towards the traditions of the local population. In Montgomery *et al.* (2006), for instance, power relations are investigated on several levels (household and doctor-patient relationships), explaining how these relations influence treatment seeking behavior. They acknowledge that health care staff often treat and ‘educate’ their patients in an authoritative, superior, and semi-aggressive way (i.e., they instruct mothers to go to a hospital immediately when their child has fever, even though women often lack decision-making power in the household, and there may be other (home) remedies for caregivers to consider when their child is ill, besides going to hospital; this reveals that the health care staff lack a certain understanding of the local conditions).

Furthermore, in Amadi *et al.* (2018: online page 2), the authors claim to pursue a “community-driven approach” to improve malaria care. This suggests that the transformation from inadequate to better quality malaria care is to take place from the inside out, not top-down, but bottom-up; the community should be involved in the process. However sympathetic this idea sounds, it is striking that this does by no means imply that also the communities’ *knowledge* on malaria or sickness and health in general is involved in the improvement of care. It seems to be a given that the

community should get rid of traditional healing practices. This gives rise to the question: How can a strategy be truly community-driven if their traditional medical system is disregarded?

In addition, in Kizito *et al.* (2012), patients' wishes and preferences when it comes to malaria care are discussed. This is a relatively new approach, since in the majority of the literature on malaria care, only what is wrong with the population and/or what should be changed about them is discussed, rather than what attracts them to certain facilities. However, the major drawback of this study is that it, too, clearly prefers biomedical facilities over traditional forms of healing; the ultimate goal still seems to be to 'convert' the local population to biomedicine, which becomes apparent from phrasing such as "higher-level providers" (indicating biomedical facilities) vs. "lower-level providers" (denoting traditional healers) (Kizito *et al.* 2012: online page 3).

4.3.2.3 Terminology used for traditional medicine

So, at first sight, there seems to be a sympathy for the local population, and an effort is made to cooperate with them. However, as has become clear, in this attempt, the communities' medical knowledge systems are not considered something to be taken seriously and their healers are considered to be 'low-level providers'. This will only become more evident when looking at the language that is used for traditional medicine.

An example of this is the terminology which was just mentioned in section 4.3.2.2, in the article by Kizito *et al.* (2012), who explore patients' preferences for certain health care providers. These health care providers are not considered equal: biomedical facilities are labeled "high-level providers", versus "low-level providers" for traditional healers. If they truly respected patients' wishes, a slightly more neutral or less value-laden comparative terminology would be expected.

Another big issue is the terminology for the patients' ideas on malaria when these differ from the biomedical explanation. The mothers in Montgomery *et al.* (2006:1663) were said to have a "good understanding" of malaria symptoms and etiology. A "good understanding", in this case, designates a biomedical understanding. But despite the corresponding views, the mothers did not have the capability to take the child to hospital due to cultural traditions concerning gender roles and power relations. Furthermore, in many studies (e.g., Amadi *et al.* 2018, Maslove *et al.* 2009, Spjeldnæs *et al.* 2014), the 'knowledge' on malaria of the local population was 'assessed'. When this did not correspond to biomedicine, the answers (and so, implicitly, traditional medical knowledge as a whole) were often defined as 'misconceptions', 'misguided perceptions', a 'knowledge gap' or

‘myths’ (Amadi *et al.* 2018). Biomedicine was presented as ‘knowledge’ or ‘scientific explanations’, and traditional ideas about malaria were deemed ‘(cultural) beliefs’ (Maslove *et al.* 2009). Clearly, many scholars had an idea that there is a gap in perceived cause as well as necessary treatment and prevention of malaria between biomedical health care staff on the one hand and the local population on the other. But the language that is used everywhere indicates that traditional medicine is by no means considered equal to biomedicine in any way.

This becomes even more clear from the fact that in many studies, ‘education’ is presented as one of the most important solutions (for instance in Amadi *et al.* 2018). The local population ought to be educated. This implies that the local population are thought to have no knowledge or the wrong knowledge, which conforms to the language that is used for traditional ideas on malaria or febrile illness (‘lack of knowledge’, as we have seen).

4.3.2.4 The role of linguistic diversity

When it comes to language, not only the presentation of traditional medicine in English-written biomedical scientific articles is important, but also the role local languages play in the study of and distribution of information on malaria. One interesting point raised by Maslove *et al.* (2009) is that local languages may influence the way in which studies are carried out:

In many of the studies included in the analysis, the local vernacular of disease terms was used. While these languages often lacked a direct translation for the English word "malaria", they included a single-word term or phrase of similar meaning. Examples of this include the terms *asra* (Ghana), *boma* (Tanzania and Kenya), *soumaya* (Burkina Faso), and *omusujja* (Uganda). While these terms translate roughly to the English word "fever", their meanings encompass a number of other symptoms, such that they correspond closely to the clinical presentation of malaria

Maslove *et al.* (2009: online page 3)

It is an interesting point, because biomedical literature does not often pay any attention to language at all. It is helpful that they acknowledge the difficulty of translating the term ‘malaria’ into local languages. However, much more work could be done to clarify this passage.

First of all, the authors do not seem to wonder whether there could be a relation between there not being a direct translation for the English word “malaria” and the local populations having different ideas about malaria as a disease. From a linguistic point of view, it is likely that there is indeed a correlation and that this lack of translation reflects a much more profound difference: there is no such thing as “malaria” in many languages. There are just several febrile diseases and

malaria may be one of them, but it is not a separate category by itself; it is included in some kind of more general category. This is consistent with the preliminary data on Hamar and Swahili, as discussed in Chapter 3.

In addition, it is rather unsatisfactory that specific languages are not mentioned, but only countries, as if Ghana should have only one language, for example. This could be due to the fact that the study is a review of different studies, and Maslove *et al.* (2009) just mention the country in which the original study was conducted. But it is striking that, though they mention four terms (*asra*, *homa*, *soumaya*, and *omusujja*, see quote above), they only provide two references. These two studies explain the use of *asra* (Agyepong 1992, study in the Osudoku ethnic group in Ghana) and *homa/degedege* (Makemba *et al.* 1996, study in the Bagamoyo district of Tanzania), but do not mention the languages. As for the other two terms mentioned, *soumaya* and *omusujja*, which are said to be used in Burkina Faso and Uganda respectively, it remains unclear from what study these terms originate. It would have been helpful if Maslove *et al.* (2009) had provided an indication of the languages instead of the countries only, but it is even more odd that they are not even mentioned in the original studies. In any case, although Maslove *et al.* (2009) try to account for linguistic variety by mentioning terms from different countries, linguistic diversity within countries is not considered. The view appears to be that one country has one language, which does not apply to any African country at all.

Another rather unsatisfactory issue in the quote mentioned above is that the terms “translate roughly to the English word “fever”” and that “their meanings encompass a number of other symptoms”, which are not mentioned, but which make the authors think that they “correspond closely to the clinical presentation of malaria”. This is a bold claim to make if only such vague data are analyzed and all taken together, not accounting for differences and relevant details. The claim is based on a lot of assumptions about these terms and the other things they encompass which are not verified by qualitative linguistic work. Besides, it tries to force biomedical ideas onto other knowledge systems, so that the authors seem to assume ‘but there *has* to be a word that means something like ‘malaria’.

4.3.2.5 The eradication of malaria

Moreover, one other issue arises from the studied biomedical literature. Biomedicine aims to eradicate malaria as soon as possible. However, it appears that the ideas which are deemed ‘cultural beliefs’ in many studies, must be eradicated as well in order to achieve the goal of malaria elimination. It seems that biomedical health workers want to get rid of traditional medicine altogether as soon as possible, and to ‘educate’ people with the ‘right knowledge’. It is almost as if

local populations must be converted to biomedicine in order to eradicate malaria. This raises the question: is this really necessary? Can there be a way to think of some kind of cooperation in which both parties contribute to a mutual goal, instead of biomedicine forcing its ideas upon traditional African knowledge systems? And what role can language play in the process of attaining mutual understanding and respect? This will be discussed in further detail in Chapter 5, in which biomedicine and traditional indigenous medicine will be compared, as well as in the conclusions and recommendations in Chapter 6.

5. Comparison of biomedicine and indigenous medicine

In this chapter, we turn to the question of how malaria is conceptualized differently in Western vs. traditional medical knowledge systems, and what similarities and/or differences the different systems show. It is important to note at the beginning of this chapter that what is referred to as ‘in the Hamar culture’, ‘in the indigenous Hamar views’, ‘from the Hamar perspective’ etc. is still based on the thoughts and expressions of one speaker, as discussed in the introduction of Chapter 3. For the sake of convenience, I do not repeat this every instance where I elaborate upon a Hamar idea based on what Gele said, but it is important to bear this in mind throughout what follows. It is even more relevant for Swahili, as the statements concerning this language are based on secondary literature instead of linguistic fieldwork. In section 5.1, the conceptualization of malaria in the Hamar and Swahili languages as well as in the biomedical tradition will be summarized. In section 5.2, the three systems will be compared.

5.1 Malaria conceptualization in Hamar, Swahili, and biomedicine

In the Hamar culture, *gíbaʒ*, which is often translated as ‘malaria’, is regarded as an illness which leads to *aaʒad*, ‘feeling unwell for a couple of days’. Symptoms may include *metí burqad* ‘a headache’, *t’a* ‘vomiting’, *gúlpá* ‘cold-like symptoms, a runny nose’, *piʒkill* ‘coughing’, and *oid* ‘feeling hot’, which possibly implies something that one feels when they have fever. *Gíbaʒ* is a term indicating a general category of febrile illnesses. However, it is possible for *gíbaʒ* to progress into *gíbaʒ galáp* or *galáp gíbaʒ*, which is a calque meaning ‘yellow fever’. In contrast to normal *gíbaʒ*, *galáp gíbaʒ* is in fact perceived as a severe disease which requires immediate treatment or it could kill the person. As for sickness in general, a construction containing the verb *yed* ‘to catch’ is often used, indicating that diseases are conceptualized as ‘taking hold of’ someone, having control over them.

In the cultures in which Swahili is spoken, there are several terms relating to malaria. The febrile illness often called ‘uncomplicated malaria’ in biomedicine can be called *homa* ‘fever, febrile illness’ or more specifically *homa ya malaria* ‘malaria fever’ or *homa ya mbu* ‘mosquito fever’. Similar to in Hamar, malaria is included in an overarching category of febrile diseases in Swahili. Moreover, the biomedical diagnosis of ‘complicated’ or ‘severe’ malaria, including convulsions, is often not related to malaria. There is a variety of terms pertaining to a domain of spiritual illnesses found in the literature as mentioned in section 3.2.2, but due to the lack of linguistic fieldwork on Swahili, it remains largely unclear for now what exactly they mean and to what extent people link them to malaria symptoms.

In the biomedical culture, malaria is a febrile illness which is caused by a parasite that is injected into the human blood through the saliva of a mosquito. Symptoms may include fever (episodes), headache, loss of appetite, nausea, vomiting, and diarrhoea, among others. In order to diagnose someone with malaria, besides patient history and review of symptoms, the patient's blood ought to be examined under a microscope, in order to see if parasites are visible in the red blood cells. Malaria is considered to be a serious disease which, if untreated, may progress into an even more dangerous form: cerebral malaria, in which clots of infected red blood cells in the brain result in neurological symptoms such as changed behavior, severe headaches, coma, and convulsions. According to the biomedical view, malaria is a potentially deadly disease and requires immediate treatment.

5.2 Comparison between the three systems

Now that indigenous Hamar and Swahili views as well as the biomedical ideas on malaria have been outlined, it is time to turn to a comparison of the three medical systems and their conceptualizations of illness, from the perspective of their ideas on malaria. We will first focus on the comparison of indigenous vs. biomedical conceptualizations of malaria in 5.2.1, and after that, in 5.2.2, we will turn to a brief comparison of their medical knowledge and conceptualizations of disease more generally.

5.2.1 Malaria conceptualization

First, similarities in the indigenous Hamar and Swahili vs. the biomedical perspective on malaria will be focused on. What they have in common is that malaria/*gíbaṣ*/*homa ya mbu* is perceived to be caused by a mosquito bite. Some of the symptoms also overlap, such as fever, headache, and vomiting. Interestingly, both in the biomedical as well as in the Hamar indigenous views, malaria/*gíbaṣ* may be (relatively) uncomplicated at first but could progress into a more serious disease. It is unclear to what extent this applies to Swahili as well, since the symptoms involved in *homa (ya malaria/mbu)* were not investigated in the present research.

However, there also appear to be many differences. Perhaps the most obvious and remarkable difference between biomedical and indigenous Hamar and Swahili ideas on malaria is the fact that the former conceptualize malaria as a very serious disease, potentially even leading to death, whereas the latter include malaria in a general category of febrile illnesses, which may or may not be severe. In the Hamar traditional medical knowledge system, malaria is not a severe disease, and the concept is expressed by the general term *gíbaṣ*. For example, *galáp gíbaṣ* literally means 'yellow

gíbaʒ. So apparently, there is not just one form of *gíbaʒ* but several, and ‘normal’ *gíbaʒ* is not a severe condition. This is similar to the Swahili term *homa*, which also conveys a meaning of ‘feverish illness’, which may be specified by *ya* + specification. Moreover, in biomedicine, untreated malaria is perceived to possibly cause cerebral malaria, which can include convulsions. This symptom is not linked to malaria in many African cultures (Spjeldnæs *et al.* 2014) and this seems to apply to the Hamar and Swahili cultures as well. The Hamar term *baré* ‘madness’, even though this can probably include convulsion-like symptoms, was related by Gele to either drunkenness or possession by a ghost, but not to physical disease. Furthermore, even though both biomedical and Hamar views express the possibility for malaria/*gíbaʒ* to progress into a more serious form, the way in which this progress is conceptualized is different. From the biomedical perspective, malaria (with fever as the prominent symptom) may become a disease with neurological symptoms; from the Hamar perspective, *gíbaʒ* may become a disease with jaundice as the most prominent symptom (clinically corresponding to yellow fever).

5.2.2 Disease conceptualization

Besides these ‘malaria-specific’ points, more general conclusions could also be drawn. It is interesting to see that biomedical as well as traditional indigenous practitioners use patient history and visible symptoms to diagnose someone with malaria (see e.g. Paulos *et al.* (2016) and Garcia (2010)). However, besides that, biomedicine also utilizes technological equipment for diagnostics as well as therapy. For example, biomedicine, besides patient history and visible symptoms, also relies on microscopy and PCR to diagnose someone with malaria; traditional indigenous healers do not have this kind of equipment available to them. And it is unclear to what extent they would use them if they could, since their medical system seems to rely upon external factors which are interpreted in a certain way that ‘matches’ their cultural knowledge on sickness more generally. This will be discussed more elaborately later on; for now, it suffices to identify that internal factors, at least as regarded from the biomedical perspective, appear to play a much less important role in indigenous medical practice.

As for the attitude of biomedicine towards other forms of medicine, it has become clear that somehow, there is a certain arrogance in the way in which biomedicine conceives of itself (i.e., ‘the truth’) and of other medical knowledge systems (alternative medicine at best, but often, ‘misconceptions’ etc.). This is a pity, since biomedical and traditional health workers would probably benefit from each other’s capabilities and resources (as was argued before by e.g. Hopa,

Simbayi, and Dutoit (1998), Feierman (1981), and Dunlop (1975)). This will be discussed in the conclusions and recommendations in Chapter 6.

6. Conclusions and recommendations

Finally, we turn to the question with which the present research started: How is malaria conceptualized in traditional vs. biomedical medicine, how is that conceptualization encoded in language, and what can a linguistic approach contribute to the global battle against malaria?

First of all, malaria is conceptualized in biomedicine as a parasitic infection resulting in fever episodes and possibly in neurological symptoms, and as a potentially life-threatening disease that should be treated within the biomedical tradition. In the Hamar language, however, there is no direct translation for ‘malaria’. Rather, there is a word *gíbaʒ* that means ‘to shiver’, which may allude to the bodily feeling one experiences when having fever in general. This may just be a manifestation of the general principle in many African languages of talking about internal states and diseases via the physical symptoms. *Gíbaʒ* is often translated ‘malaria’, but it probably encompasses a more general category of febrile illnesses which include a feeling of shivering. Therefore, *gíbaʒ* is not considered to be a very serious disease by the Hamar speaker; only if it progresses into a febrile illness with jaundice, called *galáp gíbaʒ* ‘yellow *gíbaʒ*’, it is regarded as severe. In Swahili, as has become clear in section 3.2 as well as in Chapter 5, malaria is regarded as one of several febrile illnesses denoted by the term *homa*.

The linguistic investigation into Hamar and Swahili ideas on sickness has demonstrated multiple things. First, there is no translation for the term ‘malaria’ which corresponds exactly in terms of disease causation, symptoms, and cure. Malaria is, in a way, ‘just another febrile illness’ in the Hamar and Swahili languages. Second, because of the fact that ‘malaria’ is often translated into Hamar as *gíbaʒ*, which means ‘fever’ in general, it is not considered a life-threatening disease. Third, in the Hamar culture, there appears to be a mix of diseases that are considered to require traditional or biomedical treatment. *Ara* ‘jaundice/hydrops’, and *baré* ‘madness’, for example, cannot be treated within the biomedical tradition, according to Gele. For other diseases, there are several options, such as going to a clinic, using herbal treatment, or going to a traditional healer. *Gíbaʒ*, according to Gele, only requires treatment when it progresses into *galáp gíbaʒ*.

Besides this, it is important to note that biomedical and traditional Hamar ideas on malaria differ significantly. Coming back to the point of the ‘global malaria battle’, this difference in views on the disease makes it difficult to ‘fight the same fight’. Since Hamar people may not consider malaria to be a serious disease, they might not see the point in treating it as such. One thing that has become clear throughout the present research is that indigenous and biomedical ideas vary significantly

when it comes to the cause and cure of malaria, if we assume (of course this would have to be verified by much more extensive research) that Hamar traditional medical knowledge is an exemplary instance of indigenous African ways of thinking about and practicing medicine, at least in the sense that it differs significantly from Western biomedicine in diagnostic and therapeutic practices, as well as underlying views on disease causation and cure.

As a reaction to that, the research has also shown that this ‘nonchalant’ attitude of the Hamar (which may be typical for indigenous African communities, though this needs to be verified by more extensive research) towards malaria has resulted in a very negative and contemptuous reaction from biomedicine, in which it stigmatizes traditional indigenous medicine and tries to force its own ideas upon the local population, leaving no room for their traditional indigenous views.

All in all, the conclusion so far is that there is a problem. There is a certain febrile illness which is called ‘malaria’ in the biomedical tradition, and according to that same tradition, this is a severe disease. However, in traditional indigenous medical knowledge systems, ‘malaria’ is often included in the more general category of febrile diseases, as we have seen in the case of Hamar. Therefore, malaria is often considered much less threatening by the local indigenous population than by biomedical health workers. As this study has demonstrated, this problem is bigger than just ‘there are still too many malaria cases and deaths every year’; it is an underlying problem concerning ideas about disease, health, well-being, and the preferred treatment people seek when they are ill.

This problem gives rise to an additional question. Is there a solution to these underlying issues? First of all, this thesis is only a preliminary investigation into the way in which malaria is conceptualized from the point of view of two traditional indigenous medical systems. But even though the research is limited in a number of ways (only two languages investigated of which only one by means of linguistic fieldwork, only one speaker, only a handful of disease terms examined), it has demonstrated that it is helpful to research people’s language to hear from them how they think about disease, how it comes about and what to do about it to become better, in their own words. Through the linguistic investigation, we can understand better that ‘malaria’ is one of several feverish diseases in the Hamar and Swahili languages; the linguistic investigation has also contributed to a better comprehension of what the ideas of the speakers of these languages are; and ultimately, understanding their perspective better.

Related to this, understanding the indigenous perspective is key to being more respectful to the people from these cultures. As we have seen in section 4.3, in the biomedical literature, ideas that do not correspond to the biomedical view on malaria are usually called ‘myths’ and ‘misconceptions’. In order to be less judgmental and more respectful, it is vital to explore the language people use to communicate about their illness, how they feel, what they think about how this is caused, and what to do about it.

The introduction to this thesis started by explaining how malaria is a global problem and what the World Health Organization wants to do about it. However, taking into consideration that many cultures have many different ideas about malaria (the present research only investigated two perspectives; there are of course many more), which raises the question: what does that mean for this ‘battle’? If it is not even certain that everyone is fighting for the same goal, what is the point of the battle?

Perhaps a very basic and important mistake is to assume that ‘malaria’ (or any close translation equivalent) is a disease entity in the local languages (and therefore, knowledge system) as it is in biomedicine. In a way, this thesis’ research question itself is rather debatable: to ask how ‘malaria’ is conceptualized in two different cultures suggests that ‘malaria’ is a disease entity in itself in these cultures, whereas in reality it is not: as discussed in sections 3.1.1-3.1.2 for Hamar and in section 3.2.1 for Swahili, malaria is not a disease category in itself in these languages but is ‘one of several’ febrile illnesses. And a symptom such as convulsions is not linked to malaria at all, thus rendering ‘two diseases’ in the Hamar and Swahili language, whereas in biomedicine, they are conceptualized as causally related and co-occurring. Perhaps, if one wanted to ask more neutral questions, one could ask ‘what or how does one feel when they are bitten by a mosquito? Can this result in people feeling something bad afterwards? Is there a name for that condition?’ That way, the question would be less biased.

This, obviously, has important implications for the battle against malaria; if we want to fight malaria globally, we first have to come to a mutual understanding of what malaria is and how to combat it. Therefore, if the World Health Organization wants to make a serious attempt to decrease malaria incidence and mortality with 90% by 2030, they need to take into account the ideas of the people concerned, and based on the present research, one could argue that examining their languages is one of the most thorough ways to really get to know what they believe and consider important.

But there is still a big question to answer. Is there a way in which biomedicine and traditional indigenous medicine can both contribute to the global battle against malaria? Can there be a way in which they can cooperate and contribute to a mutual goal? Dunlop (1975) argues in favor of the integration of traditional medicine into the health care systems of African countries, by demonstrating how the existing traditional indigenous medical system in African countries can contribute to improving the health of the people (e.g. it is a culturally accepted system, it has been there for a long time and corresponds to the needs of the people, it is affordable and accessible in a financial as well as geographical sense; also, it is better organized (more equitable) than modern health care often is). This is an important step, but since 1975, to what extent has this been implemented so far? The WHO report on the legal status of traditional medicine does show that Ethiopia recognizes traditional medicine to some extent (WHO 2001:14-15). But it remains unclear to what extent biomedical health care workers and policy makers are willing to cooperate with traditional healers.

A proposal for cooperation between the biomedical and indigenous medical systems was mentioned briefly at the end of Chapter 5. One study referred to there, Feierman (1981), reveals how health care works in a rural part of northeastern Tanzania. There, a wide variety of health care options are available to the local population, due to the fact that there are not just biomedical facilities, but mainly due to the neglect of health care during the colonial period, local indigenous medicine thrived as well and continued to thrive after more biomedical facilities became available. The author investigates what kinds of medical help people seek and for what reasons. It appears that many factors, including availability, finances, religion, among many others, play an important role. For that reason, people may eventually even try methods they are skeptical of.

[T]he actual organization of most African health care cannot be represented by either a picture of traditional tribesmen following age-old ideas of health and disease, nor one of a simple conflict between traditional and modern practices. The real picture is one of enormous rural autonomy, variety and creativity. But this variety presents the social scientist and the health planner with difficult problems of analysis or action.

Feierman (1981:354)

Perhaps, one important conclusion to draw here could be that biomedicine should become more tolerant towards other forms of medical knowledge, and become more sensitive to cultural practices and beliefs, realizing that biomedicine itself is not free of cultural values and beliefs either.

It does not help in any case to depict other medical knowledge as ‘myths’ and ‘misconceptions’; this is quite a colonial and arrogant way to look at indigenous medicine.

It is striking that, as became clear in the previous paragraphs, there have been proposals of how biomedical and traditional medical systems should and can cooperate and benefit from each other’s expertise and infrastructure (Feierman 1981), and that traditional healing has achieved some recognition and acceptance from the government (WHO 2001). This implies that steps have been made to achieve a mode of cooperation. However, these plans and acknowledgements have apparently not resulted in a serious and sustainable cooperation so far. So, what is necessary in order to make it work?

It is important to note here that biomedicine does not usually critically reflect on its own assumptions and beliefs. It considers itself to be the truth and any deviation from that must be combated. Biomedicine does not seem to be very cooperative when it comes to acknowledging other ideas on malaria than its own ideas. This results in a disdainful attitude towards traditional indigenous medical knowledge on e.g. febrile illnesses such as malaria, and a big attempt to get rid of these ‘beliefs’ in order to be replaced by ‘the truth’, i.e. biomedical knowledge. This raises the question: Why is there such a strong emphasis on value judgment? Why is biomedical literature so judgmental about local forms of indigenous medicine? These are probably remnants of colonial times in which the colonial powers made an effort to get rid of traditional ideas altogether. Biomedicine should, therefore, become more inclusive, more respectful towards other forms of medicine, acknowledging the benefits and status of these knowledge systems and medical practices. Perhaps biomedicine should not so much pursue ‘the truth’ but rather the well-being of human beings.

It must be noted here that traditional healers seem to be much more tolerant towards biomedicine than the other way around, which becomes apparent from e.g. Foster and Vilendrer 2009. They say that traditional healers may refer their patients to hospitals if their own treatments fail or if they feel that the patient could get more appropriate help there, but it does not happen very often that people are sent from a clinic to a traditional healer if the biomedical treatment fails.

Furthermore, it has become clear that people in Africa usually have a variety of options to choose from when they are not feeling well. This often leads to disapproval from biomedical health workers, and they often appear to try to convince the patients to seek biomedical help only.

However, biomedical health workers would do well to listen to their patients for the reasons why they may try different health care options and why they not always (only or immediately) go to a biomedical clinic, and respect the patients' individual choices.

This recommendation leads to another important point. Since patients often choose between different treatment options from different traditions, it would be best if these different treatment providers would accomplish a form of mutual respect and appreciation, and from that point cooperation. In order to realize that, it is essential that a conversation is started between biomedical health workers and traditional health care providers.

Preferably, there should be some kind of official regular meetings or a council in every country for which these issues are relevant, in which people from all the parties concerned are represented. What follows, is only a proposal of what such a meeting could entail. Naturally, the idea comes from a Western perspective, so it is likely that the idea would need some culturally sensitive adaptations in order to actually work out. But here is a proposal:

- At least, delegates from both the biomedical as well as the indigenous medical tradition gather at the council; however, patients or the population in general must not be forgotten. It is important that everyone's interests should be represented equally and fairly.
- The goal is to discuss current issues in health care and what to do about them in an atmosphere of mutual understanding, in order to ultimately ensure quality health care according to the wishes and preferences of the population.
- Current issues should be discussed, for which both (or all, if more parties are concerned) parties get the occasion to explain their views on the matter.
- After that, discussions should take place which ultimately lead to some kind of compromises, joint plans, mutual goals, for how to deal with these current issues, again, from the point of view of what the population needs.
- Special attention must be paid to all the languages that people speak; the meetings should be conducted in a language that is spoken and understood by all involved, or at least professional translation must be ensured. Otherwise, the point of these meetings is lost.
- The scale of these meetings is a point that needs further elaboration. Possibly, people from different linguistic communities could meet first and then later on delegates from these communities could gather to include a wider range of health care practitioners.

Even though this proposal of ‘organizing meetings’ is not a linguistic solution per se, it could be argued that language can play a role in these meetings. For example, it could be organized that people from different cultural and linguistic backgrounds will get the opportunity during these meetings to explain in their own words what disease and healing mean in their culture, and increasing other people’s understanding of their perspective through their languages. That would be similar to the present research in a way, with the difference that indigenous people themselves can explain their own perspective in the presence of other people (rather than in the form of a thesis).

This thesis has shown how language analysis can help in the understanding of the indigenous conceptualization of disease terms. The previous point about the meetings focused on communication about diseases in the local languages. However, there is also a big need for more (quantitative) and more thorough (qualitative) analyses of local languages, be it at the semantic or cultural level, to be able to communicate effectively about these diseases to the World Health Organization. They can in turn use this information in the implementation of (new) malaria strategies. In light of this, perhaps we can give rise to a new subdiscipline of the health humanities, called ‘health linguistics’, as introduced in the beginning of Chapter 2. The present research is only a preliminary investigation into what language analysis can contribute to (global) health problems, and it is an area worth investigating, hopefully ultimately contributing to “healthy lives...for all” (UN 2021).

Besides starting a conversation between different parties as well as more language analysis, education may also play a role. Classes on traditional or alternative medicine ought to be included in the medical curricula in universities, inviting traditional healers as guest lecturers to share their knowledge and views, so as to create an awareness of ‘other forms of medicine’ among the future generation of doctors and nurses as well as respect for this knowledge, even though it may be different from the biomedical knowledge. Also, health humanities should be included even more in medical curricula, which can result in a more critical reflection of biomedical health workers on their own practices, beliefs, and assumptions.

Another more general way in which language can help in global health issues is through the acceptance of linguistic diversity. Language should be considered a rich resource instead of a stumbling block. As we have seen in this thesis, listening to people when they talk about how they feel and what kinds of illnesses they can have, deepens one’s understanding of them and what is

important to them with respect to their well-being. This is the case not only for people who speak Hamar or Swahili, but for all the people speaking all kinds of languages around the world. People all have their own, unique way of viewing and categorizing and signifying the world, and language is the medium through which they communicate about these categorizations and significations. Therefore, using language as a tool, we can understand better what the needs of the people are, which applies to health and well-being as much as it does to any other area of life. It is true that linguistic diversity can be an obstacle when people do not speak the same language in hospitals and/or have different ideas about certain disease terms; this may result in a lack of mutual understanding and therefore, suboptimal health care. A solution to this could be to promote the use of local languages in hospitals as well as in media to communicate about diseases (such as official websites, flyers, etc.). In order to achieve that, it can be helpful to create a ‘common glossary’ as argued for by e.g. Chemonges Wanyama *et al.* (2021). For this, linguistic analysis is vital.

As stated in the Introduction, there appears to be a ‘clash of beliefs and practices’ not just in the case of malaria, but this applies to other diseases as well. So what aspects of the present study can be applied to different diseases as well? It has become clear that investigating language is helpful on multiple levels. First, the relationship between language and truth becomes visible when critically reflecting on biomedical knowledge. Furthermore, linguistic analysis helps in better understanding traditional indigenous knowledge systems. Lastly, a basic understanding of people’s cultural values regarding disease and healing is vital in order to communicate with people about disease control strategies, so as to make these strategies truly community-driven and inclusive. All in all, paying attention to language is indispensable in any global health care struggle.

As for limitations of the research, several issues arise. It is unfortunate that the current investigation involved only one speaker of an indigenous African language; ideally, one would include more speakers of the same language, so as to compare the findings and construct a general idea, rather than drawing conclusions based on the thoughts of one speaker. Additionally, in the present research, only two languages were investigated, and Swahili was investigated based on secondary literature only. Furthermore, as mentioned earlier in this chapter, the research question may have been somewhat biased, because it does not really account for 1) the fact that ‘malaria’ is not a disease entity in many African cultures, and 2) for differences between different indigenous medical systems (it is somewhat stereotyping to compare ‘indigenous’ to ‘biomedical’ knowledge systems). These limitations only mean that much more research is required in order to achieve a more

complete and comprehensive appreciation of the conceptualization of malaria and what that means for the global battle against malaria.

However, there are also strengths to mention for this study. First and most importantly, up to date, there have not been many linguistic studies in this area. This research has shown what linguistics and the study of language can contribute to an understanding of different forms of medicine, introducing the discipline of 'health linguistics'. This, in turn, can advance the global battle against malaria, which may ultimately contribute to attaining the sustainable development goal of equal health for all.

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