



Anthropological Narratives of Nodding Disease among the Acholi of Northern Uganda

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Abstract

Despite the scientific and specific medical interventions, nodding disease with neither a cure nor plausible explanation to its cause continues to affect the people of Acholi sub region. The disease continues to be a mystery to both the medical professionals and its victims. The World Health Organisation (WHO) affirms no known aetiology. It is so mystical that it affects only children between the ages of five and fifteen years; the disease has only been reported in Acholi sub region in Uganda without a previous history of existence in the area. In spite of the disease's association to the Lord's Resistance Army (LRA) war and Internally Displaced People's (IDP) camps, other areas like Lango and Teso sub regions affected by the same have not experienced this disease. Nodding disease, therefore, seems to have defeated Western science of biomedicine and needs a different approach to explain its existence. Overtime, African societies, the Acholi inclusive, find solace in their cultural and religious beliefs to explain the existence and treatment of diseases. Using an ethnographic methodological approach as well as cultural construction of disease theoretical perspective, this article analyses the way the people of Acholi visualise, understand and interpret nodding disease in relation to their cultural and religious beliefs.

Keywords: *Illness; Sickness; Disease; Nodding Disease; Cultural Construction; Uganda; Acholi; Spirit Possession*

Introduction

One of the pioneers of medical anthropology argued for the confluence of medical systems with both social and cultural systems (Kleinman, 1978). He further argued for the impossibility of divorce of a cultural system from the social system aspects of healthcare in society. The healthcare system articulates illness as a cultural idiom, linking beliefs about disease causation, the experience of symptoms, specific patterns of illness behaviour, decisions concerning treatment alternatives, actual therapeutic practices and evaluations of therapeutic outcomes (ibid.). Based on the above presuppositions, the 'traditional' African concept of health is rooted in African cultural and religious mythologies. In traditional African societies,

health is not only the proper functioning of the body organs but also the mental, physical, spiritual and emotional stability of oneself, family and community (White, 2015; Isiko, 2018). On the one hand, good health is perceived to be an indicator of a good relationship with the spiritual world. On the other hand, ill health is perceived as a punishment from the ancestors. Traditional African societies had their own healthcare systems which defined parameters of diagnosis and treatment of physical, mental and social illnesses. These societies believe that whereas there are some diseases that defeat Western medicine, the same diseases are effectively explained and handled in the African traditional medicine system (White, 2015). Traditional Africans never attribute death of any sort to natural occurrence; there is always an agent thought to have caused the death of a person (Akwas, 1985). Therefore, biomedical explanations of bacteria, virus and fungal infections do not mean much in African mythologies on disease and health. Despite the various African concepts on disease, Africa has been hit by quite a number of infectious diseases. A case in point is Ebola in West Africa (Manguvo & Mafuvadze, 2015), Smallpox in Benin (Soumouni, 2012), nodding disease in Tanzania, Liberia, Southern Sudan and currently Northern Uganda (Colebunders, et al., 2016). Nodding disease is a neurological disorder (WHO, 2012) which was first reported in sub-Saharan Africa, in Tanzania in 1960, Liberia in 1983, and in South Sudan in 1990 (Kitara et al., 2013). In Uganda, it was first reported in the Acholi sub region in the districts of Kitgum and Lamwo, with about twenty-three confirmed cases, and the disease continues to exist only in that part of the country. The World Health Organisation (WHO) declared nodding disease an epidemic in 2012 due to its unprecedented widespread in Acholi sub-region (Kitara & Gazda, 2017). By this time, there were about 3,094 confirmed cases and 170 deaths associated to the disease in now four districts of Acholi sub-region including; Kitgum, Lamwo, Pader, and Gulu (WHO, 2012).

There is, however, lack of coherent information about nodding disease. Whereas biomedicine is expected to have a universal understanding and approach to specific diseases, it has not been the case with nodding disease, which bears divergent views held by different biomedical scientists. The aetiology and mode of transmission of nodding disease remain mystical and problematic with no universal acceptance (Mitchell et al., 2013; McGann, 2015; Bommel, 2016; Weegen, 2014). An international scientific conference of experts on nodding disease involving World Health Organisation (WHO), the United States Centers for Disease Control and Prevention (CDC) and Uganda's Ministry of Health (MOH) disagreed on not only the standard definition and categorisation of nodding syndrome but also acknowledged the inconsistency of case definitions used during previous investigations across the world (Bommel et al., 2015; WHO, 2012). Just three years ago, a combined study done on nodding disease by seven medical research institutions from both the Global South and Global West concluded that: 'Despite active research over the last years on the pathogenesis of nodding syndrome, to date, no convincing single cause of nodding syndrome has been reported' (Foger et al., 2017).

Previous biomedical studies have not been satisfactory in explaining the phenomenon of nodding disease among the Acholi. For example, Kitara et al., (2013) and Feldmeier et al., (2014) draw a relationship between nodding disease and black flies from rivers, Aswa and Pager. This is however, not convincing as there exist other rivers in several other parts of Uganda with black flies but have never recorded any case of nodding disease. For example, River Nile passes through several districts of Uganda yet they have never experienced this disease, neither have they been invaded by the black flies that are claimed to cause nodding disease. Another study claimed that there existed a relationship between nodding disease and Internally Displaced People's (IDP) camps. This was premised on the fact that most children affected with this disease developed it during their stay in the IDP camps, where relief food given to them was thought to be contaminated, exposing them to this disease (Echodu et al., 2018). However, alluding to the predisposition of internally displaced persons' camp (IDP) as the cause of nodding disease brings more questions than answers. This is because IDP camps were not only created in the fourteen sub counties of Acholi sub region that have been affected by nodding disease. Internally displaced peoples' camps were created in all districts and sub counties of Acholi sub- region that were affected by the Lord's Resistance Army (LRA) rebellion, yet not all Acholi districts predisposed to camps

have patients of nodding disease. Moreover, Lango and some parts of Teso sub regions that were similarly grossly affected by the rebellion and had internally displaced peoples' (IDP) camps recorded no victims of nodding disease. There is also insinuation by previous scholars that the Lord's Resistance Army (LRA) war that took place in Northern Uganda has a hand in the cause of nodding disease, but fail to explain why other places affected by the same war are free from this disease. On the other hand, the government which would ordinarily be expected to take lead in designing interventions against the disease has instead politicised it in response to the socio-political conditions in Acholi land (Irani et al., 2019; Bommel, 2016).

Amidst such incoherent biomedical explanations and a problematic aetiology of nodding disease (Irani et al., 2019; Kitara & Amone, 2012), there are incontestable characteristics which define the manifestation of this disease in Uganda. These include the following; Nodding disease is restricted to the people of Northern Uganda in the Acholi sub region. The disease affects children and adolescents aged between three and fifteen years. The most affected communities are those living within space geographically located on either side of Pager and Aswa rivers. It is associated with clustered settlements in the time of Internally Displaced Persons (IDP Camp stay); and the probability of simulium (Black fly) as its agent, commonly found along river basins, is stressed by scientists (Colebunders et al., 2016; Echodu et al., 2018; Kitara & Amone, 2012). The same studies have documented common symptoms of nodding disease, including seizures, intellectual disability, muscle wasting, nodding of the head, distaste for food and growth retardation.

This article analyses the cultural as well as religious beliefs and meanings the Acholi hold about the incontestable characteristics and symptoms of nodding disease identified above. In the midst of uncertain explanations, cultural societies seek alternative ways of explaining disease using their own experiences. This article provides an alternative understanding of nodding disease in cultural and religious perspectives. Such perspectives seek answers to specific questions such as the following. What are the cultural and religious perceptions of the Acholi about the nature and manifestation of the disease? Of all regions of Uganda, why has the disease occurred now and in Acholi sub region? What are the cultural and religious perceptions about the cause of the disease? Why is it that only children between three to fifteen years of age are the victims of the disease? What are the cultural and religious perceptions about alternative interventions in the prevailing futility of biomedicine? The significance of this article lies in the futility of Western science and biomedicine in explaining nodding disease with no agreement on its aetiology, treatment and prevention, and with little knowledge on how best to deliver and facilitate uptake of interventions to improve care and outcomes for people with nodding disease (Colebunders et al., 2016). This has led to unceasing quest for the reality of nodding disease, providing a gap for local people's enquiry into their cultural and religious beliefs.

Setting of Acholi Society

Acholi is one of the Luo speaking ethnic groups in Uganda. This group is prominently found in what is popularly referred to as the Acholi sub-region, situated in the northern part of Uganda. The sub-region borders Southern Sudan (in the north), West Nile region (in the west), Karamoja and Lango sub-regions, in the east and south respectively. This group is known to have migrated from Barh-el-Ghazel in Southern Sudan with some settling in Northern Uganda while others settled in Kenya (Amone, 2015). Acholi are found in both Southern Sudan and Northern Uganda. This study targeted only the Acholi in Northern Uganda whose population is approximately 1.47 million people, representing about 4.4% of Uganda's national population (UBOS, 2016). Whereas the sub-region has eight districts of Gulu, Kitgum, Pader, Amuru, Nwoya, Agago, Lamwo and Omoro, only four of these have reported cases of nodding disease. The four districts include Omoro, Kitgum, Lamwo and Pader (Aceng, 2018).

Acholi can be traced over many hundred years mainly on the basis of oral tradition, (Atkinson, 1994; 1989). The creation of an Acholi identity was the work of outsiders, mainly Arab traders who had extensive history with the Luo language and its speakers throughout Sudan (Whitmre, 2013; Amone, 2015). The Arab traders had previously had an interaction with the Shilluk, a Luo speaking group in Sudan. Ocaya (1988) as well as Amone & Muura (2014) argue that the Arab traders' construction of modern day Acholi as 'Shooli' was based on the similarity of language which was spoken by both the Shilluk of the Sudan and the Acholi of Uganda. They, therefore, called them 'Shooli' which later became the English version of Acholi. The history of Acholi is of many groups of people who migrated, inter-divided and mixed with others. They split after migration leading to formation of Luo speaking groups known today as Acholi, Alur, Jopadhola and Luo of Kenya along with the common legendary kingdom of Bunyoro-Kitara (Odhiambo et al., 2003). Acholi is believed to have started in the late 17th century as a new socio-political order developed among the Luo of Northern Uganda. Prior to colonialism, the Acholi people maintained a traditional system of governance rooted firmly in their religious beliefs, norms and customs (Latigo, 2008; Whitmre, 2013). Acholi is mainly characterised by the formation of chiefdoms headed by Chiefs (*Rwodi*-plural; *Rwot*-singular) who also carry out cleansing ceremonies for the people should the need arise (Atkinson, 1989). The chiefs (*Rwodi*) ensured that communities acted as demanded by the diviners and spiritual world to ensure harmony, health and wellbeing in society. A *Rwot* is therefore both a religious and a political figure of the traditional society. Although the institution of a paramount chief was absent in Acholi societal organisation (Amone & Muura, 2014; Ocaya, 1988), some more powerful chiefs might have exerted some level of influence over others. The position of a paramount Chief was created and institutionalised in year 2000 by external influences of international donor community and the government of Uganda (Komujuni & Buscher, 2020). The numerous economic and financial privileges accorded to the paramount chief, in addition to being a critical position in the post conflict aid economy has often caused some disunity among certain chiefs as to who is the paramount chief, making it difficult for the cultural institution to have a united voice towards issues that destabilise Acholi (Buscher et al., 2018).

Acholi sub region rose to world prominence because of the long civil insurgency against the legitimate government of Uganda. The insurgency called the Lord's Resistance Army (LRA) was led by Joseph Kony, an Acholi from Omoro District. In an attempt to fight the LRA rebels, the government of Uganda took a decision to move thousands of Acholi from their homes and placed them in Internally Displaced Persons (IDP) camps across the sub-region for protection against the rebels who were abducting people indiscriminately (Latigo, 2008). These camps had the highest mortality rates in the world with an estimated 1,000 deaths per week due to malaria and HIV/AIDS (Latigo, 2008). The IDP camps also became a hub for the production of an after-war disease, the nodding syndrome, (Colebunders et al., 2016; Buchmann, 2014). Therefore, Acholi civil rebellion, the subsequent setting and social construction of these IDP camps are critical in the understanding of the Acholi about the nodding disease.

The traditional religious system of the Acholi is mainly based on *Jok* (God). The concept of *Jok* among the Acholi represented a whole spiritual class of spirits, differently from the concept of supreme being prevalent in monotheistic religions of Christianity and Islam. There were several gods referred to in plural as *jogi*. Acholi had several gods (*Jogi*), each responsible for a specific activity in society. For example, there were gods for child birth, marriage, planting and harvest. Various offertories were given to *Jogi*. These could range from food and drinks to birds and animals. Each clan and chiefdom had its own '*jogi*' responsible for the welfare of the people (Ocaya, 1988). Among them are; Lagoro for Agago, Kalawinya for Ogom, Olalteng for Puranga, Baka for Patiko, Labejatwol for Alero, Nyilak for Atiak, Kilegaber for Koro and Loka for Koch. Among all these, Lagoro is the greatest such that if it is a matter for the whole Acholi land, it is Lagoro who is consulted and rituals done on Lagoro hill.

The Acholi believed and venerated spirits of their departed ancestors and relatives. They held firmly that the dead continued to live amongst them and upon death, the dead bodies were to be treated

with respect, and with prescribed ceremonies performed in respect of their decent send off. Shrines (*abila*) are built as their places of residence. The living turn to them for good health, fertility, blessings and thanks giving for good harvest. There are some spirits which are not sent to '*abila*', especially spirits of strangers, that move wildly and are thought to be hostile to the living communities. Wild spirits are described using different names based on the level of evil they possess. Nevertheless, the most common of them is '*Cen*' (ghost), a neglected and rejected spirit. *Cen* can be warded off from the community by the manipulative powers of a witch doctor, also known as *ajwaka* in the Luo language (Grove, 1919). Whereas the relationship between living Acholi and spiritual realm with regard to disease and illness is like that of 'crime and punishment' relationship on one hand and a 'reward and retribution' relationship on the other hand, evil spirits (*Cen*)- among the spiritual realm bring sicknesses and misfortunes upon the Acholi, as part of their obligation construction. Spirit possession is a common feature in Acholi traditional religious practice. Through spirit possession the dead communicate their will to the living, but also as a way of tormenting them. The work of priests, witchdoctors and diviners was critical in the wellbeing of the Acholi. Priests and diviners cast out evil spirits, while witches were part of the destructive machinery of society (Allen, 1991). Diviners were the medical consultants in case of a strange disease in society. They diagnosed and prescribed interventions through spiritual consultations.

This traditional religious belief system is so deep rooted among the Acholi that even with the introduction of Christianity, the traditional beliefs of the people of Acholi have continued, albeit with moderation. The traditional belief system is mixed with Christianity thus producing a religious mix and leaving the traditional belief system weak and complicated. It is weak and complicated because many people now pay less attention to '*jogi*', preferring the Christian God. This has weakened the Acholi traditional belief system in combating any strange sickness in the land. For example, the defeat of the Holy Spirit Movement (HSM) in the late 1980s, a civil insurgency led by Alice Lakwena among the Acholi against the legitimate government of Uganda was attributed to abandonment of '*jogi*' in favour of the Christian Holy Spirit (Allen, 1991).

The Acholi espouse a traditional healing system which combines physical and spiritual interventions against any health and social instabilities. Sicknesses and other such challenges were handled through spirits with the help of diviners. Traditional medication of all forms was practised including mending of fractured bones. Herbal medicines acquired from mainly roots of plants were in common use. To date, Acholi people continue using these herbs for treating many sicknesses alongside established modern hospitals (Moll-Roczek, 2016). Death is well understood by Acholi and taken as real. To avoid death, the Acholi perform several rituals as part of their traditional health system aimed at harmonising the spiritual with the physical worlds. Some rituals are performed before, during and after burial with a lot of care to avoid annoying but pleasing the spirits of the dead. Funerals serve to fulfil religious and communal obligations to the dead and promote cosmological balance. Feasting and sacrifices of animals are a common feature of funeral rites in Acholi society. Funeral rites provide a departure of spirits of the dead to the spirit world. This had to be done in a pleasant way to the departed dead lest they turn into *Cen* that cause trouble to the community (Kembel, 2015). Acholi believe that there are some sacred places in which these spirits live. Such places include river banks, hills and forests among others. Such places are not only revered but also feared. Antagonising dwelling places for the spirits can ignite anger of the spirits upon the living. The Acholi have an important cultural reconciliation practice called '*Mato oput*' (Adibo, 2017; Latigo, 2008). This happens in case of a misunderstanding that led to the death of a person. The practice demands reconciliation of both the offenders' and victims' family or clan members. The practice also stresses that possible compensation of the deceased's family be made without fail (Atkinson, 2011).

Acholi people have experienced many strange sicknesses over the years. For example, attacks from river bank spirits (*Atipa, jok kulu*); small pox (*odye*), that mainly killed members of Payira clan around Murchison falls; sleeping sickness (*two anino*); leprosy (*two dobo*); measles (*two anyoo*); and

Cholera; epilepsy (*two obero*); and Ebola from Congo (Hewlett & Amola, 2003). The Acholi have always managed these diseases using traditional herbs and performing rituals to the spirits. For example, in the year 2000, rituals and sacrifice of goats were performed at Aruu falls to deal with Ebola (A. Lacambel, Personal Interview, August 29, 2020). Currently, nodding disease proves a major challenge to the people of Acholi. Although nodding disease is similar to epilepsy, a previously treated disease in Acholi sub-region, it has not yet responded to any biomedical interventions.

Research Process

We conducted an ethnographic study over a period of ten months, starting from February 2020 to November 2020. In the absence of adequate explanations from biomedical studies on nodding disease, an ethnographic study is capable of looking at illness in a holistic way by incorporating the individual, the social, the political and the spiritual as factors that influence and are influenced by illness (Weegen, 2014). In addition, ethnographic study enables full appreciation of the structure and functions of a cultural-health system through analysis of relationships between culture, illness and healthcare (Kleinman, 1978). We opted for ethnography because we thought it would be the best way to understand the Acholi's own perspectives on nodding disease, unadulterated. The ethnographic study was a success because one of the researchers lived and worked within Acholi sub region; moreover, in addition to being a native Luo speaker. This made it easy for us to have quick community entry and acceptability. Using basic interpretive qualitative approach, we were interested in understanding the cultural and religious processes and perspectives of the Acholi about nodding disease. We chose two out of the eight districts that comprise Acholi sub region. The two districts were Omoro and Pader. Four sub counties of Odek from Omoro District and Atanga, Angagura, and Awere from Pader District were purposely chosen because of their high prevalence rates of nodding disease (Feldmeier, et al, 2014). Using a semi-structured interview guide, a total of twenty-six persons were interviewed. These included four cultural leaders and one 'traditionalist' who openly confessed belief and practice in Acholi traditional religious faith. Five religious leaders were selected from the Christian faith because of its dominant influence in the area, five primary health care providers, including a Pharmacist working in public health facilities and six elders who are defined as senior members of community in terms of age. Elders in Acholi are respected for their good character and knowledge of traditional culture. It is believed that their mature age and other positive attributes bring them especially close to the ancestors and they are thus considered to be in the best position to mediate between the living and the dead in matters concerning the clan and its "children". As such, elders are looked upon to discuss possible causes of misfortune and diseases and to find proper responses. They are especially responsible for healing diseases and misfortunes that are believed to be sent by ancestors or clan *jogi* as a response to misbehaviour by clan members (Harlacher, 2009). In addition, five parents/caregivers of nodding disease patients formed part of the interviewees. In addition to interviews, we recorded data through observational field notes.

It was difficult to predetermine the sample size, for the important goal of the study was not to establish how divergent Acholi perspectives were but get hold of that critical information about the way health and illness are shaped, experienced and understood in relation to nodding disease. However, by the 26th respondent, we had reached saturation. Since the sampling technique was purposeful, the snowball method was used to enlist interview respondents. This helped us to have only respondents who had the kind of information we desired for the study. The snowball method made it easier for us to access the respondents since we were on recommendation by people who were known to each other. Because the country was experiencing Corona Virus Disease 19 (COVID 19) preventive restrictions, including restricted movements, one-on-one interviews were supplemented with telephone interviews for some participants who were hard to reach physically during the study time. All interviews were audio recorded using a voice recorder upon permission from the interviewees. The interviews were done in Luo, and transcribed in the same language whereupon a translated version of English transcripts was made. We used the English transcripts to analyse the data. However, where and when the English transcript was not

clear, we turned to the original Luo transcript for clarity. The collected data were transcribed in word document matrix for easy analysis. All the analyses were done manually. Borrowing Bommel' technique (Bommel et al., 2014), we carefully read through the interview transcripts (matrix) several times identifying significant and recurring segments of text. These were grouped under specific thematic areas derived from the research questions. We thus present our findings in an abundantly descriptive way, heavily relying on direct quotes of those interviewed.

Theoretical Framework of Cultural Construction of Disease

Henderson & Henderson (2002) argue that the cultural construction theory derives from the larger theoretical domain of the cultural construction of reality. Within this theoretical body, cultural constructs exist as cognitive domains subsumed within the realm of total existence. The cultural construction of health and illness is viewed as a device for categorising or systematising symptoms. Illness constructs are organising frameworks for imposing structure upon the continuum of experience. Illness constructs reflect core cultural values in that they express normative understandings about the nature and causes of anomaly and dysfunction. The meaningfulness of any cultural construction for any particular group is necessarily a function of that group's cultural values. Cultural construction of health emphasises the symbolic dimension of the understanding of health and includes the knowledge, perceptions and cognitions used to define, classify, perceive and explain disease. Each and all cultures possess concepts of what it is to be sick or healthy. They also have disease classifications which they organise according to criteria of symptoms, severity, et cetera. Their classification, as well as the concepts of health and illness, are not universal and rarely reflect the biomedical definitions (Langdon & Wiik, 2010). For several African traditional societies, these concepts are derived from traditional mythologies and religious beliefs. In this study effort was made to establish if any the Acholi hold any myths through which they understand and explain nodding disease. This article is based on the notion that each specific cultural society has its own way of understanding and experience of disease. This theoretical framework has been applied by sociologists, anthropologists and now more recently has become famous amongst biomedical scientists (Langdon & Wiik, 2010). On one hand, the theory defines 'disease' as a biological condition relating to physical or mental disturbances involving symptoms, dysfunction or tissue damage (Langdon & Wiik, 2010). On the other hand, illness is a person's experiences of loss in his or her health. In this case, whereas disease as a biological condition may manifest itself in a universal way, different persons' experiences of the biological disease may differ from society to society. Different elements of culture of specific societies mediate and qualify diseases shared by different members of a social group. In society, culture constructs the way its members think and feel about a sickness and its names. Similar sicknesses have different social constructs depending on the cultural belief in a given society (Langdon & Wiik, 2010). Through this theoretical framework we have been able to establish and analyse local concepts used by the Acholi in their attempt to explain their experience of nodding disease as an illness.

Cultural construction of disease gives important understanding of socio-cultural dimension of disease which clearly differentiates the concept of disease as a biological condition and illness as a social meaning of the condition (Eisenberg, 1977). All illnesses are socially constructed at the experiential level basing on how one comes to understand and lives with the illness (Conrad & Barker, 2010). Understanding how particular illnesses are culturally constructed is essential in determining and selecting treatment and healing programme (Deakin, 2017). Explaining health and illness is a social phenomenon. That is, the meaning of health and illness is culturally determined. To Africans, illnesses are never called disease; they just describe sicknesses as illnesses. Good health to them is a sign of positive destiny while ill health is considered a negative destiny and they use traditional healing processes as a pathway to prevent and cure illnesses. Illnesses are attached to cultural meanings not derived from the condition but from the society giving it a social dimension of disease. Some illnesses have social and cultural impacts on the patients and health-care because some of these diseases are stigmatising. The theory is, therefore, called cultural construction because it is the traditional or cultural society that makes it the way it is

through their perception, attitudes, belief, interpretation, care and treatment (Conrad & Barker, 2010). Some illnesses have particular social or cultural meanings attached to them. Such meanings may have an impact on both the patient and general health-care system (Sontag, 1978).

We have used this theoretical perspective to establish and understand meanings that the Acholi as a cultural society place on nodding disease, given the limitations that have surrounded biomedical scientists on the same. Considering that illnesses have both biomedical and experiential dimensions, we based on the key ingredients of this theory to, establish and analyse the Acholi society experiential dimension with nodding disease, describing the social and cultural meanings that the Acholi attach to nodding disease. Sometimes, these meanings are embedded in metaphorical connotations which are taken for granted more often. Also, using the theory's pragmatic underpinning of constructionism, we analyse how nodding disease experience is socially constructed by the Acholi well knowing that reality does not just exist out there in the world waiting to be discovered, but rather individuals who act in and toward their world create it. These findings do not invalidate scientific and medical perspectives, but rather demonstrate that diseases and illnesses are as much social products as medical-scientific ones (Conrad & Barker, 2010).

Cultural and Religious Perspectives About Nature and Manifestation of Nodding Disease

Whereas nodding disease has ravaged several other societies in Sub Saharan Africa, the Acholi of northern Uganda have a peculiar way of relating to it. The disease is locally called *Lucluc* in the Luo language. The local name is derived from the physical description and behaviour of patients, who keep 'nodding' their heads falling to the chest. This is mainly manifested at the sight of food. The affected children frequently fall down, especially those at an advanced stage of the disease, exhibiting symptoms of epilepsy. They may also talk uncoordinated and unexpected things. One parent narrated the behaviour of one of her victim children, and in part said;

She started nodding her head when I gave her food, she kept on nodding and she rarely talks, in most cases she mutes. She at times tells me she sees something like a big human being during day, sometimes she sees the same during night time. I can sincerely tell you that these children remain dull and some people consider them as mad people from our village. The sickness always throws this girl down frequently and it is serious (Parent 1, Personal Interview, February 13, 2020)

Another parent reported affected children seeing strange natural occurrences like big snakes.

In a particular incident, one of the sick children started manifesting symptoms of nodding disease when he started saying he is seeing a big snake which the father was killing, cutting it into pieces and taking some of the pieces to the house (Parent 2, Personal Interview, November 17, 2020).

Based on the observations of the above two parents, it is clear that the Acholi are able to characterise and classify *Lucluc* according to the way they experience it. They are in position to identify the symptoms without making reference to western discoveries about the disease. Culturally, the Acholi believe that any unique behaviour as portrayed by nodding disease patients is linked to spirit possession. Upon possession of a person (locally referred to as '*cen amako*'), it is believed that the spiritual might of the dead overpowers the possessed thereby disabling all his/her biological senses and abilities to function humanly. This is partly the reason the patient is incapable of talking. Spirit possession manifests in seizures. It is also used as a vessel to demonstrate spiritual displeasure with the living, including refusal to partake in the activities done by the living. The spirit is unwilling to commune with the living through sharing meals and demonstrates this through the repetitive nodding of head as a sign of disapproval. It refuses to be in communion with those thought to have denied it a descent send off to the spirit world. In other instances, some respondents explained that a victim's refusal of food is a signal of hunger of the

spirits that have been denied sacrifices in the *abila*. They, hence, interfere with the normal life of the living to catch their attention (Parent 5, Personal Interview, November 10, 2020). The human being figure that appears to the child when attacked by seizures gives a picture of the spirit of a dead tormenting the child, which requires traditional rituals to be performed. The spirit's anger is further demonstrated by mad-like postures exhibited by the patient to make him/her look inhuman and denied the opportunity to enjoy the goodness of society as reciprocation for the dead's denial to enjoy a decent burial. The appearance of the spirits of the dead, both during day and night, is an indication of the duality nature of the spirit world.

Manifestations of snakes among nodding disease patients has traces to snake worship in Acholi belief, though they do not hold all snakes sacred. Literally, to the Acholi, epileptic repetitive head nodding implies that 'the spirit has got into the head of the patient' (Grove, 1919). It is interpreted to mean presence of such a spirit through the patient. To the Acholi, spirit possession is responsible for the familial clustering of nodding disease as observed by World Health Organisation (WHO, 2012). It was observed that in some families, there were more than one sibling with nodding disease; and such families would be concentrated in one area, with easy proximity to one another. Grove (1919) observed the necessity to drive *Cen* out of the patient's head or else it will ultimately marry its victim and its children are liable to get into the heads of neighbours and other children in the home. This is the reason why delayed intervention against nodding disease led other children within the same homes to get affected. It also explains why nodding disease got more concentrated in some places than others since children in those places and homes provided dwelling heads for the angered spirits.

Other common features of the disease include protruding eyes and uncontrollable flow of saliva, and attacks that manifest more seriously often during morning and when it is cold. Its marked difference from epilepsy is that children with nodding disease sometimes turn violent and uncontrollable, running away from home if not restrained (Parent 4, Personal Interview, June 23, 2020). The Acholi correlate physical aggression and protruding eyes of nodding disease patients with devil possession. In everyday social life of the Acholi, protruding eyes are also associated with drunkenness or when one is annoyed and rude. Socially, protrusion of eyes is a physical manifestation of anger. This therefore portrays the evil that the spirit through the patient is capable of inflicting upon those in the vicinity due to its perceived anger. The timing of spiritual attack in the morning and during coldness suggests the uncomfortable conditions that the spirits have been predisposed to due to non-burial of their remains. They are believed to experience the morning coldness since they were not properly provided with dwelling places like graves. They were not properly laid to rest in supposed comfortable clothing, which predisposes them to coldness. The children experience episodes of attack commonly during cold weather because the spirits are thought to be running away from the coldness to dwell in warm physical bodies of the living. The aggressive and violent nature of the victims is typical of spiritually possessed persons; whose spirits want to make their presence known. The violent nature of victims sometimes makes them to run away from home towards the dwelling places of spirits where cleansing rituals are usually performed. Writing about post-traumatic stress disorder in Acholi land, Finnstrom (2006) argued that the more *cen* a person experiences the more aggressiveness he/she will enlist, resulting into behaving asocially, amorally and eventually in violent and destructive ways.

Because of the refusal of food, the affected children are said to be wasted and anaemic. The children become anaemic because of the insufficient food intake and nutrients due to refusal of food (Health worker 4, Personal Interview, May 16, 2020). However, the Acholi interpret this as 'spiritual sucking of blood'. They believe that the spirit which would have possessed the child has the capacity to drain blood out of its victim thus making the child malnourished and weak. The spirit is believed to literary 'suck' the victim's blood, until death.

The Acholi find it a mystery that nodding disease affects children between 5 years to 15 years. To some Acholi, the attack on children is a provocation by the spirits to the elders who risk losing cultural

continuity should the young generation be wiped away. The age range between 5-15 years is the age for training for future responsibilities and it is a productive age that adults rely on. An attack on persons within this age bracket affects their efficiency and productivity hence affecting the very existence of society in which they belong (E. Luk, Personal Interview, September 09, 2020). Therefore, the attack on children between 5-15 years was to inflict pain on the people of Acholi so that they can respond to the demands of the spirits of the dead. There are minority opinions among the Acholi that postulate about the specific age group affected by nodding disease. They posit that these are based on the time of the war when pregnant women and breast feeding mothers in Acholi were sleeping in the coldness in the bush, running away from homes for fear of attack and abduction by LRA rebels. This affected the children as their mothers had encountered several obstacles, including coming across bad spirits, dead bodies, bites from black flies and the bad weather in the bush which affected the unborn or the young children. They continue to contend that as a result, such factors resulted in low body immunity making the children open to attack by strange diseases (Buchmann, 2014).

The Acholi believe there is a strong relationship between nodding disease and the series of wars that have been fought in their land since the 1970's. This is believed to be the reason why nodding disease is only in Acholi land (Cultural leader 4, Personal Interview, March 30, 2020). Among these wars included the Holy Spirit Movement of Alice Lakwena (mid 1980s); and in the early 1980s, the national army of Uganda also called the Uganda National Liberation Army (UNLA) composed of mainly Acholi committed appalling atrocities in both the north and Luweero (Allen, 1991); Authors like Grove (1919) have deeply analysed the way *Jogi* are never happy when disputes of a military nature take place in their land. Specifically, nodding disease is believed to be the impact of the sins committed during the LRA war by the Acholi people and they are being punished for their evil acts, including fatalistic violence and random killing (Finnstrom, 2006). Other such evil acts included terror warfare, miming, murder, abduction, rape, forced marriages, torching of houses including destruction of sacred shrines among others (each of the cultural leaders interviewed alluded to one or more of these actions). The people who were mercilessly killed during these wars evolved into *cen*, whose ghostly vengeance is not limited by time and space and to other people. Some respondents indicated to us that such *cen* procured through the wars might not have acted to avenge their death immediately and to their direct killers but sought so to bring discomfort to the clans and generations of their killers, years after the bloody wars. The insanity of children produced years after the war, typical of manifestation of nodding disease victims are likely consequences of the actions of such ghostly vengeance. This could be the reason why the disease has happened after the LRA war and only the Acholi are being affected in Uganda since LRA rebels were mostly Acholi. Secondly, the timing makes it possible to say the major cause of nodding disease is linked to the LRA war because it started after the LRA war when people started returning to their homes from IDP camps, (Buchmann, 2014).

However, Acholi have been involved in many wars since 1971 without a major catastrophe hitting their land until mid-2000 when nodding disease appeared. Based on the supposed relationship between war and nodding disease, this disease would be more pronounced in those districts of Acholi where the LRA war was more fierce than elsewhere. On the contrary, nodding disease has hit East Acholi more than it has done to western Acholi, yet the LRA war was worse in west Acholi districts with Nwoya, Amuru, Gulu and Omoro recording higher war casualties than in the Eastern Acholi districts of Agago, Pader, Kitgum and Lamwo. This strengthens the idea that in west Acholi, the villages that suffer much more as those in Eastern Acholi are those that were home to the vicious LRA rebel commander, which might have instigated *cen* to go after his people in revenge of his actions of mutilating and killing fellow Acholi.

To some others however, the disease is specific to the people of Acholi because it was a deliberate import into Acholi land, with a sole purpose of wiping away the Acholi from their motherland (K. Akello, Personal Interview, February 11, 2020). Elders interviewed believe that nodding disease

restriction to the Acholi sub region portrays the historical ethnic tensions between the Acholi and especially the predominantly Bantu communities in the southern part of Uganda. The north-south divisions have existed since independence and the reluctance of the government to handle this epidemic ignites feelings of ethnic hate among the people of Acholi. Previous studies by Buchmann (2014) and Bommel et al., (2014) argue that this disease has come to symbolise the marginalisation of a region and is being used as a political tool by the government of the day. The feelings of uncertainty and powerlessness in the midst of biomedical unresponsive disease leave the Acholi wondering why the disease has affected only their ethnic group. The years of lack of help for the very sick children reinforces the Acholi understanding that they are seen as of less value than other ethnic groups in Uganda (Buchmann, 2014). One elder noted thus;

We believe that nodding disease is a genocide against us, the Acholi. they want to kill our young generation who would otherwise ensure continuity of the Acholi society. We are likely to have a lost generation and continuity of Acholi will be suffocated (Elder 2, Personal Interview, August 11, 2020).

The belief in the intentional ethnic cleansing of the Acholi through nodding disease is strengthened by previous infectious disease, Ebola, which hit Acholi sub region much more than elsewhere in the country. Another elder clarified on this issue as follows;

Just like Ebola which we know was brought to our land from the Democratic Republic of Congo (DRC), so is nodding disease. It was those Ugandan soldiers of the Uganda People's Defence Forces (UPDF), who went to DRC to fight that came back with Ebola. The infected soldiers were brought straight up to here in Acholi for treatment instead of being left on the western border districts along DRC. Many of our people eventually died of Ebola but it was defeated (Cultural leader 4, Personal Interview, March 30, 2020)

Acholi's distrust towards the Ugandan government had developed over several decades of war and was particularly linked to the political control and ethnic divisions between the north and south (Bommel, 2014). This was heightened by the sudden appearance of nodding syndrome, an unknown epidemic whose cause could not be clearly identified and optimal treatment had not clearly been established. This distrust was worsened by the perceived government's lack of interest and response to the disease outbreak until 2012, almost 15 years after the first cases were noticed, and approximately six years after the war had ended (Irani, et al, 2019). The Acholi are suspicious that Uganda government's interest in their fertile land is a catalyst for those who plan this kind of biological genocide upon them so that they could take possession of the productive Acholi land (A. Lacambel, Personal Interview, August 29, 2020). The ascription of Ebola and nodding disease to UPDF and the NRM government of Uganda in Acholi land unmasks the socio-political ramifications of the tribal sentiments that have influenced the politics of Uganda since independence.

The mistrust in the government of the day makes some Acholi to believe that that nodding disease was transmitted through relief food from the World Food Programme and Government of Uganda. The belief is premised on the notion that the disease occurred after the IDP camp period in which the greater part of the Acholi population was dependent on relief food. It is also premised on wild allegations that all Acholi were supporting the LRA rebel movement of Joseph Kony. Poisoning relief food would be a mild strategy to have LRA supporters die without enlisting public attention, citing the government of the day. This thinking coincides with the launch of major international relief agencies in the area (Bommel et al., 2014) that brought in seeds coated in toxic substances designed to aid crop growth. Due to food scarcity and poverty prevalent at the time, some of the Acholi took the toxic seeds for food, yet they were meant for planting. However, such thinking is challenged on account that the relief food was distributed in all parts of Acholi with IDP camps as well as some other parts of Lango and Teso sub regions that were too

affected by the LRA insurgency. Despite the same socio-political conditions, with IDP camps and relief food, Lango and Teso sub regions did not register any case of nodding disease. Specifically, Eastern Acholi was more affected than Western part of Acholi despite the fact that both had IDP camps and were equally receiving food relief. More so, a few specific sub counties were found to be more affected than others despite being neighbours and under similar socio-political conditions. A study to establish a relationship between food poisoning and nodding disease was conducted in 2018 but revealed high levels of aflatoxin in both households with and without children with nodding disease. The study ruled out any possible connection between nodding disease and contaminated foods (Echodu, et al, 2018). In addition, the notion of relief food poison is negated on the fact that not all persons who ever stayed in the IDP camps were affected by nodding disease. The disease is rampant among the young yet the unaffected old members of Acholi society were eating the same relief food. However, the notion that the Acholi were deprived of farming during the LRA insurgency and IDP camp stay might have deprived their children of nutritious foods that they organically grew. Foods like sesame and groundnut paste were in short supply as they were replaced with cooking oil. It is probable that the nutrition deficiency associated with nodding disease victims might have arisen from this.

Cultural and Religious Perspectives on Causes of Nodding Disease

There are mixed opinions on the cause of nodding disease. Prominent causes identified by the Acholi include; evil spirits (*gemo*), black flies from the fast flowing rivers, overcrowding in IDP camps, food poison during the IDP camps stay, poison from bombs during the LRA war, neglect of shrines (*abila*), the serious bloodshed devoid of concomitant ritual cleansing in Acholi land since 1971 and God's punishment. Previous studies have argued that many causes of nodding disease have been advanced, but most of them have been speculative and self-beliefs without any proven scientific evidences (Olum et al., 2020; Ongaya et al., 2020). In this article, effort is made to demonstrate the cultural-religious beliefs of the Acholi in relation to nodding disease. No effort is made to analyse their scientific bases.

Ryemo Gemo

Among the Acholi, strange sicknesses are associated with evil spirit also called '*gemo*' in Luo language. *Ryemo gemo* is a cultural practice of the Acholi done yearly on the eve of every 31st December to 'chase away' any evil spirit of that year from entering the New Year. It involves the whole community carrying out exorcism (*ryemo gemo*) by banging whatever can produce noise to scare away the bad spirit to leave the community. Among those to be banged are saucepans, jerrycans, doors, or anything that can produce noise to scare away the bad spirits (Isiko, 2020). This is a cleansing practice to rid the community of any evil spirits in the land. The leaders of the cultural institution or elders in the community are expected to lead others in this activity. Majority of the respondents were convinced that nodding disease is indeed '*gemo*' - a bad spirit- requiring exorcism from their land.

One cultural leader said emphatically the following about nodding disease, as '*gemo*';

As cultural leaders, we believe nodding disease is an evil spirit (*gemo*), because little is known about the disease and it came very suddenly. Anything which is not well understood, especially disease is suspected to be *gemo*. This is 'bad wind' which comes when atrocities have been committed in Acholi land or when the 'door of life' is left open allowing bad things to enter in. We need to get prepared to chase this *gemo* away by doing ritual and sacrifice which we have not been doing for such a long time. This should include giving offertory to god (*tum*) and cleansing (*moyo piny*) (Cultural leader 3, March 15, 2020).

To the Acholi, all calamities that befall their land are attributed to *gemo*. For example, an earlier outbreak of Ebola, another infectious disease that affected Northern Uganda was interpreted to be *gemo*. The invasion of the land by locusts from Western Kenya, through Karamoja sub region, was thought to be *gemo* as well. The Corona virus disease of 2019 which was largely believed to have originated from

China was interpreted to be *gemo* (Isiko, 2020). According to the cultural leaders, the abrupt occurrence and lack of credible information about nodding disease from the scientific community make their claim of *gemo* more appealing than ever before. *Gemo* causing agents are little known and hardly explained by modern science. The invisibility of the spiritual world, capable of harbouring both good and bad spirits, make the Acholi to refer to nodding disease as ‘bad wind’ moving through their land. Whereas scientifically bad wind may carry along infectious airborne diseases, to the Acholi, this is real evil which when it appears makes people to fall sick. Apparently, to the Acholi, *Jok*-their god- can allow *gemo* to trample upon their land if the people have committed actions that are annoying in his sight. There is much suspicion among the Acholi about the likely atrocities that have been committed by some people in the land for quite some time: *Jok* has been planning to strike back in revenge.

There are also suggestions that the Acholi have been negligent in their conduct making their land a den of evil, a thing which annoys *Jok*. The LRA war revolutionised Acholi society both culturally and socially. The war opened up Acholi society to the outside world, bringing together people of different ethnicities in Acholi land. Among these were soldiers, NGO workers and businesspersons from different parts of Uganda who entered Acholi land with their varying cultural values and practices. The violent past and the breakdown of traditional kinship networks and relations in the camps resulted in the erosion of social trust and morality (Bemmel, et al, 2014). The concentration of Acholi people of different clans in the same IDP camps led to mixture, transmission and adoption of some practices that had previously been restricted to certain clans. For example, witchcraft became widespread in the IDP camps. The IDP camps became a beehive of sexual immorality and prostitution leading to high levels of HIV infection in Acholi land. Domestic and gender based violence was at its peak, yet marriage separations became frequent. Child marriages were the order of the day. Therefore, the LRA war and IDP camp life brought about a lot of evil practices which displeased *Jok*. According to one of the respondents, *Jok's* displeasure is reflected in letting this mysterious nodding disease ravage Acholi land (Cultural leader 5, Personal Interview, May 13, 2020). To some elders, *Jogi* were not happy with the moral transgressions in Acholi society which is why *Jogi* are punishing Acholi with nodding disease (Elder 1, Personal Interview, March 08, 2020).

It is, however, not obvious for every calamity in the land to be categorised as *gemo*. Acholi cultural elders have that absolute responsibility to determine and categorise such an unfortunate incidence in their land whether it is *gemo* or not. They come to this conclusion following consultation with *Jok* Lagoro at Lagoro hill. In Acholi traditional religious mythology, *Jok* is the ultimate protector of the people, keeping his people away from attack by evil elements. There are however circumstances when *Jok* withdraws from this responsibility, allowing his people to fall victims to *gemo*. In the current situation of nodding disease, three reasons were advanced by respondents. These are; abandonment of Acholi traditional culture; failure to perform cleansing rituals and neglect of *Jogi*. *Jogi* are no longer taken good care of as it used to be. The Acholi no longer offer sacrifices to *Jogi* for appeasement and evoking blessings. Instead of consulting *Jogi* in case of such strange sicknesses, most Acholi turn to the Christian or Islamic God in anticipation for help. This ultimately angers *jogi* who feel alienated from a people they are meant to commune with. *Jogi* therefore withdraw thus providing an opportunity for *gemo* to ravage society through strange diseases like nodding disease. Such a belief is so entrenched among the Acholi that one cultural leader said;

These are evil spirits (*gemo*) coming as result of people leaving their cultural practices for so long. People are not fulfilling rituals and offering sacrifices to *Jogi*. These have resulted into calamities; it is like “*Jok ma malo*” (God) is giving punishment to us because we are not following cultural rituals strictly” (Cultural leader 4, Personal Interview, March 30, 2020).

Indeed, in all the other cases advanced by the Acholi with regard to causation of nodding disease, they revolve around the three fundamental issues which make *Jogi* angered, letting *gemo* to ravage the community with disease as explained before. For example, Acholi land is believed to be impure with

bloodshed which has been poured as a result of thousands of innocent Acholi who have lost their lives during the chronic perennial wars that have taken place in Acholi-land. In addition to that, human blood is too sacred to be spilt anyhow. There is so much bloodshed in Acholi and this has caused problems to us the Acholi (Elder 2, Personal Interview, August 11, 2020). Acholi land is, therefore, believed to be littered with cries of innocent souls whose lives were taken without justification. The much blood-shed in the land is believed to be responsible for the occurrence of nodding disease in Acholi land. *Jok* is not happy that his land is littered with such impurities and sinful acts. The Acholi believe that their land can be got out of this mess if ritual cleansing is done. Unfortunately, ritual cleansing, through which the land could be purified from innocent bloodshed, was neglected. Cleansing rituals include making sacrifices of chicken, sheep, and goat. Blood of sacrificed animals is collected and sprinkled on the graves of innocent people killed during the war periods. The human remains that were not buried are collected and wrapped in a white cloth accompanied with songs to signify the making of peace between the dead and the living (Kagumire, 2009).

However, to the Christianised Acholi, the traditional religious and cultural beliefs about nodding disease are not in tandem with the realities of Acholi of the 21st century. These not only denounce such traditional beliefs but also agree with modern scientific explanations advanced by biomedical scientists. For example, an Acholi Christian said the following;

My fellow Acholi are running away from reality and want to continue thinking like our great grand fathers who had little knowledge about the diseases which affected them. The truth is nodding syndrome is usually associated with children with low immunity. This is the reason why not all families in the same area(s) or children from the same families are affected with nodding disease. (Christian Religious leader 1, Personal Interview, August 03, 2020).

Having been converted, Christianised Acholi contemptuously disregard traditional religious beliefs calling them satanic, and argue that nodding disease could be a punishment from the Christian God to those who have refused him as their God. There also exist disagreements between Acholi cultural leaders and Christian leaders about the necessity and performance of cleansing rituals. The lack of agreement on the cultural tradition of cleansing is due to new religious influences of Christianity as well as modernity believed to have left Acholi land susceptible to evil attacks since there is no unionised voice towards dealing with it. The Acholi Christian leaders are dismissive of the cultural rituals in Acholi land which they describe to be not only satanic but also outdated. These are also thought to be in contradiction with the Christian faith. The denominator of the religious attitude of the Acholi, both Christian and non-Christian is their belief in the strength of spiritual intervention to undo the disease. The conflict between Acholi culture and Christian traditions is responsible for the non action against nodding disease in the area. For example, in the Kitgum areas, the church discouraged its followers from taking part in such cleansing rituals but rather put their faith in Jesus Christ by committing the situation into prayer. This kind of cultural attitude is held responsible for the high numbers of nodding disease victims in Amida sub county of Kitgum district due to its high numbers of born again churches that are completely against such cultural rituals. It should however be noted that in some parts of Acholi like Palabek where cleansing rituals were performed, reduction in the number of nodding cases was witnessed and/ or a resultant improvement in the conditions of the affected children (E. Luk, Personal Interview, September 9, 2020). Non observance of these rituals is complicated not only due to the abject poverty prevalent among the Acholi but also the high cost of the sacrificial animals (Kagumire, 2009). However, absence of resources necessary to conduct proper burial do not seem to be a legitimate excuse to the spirits because the spirits had exercised restraint during the time of intense war when the locals in camps were incapable of fending for themselves (Kembel, 2015). This then appeals to the reasonableness of *jogi* in sending the calamity at this time. The disease struck after the war and IDP stay because the spirits had waited for the now settled society to no avail. The spirits interpreted this as neglect and total disregard for their needs. This explains the significant disparities in number of nodding disease victims between families and sub-counties in

Acholi. Respondents told us that areas and families less affected by nodding disease have carried out cleansing rituals and observed death rituals including offering of required sacrifices.

Non-Observance of Burial Rituals

Spirits of dead relatives can turn into *gemo* if proper burial rituals are not observed. This has arisen in several ways. To begin with, the LRA rebel insurgency yielded many deaths. Some were rotting away in the bushes without being accorded proper burial as per Acholi traditions. Due to insecurity, several dead were left unburied, hastily buried and/or buried in mass graves (Kembel, 2015). All these are all against the social order of the Acholi. Secondly, Acholi society adopted Christianity and other modern globalised aspects concerning death. These two factors have made Acholi to abandon their traditional culture. The dead are no longer strictly treated according to Acholi traditions but rather follow either Christian practices, Western practices or a hybrid of Acholi, Christian and modern burial practices. The Acholi believe that the failure to conduct proper funeral rites especially for those who died during the LRA war is responsible for the emergence of nodding disease in their area. In his articulation of Acholi cosmological philosophy of the spiritual world, Kembel (2015) states how spirits of the murdered and those who are improperly buried become annoyed with the living ultimately causing disease in revenge. One interviewee commented thus:

In Acholi, death and burial rituals are supposed to be strictly observed. An Acholi is buried sideways but not facing up and not in a coffin. Burying the dead facing up can lead to serious deaths in the family and community. We are no longer observing these burial rituals, this can be one of the causes of the current calamities. Also, when one is murdered, his/her body is supposed to be buried with the head facing the bush but not home. The murdered person is buried with a broom to enable him revenge his death which mainly means sweeping away the offender's family (Traditionalist, Personal Interview, September 10, 2020).

To the Acholi, this burial configuration demonstrates to the spirit of the deceased that they have remained part of the family and further ensures that the living dead who inhabit the world of the living as ancestors feel they have received a proper burial and are being remembered (Kembel, 2015). Mismanaging the dead body can lead to disastrous effects upon the living. In war situations like it was during the LRA war, it would be difficult to have the above ritualistic procedures in burying the dead. First, it was not possible to bury those who died during war because their remains could not be located. What is more, the ones buried were buried in mass graves due to inability to identify them. Human remains were littered several in bushes in Acholi land and the spirits of the dead hover over the community in demand for descent burial. Such rituals help cleanse the areas of evil spirits so that people can be free to return to their farms. Human remains, if found, are supposed to be buried and can make one become mad if touched disrespectfully (Kagumire, 2009). Nodding disease manifested not during but after the military conflict in Acholi land. This is so despite the fact that the perceived agents of the disease (improperly buried victims) were subsisting by then.

Some researchers like Kembel (2015) argue that the amount of time it took for a spirit to become *Cen* is dependent on the reality of the living. The living dead could not have let nodding disease upon the Acholi during the war itself because they were conscious about the insecurity and other difficulties that the living would go through to have this observed. The living dead seemed to understand the situation and spared them of this disease during the time of the conflict. The disease broke out after the war because in spite of the serene situation that had returned in Acholi land, the living forgot to undertake the necessary rituals of the dead, thus letting such a disastrous disease to occur. Since majority of the LRA guerrilla war fighters were Acholi, it meant that they killed fellow Acholi who were in most cases neighbours, sometimes after abduction. Ordinarily, after the war, families of LRA fighters were expected to undertake the Acholi traditional justice system of *Mato oput* having fully been aware that their son(s) caused havoc and killed several people. *Mato oput* is a cultural forgiveness and reconciliation system between the two

families of the offenders and the victims. This was not always done after the war because of the breakdown of the socio-cultural institutions and poverty which deprived families of the LRA fighters the resource base to seek this traditional reconciliation and forgiveness. Neglect of *mato oput* brings constant calamities including death to the families of the offenders (E. Luk, Personal Interview, September 09, 2020). Failure of the victim's family to seek justice for their murdered member means that the spirit of the dead will have to do it by itself and seek to avenge its death upon the offender's family. This accounts for the high cases of nodding disease victims in the areas of Kitgum, the epicentre of the LRA war and birthplace of Joseph Kony, the LRA leader.

Abandoning the Shrines-Abila

Abila is an important habitat for the spirits. These are usually small grass thatched houses erected in honour of the spirits as their dwelling places. Acholi are expected to take daily sacrifices of food to the *abila* for the spirits' consumption. *Abila* are sacred places which need to be taken good care of and preserved from disintegration. They are to be rehabilitated just like houses for the living. The sacred objects and tools in the *abila* are to be handled with care and respect to avoid annoying the *jogi*. The most significant of these sacred objects being the spears. Consultation of the spirits is done in the *abila*. Each significant spirit has an *abila* erected in its honour. However, there has been desecration of the *abila* in Acholi society thereby making the *jogi* angry with the living. One of the elders observed:

We are no longer handling *abila* the way we should as instructed by Lagoro. The custodians of 'abila' have mismanaged the rules for handling the spears they have been put in charge. This annoyed Lagoro for disrespecting him. He has in revenge brought upon us the calamity of nodding disease (Elder 2, Personal Interview, August 11, 2020).

The same respondent further claimed desecration of Lagoro's spears by one of the *abila* custodians who stole one of the sacred spears for his personal gain. His intention was to gain power and declare himself the Rwot. It is abominable for the sacred spear to be taken outside of *abila* to the home of the living. Another respondent claimed that the stolen spear that was brought into the community of the living came along with untold curses never seen before in Acholi land one of which was nodding disease. *Jogi* are not happy because Acholi are no longer handling *abila* as expected. For example, Acholi are no longer constructing *abila* for their departed ancestors. The few *abila* in existence have become ram shackled and collapsed making ancestral spirits to live a wandering life. Daily sacrifices of food for the *jogi* are no longer being taken to *abila*. The influence of Christian religion has made it worse, by way of the converted Acholi shunning *abila* and *jogi* in favour of well-built churches and Jesus Christ (J. Latigo, Personal Interview, October 01, 2020). The spirits are therefore left with no option but to wander around and fall on whoever they come across. The institution of *abila* would help to keep *jogi* under control because it acts as a central place where their will is sought. Failure to keep *jogi* in designated *abila* makes *jogi* to turn into *Cen* through attacking whoever they find. Whereas the good spirits of the ancestors have the ability to restrain *Cen* from attacking the living by containing them in the *abila*, this is not possible since the shrines are no longer available. This makes all spirits both ancestral ones and *Cen* to live a wandering life. In most cases, such wandering spirits attack children to make the elders feel the pain and act. This partly explains the prevalence of nodding disease among children and its absence among adult population.

Nodding disease emerged after the war because the spirits were so annoyed that much as *abila* had got destroyed during the war due to the encampment of the Acholi, they did not bother to restore *abila* to their former glory upon resettlement. Worse still, there were effects of resettlement upon the natural habitat of the spirits. The resettlement made the Acholi to tamper with forests, trees and water bodies that were thought to be dwelling places of the spirits. They cut down trees for both construction and cultivation. The river banks that were known to harbour the spirits were degraded by human activity hence leaving the spirits homeless and angered. Writing over a hundred years ago, Grove (1919) observed

the unlimited anger of river *jogi* if too much wood is cut on the banks of its stream. This partly explains the emergence of nodding disease right after the war when the Acholi were resettling in their land. This also reveals that disease and illness in Acholi society has to be understood in line with the cosmos.

Acholi Myths about Nodding Disease

There exist several mythologies among the Acholi with regard to nodding disease. For example, an Acholi traditionalist explained to us the myth of a black cow which was cited at Palabek in Lamwo district (Traditionalist, Personal Interview, September 10, 2020). The black cow is believed to be a demonic object which was sent to attack people and cause sickness. The black cow myth holds the view that nodding disease started from Palabek where the cow was cited. The black cow myth is held in high regard because Palabek is one of the sub counties that was hit hard with nodding disease. Cleansing rituals had to be performed at Pawena to alleviate its gravity upon the people. The suggestion of the black cow coming from Karamoja is also cited by Kitara and Amone (2012), and Bommel et al. (2014), although they fall short of underscoring the significance of Karamoja in this myth.

Another myth of a strange black pig slaughtered in Awere sub county in Pader district, situates the origin of nodding disease in this place (Cultural leader 4, Personal Interview, March 30, 2020). It is believed that it was at this place where people slaughtered and shared the meat of the black pig. It is held that nodding disease started from homes that shared this meat. When nodding disease occurred in those homes, people believed that the pig was a curse from Lagoro (J. Okot, Personal Interview, February 10, 2020). However, scientific studies have ruled out the possible connection of meat to nodding disease (WHO, 2012; Bommel, 2014).

Other myths relate the origin of nodding disease to the mysterious appearance and disappearance of very many black snakes on a tree in Awere found in Pader district. A similar myth was narrated by a Christian religious leader who claimed that in 2008 very many black snakes were cited on a single tree in Pajule and on another incident, a three-headed snake was cited in the same district (Christian Religious leader 3, Personal Interview, October 17, 2020). It is believed among the Acholi that whenever supernatural power wants to take visible form; it will likely take the form of a snake. Moreover, the spirits of hills, rivers and forests are usually snakes (Grove, 1919). The colour 'black' stands out significantly in Acholi mythology on nodding disease. All the creatures believed to have association with origin of the disease appear black. In Acholi, black is associated with evil, especially black animals. The Acholi construct *Cen* as black, a believed possibility that *Cen* had invaded Acholi land through these black creatures. All the myths portray that before nodding disease struck the people of Acholi, there were warning signs of danger manifested in frightening mystical creatures. The myths also portray the relationship between nature, spiritual world and disease. *Jogi* engage and inhabit natural physical creatures as disease causing agents. Secondly, the mysterious creatures are believed to have appeared in districts that were hit hard by the disease, possibly seen to be the most rebellious against the spirits of the land. The fact that both Acholi traditionalists and Christian religious people believe in these myths demonstrate the significance of cultural norms and traditions in explaining mystical occurrences regardless of one's religious affiliation.

One of the health workers, a native Acholi, narrated a story linking nodding disease to black flies. This is what we have called the myth of the black flies (Health worker 2, Personal Interview, October 08, 2020). The association of black flies to nodding disease is based on the fact that the heavily affected areas with the disease are around fast flowing rivers, mainly River Aswa and River Agago. Black flies as agents of Onchocerciasis seem to have gained more acceptance among scientists as the most likely cause of nodding disease (Abbo et al., 2019). Some scientists dispute the relationship between nodding disease and black flies on account that despite the numerous studies done about them, no clear findings have confirmed black flies as the cause of nodding disease. To the Acholi, with firm belief in the myth of black

flies argue that given the behaviour of the nodding disease patients, one can easily tell that the cause is more than black flies, linking them to spiritual manifestation (W. Obong, Personal Interview, February 10, 2020). The Acholi believe that rivers and other such big water bodies are known habitats of bad spirits. Secondly, cleansing rituals are performed at river banks, which make people living near these water bodies susceptible to attack by evil spirits. It is common for people who live near such water bodies to encroach on their banks, thus provoking the spirits' anger against encroachers. After the LRA war, the Acholi engaged in aggressive farming for both cash and food production. Some of the known fertile soils are on riverbanks, destroying the spirits' habitats. They also engaged in fishing for food as well as cutting of trees for both construction and burning of charcoal for sell to raise money. All these human activities deprived the spirits of their habitats making them to move from place to place, hence attacking humanity. To some other respondents, there were a lot of people who drowned in rivers during wars in Acholi land, either in the process of running away from attack and captivities of rebels or were thrown into the rivers by the rebels. Some were simply shot dead, making many dead bodies float on rivers, eaten by fish and some were swept by wind to the river banks. Most of these dead bodies ended up not being buried: their spirits kept lingering in the wilderness or at the river banks where their bodies got rotted. This explains the big effect of nodding disease among people living along the rivers, including those living in some parts of Lango sub region, like Aromowanglobo near River Aswa. West Acholi witnessed a few cases in families that resided along River Aswa in the area of Odek, home to Joseph Kony the overall LRA commander. Other areas in Western Acholi affected were Omoro and Lapuda in Gulu which coincidentally share settlements near River Aswa, with locals whose domestic livelihood depends on this river water.

The people of Acholi hold different beliefs on the diagnosis and treatment of nodding disease. Due to their belief in the spiritual nature of nodding disease on one hand and the limitations of biomedicine on the other hand, the Acholi have found it plausible to seek care from *ajwaka* or use herbal medicine to treat nodding disease. Traditionalists are engaged by several non-governmental organisations to organise cleansing rituals and sacrifices as an acceptable remedy to nodding disease among the Acholi (Traditionalist, Personal Interview, June 22, 2020). Even modern health workers in the sub region have adopted the use of traditional herbal medicine to treat nodding disease. Gulu University, a public university in the Acholi sub region, has been key in adding value to local herbs that treat nodding disease. The herbal medicine developed by Gulu University was administered alongside cultural rituals. It was, however, required of an elderly ritualist who was within the vicinity of the patient to pray and intercede to the gods to grant healing to the children (Pharmacist, Gulu University, Personal Interview, October 22, 2020). This portrays the belief in the spiritual aspect of herbal concoction given to the victims of nodding disease. The belief is that the herbal medicine is a revelation from the spirits but not a result of human wisdom of the biomedical researchers.

Conclusion

Cultural construction of disease is a negotiated process in dialogue within a specific cultural society. The cultural experience and explanations attached to physical symptoms of disease indicates a significant relationship between culture and health. Whereas biomedicine postulates a universal understanding of disease, findings from Acholi demonstrate cultural specificity of illness experience different from one society to another. Understanding the cultural and religious beliefs of society is a springboard for designing a holistic therapeutic approach for diagnosis and treatment of disease. However, the fact that some cultural beliefs and myths about disease and in the specific case of nodding disease have scientifically been proved to be untrue, calls for a plausible scientific explanation, in the absence of which, it becomes quite difficult for cultural societies to review their constructed beliefs about their health. Our findings further reveal that matters of health have a relationship with people's acceptance of the government. Politics plays a central role not only in terms of providing health services but in terms of enlisting psychological credence. If the populace doubts the spirit in which government is

doing whatever it is doing, the success of health services will be in doubt. Lastly, this article confirms that it is not true that only the material needs the spiritual but also the spiritual needs the material. The two are interdependent. The success and/or the healing force of medicines has both the ethereal side and corporeal side.

References

- Abbo, C., Mwaka, A. D., Opar, B. T., & Idro, R. (2019). Qualitative evaluation of the outcomes of care and treatment for children and adolescents with nodding syndrome and other epilepsies in Uganda. *Infectious diseases of poverty*, 8(1), 30.
- Aceng, R. (2018). Statement on Nodding Syndrome in Northern Uganda. Ministry of Health. Kampala. <https://www.health.go.ug/document/statement-on-nodding-syndrome-in-northern-uganda/>
- Adibo, J. (2017). Acholi Indigenous Methods for Healing and Re-integrating Survivors of Violent Conflict into the Community: A Case of Gulu and Kitgum, Northern Uganda. Doctoral thesis. University of Kwazulu-Natal, south Africa.
- Akwasi, S. (April, 1985). Answering 'WHY'-The Ghanaian concept of disease. Contact-Christian medical commission, Number 84. World commission of churches Switzerland.
- Allen, T. (1991). Understanding Alice: Uganda's Holy Spirit Movement in context. *Africa: Journal of the International African Institute*, 61(3), 370-399. <http://www.jstor.org/stable/1160031>
- Amone, C., & Muura, O. (2014). British Colonialism and the Creation of Acholi Ethnic Identity in Uganda, 1894 to 1962. *The Journal of Imperial and Commonwealth History*, 42(2), 239-257. Doi: 10.1080/03086534.2013.851844
- Amone, C. (2015). Constructivism, Instrumentalism and the rise of Acholi ethnic identity in northern Uganda. *African Identities*, 13(2), 129-143. DOI: 10.1080/14725843.2015.1023255
- Atkinson, R.R. (1989). The Evolution of Ethnicity among the Acholi of Uganda; The precolonial phase. *Ethnohistory* 36(1), 19-43. <https://www.jstor.org/stable/482739>
- Atkinson, R.R. (1994). The Roots of Ethnicity: The Origins of the Acholi of Uganda Before 1800. Philadelphia: university of Pennsylvania press. <http://www.jstor.org/stable/jctt17muh9g>
- Bemmel, K. (2016). The rise and fall of nodding syndrome in public discourse: an analysis of newspaper coverage in Uganda. *Critique of Anthropology*, 36(2), 168-196. Doi: 10.1177/0308275x15614635.
- Bemmel, K., Derluyn, I., & Stroeken, K. (2014). Nodding syndrome or disease? On the conceptualization of an illness-in-the-making. *Ethnicity & Health*, 19 (1), 100-118, DOI: 10.1080/13557858.2013.780233
- Buchmann, K. (2014). 'You sit in fear': understanding perceptions of nodding syndrome in post-conflict northern Uganda. *Global Health Action* 7(1), 25069, DOI: 10.3402/gha.v7.25069
- Buscher, K., Komujuni, S., & Ashaba, I. (2018). Humanitarian urbanism in a post conflict aid town: aid agencies and urbanisation in Gulu, northern Uganda. *Journal of Eastern African Studies*, 12(2), 348-366. Doi: 10.1080/17531055.2018.1456034.
- Colebunders, R., Hendy, A., Mokili, J. L., Wamala, J. F., Kaducu, J., Kur, L., Tepage, F., Mandro, M., Mucinya, G., Mambandu, G., Komba, M. Y., Lumaliza, J. L., van Oijen, M., & Laudisoit, A. (2016). Nodding syndrome and epilepsy in onchocerciasis endemic regions: comparing preliminary

- observations from South Sudan and the Democratic Republic of the Congo with data from Uganda. *BMC research notes*, 9, 182. <https://doi.org/10.1186/s13104-016-1993-7>
- Conrad, P., & Barker, K.K. (2010). The Social Construction of Illness: Key Insights and Policy Implications. *Journal of Health and Social Behavior* 51(S), S67–S79. DOI: 10.1177/0022146510383495 <http://jhsb.sagepub.com>
- Deakin, A. (October 30, 2017). The cultural construction of illness. PMLiVE. http://www.pmlive.com/pharma_intelligence/the_cultural_construction_of_illness_1207564
- Echodu, R., Edema, H., Malinga, G.M., Hendy, A., Colebunders, R., Kaducu, M.J., Ovuga, E., & Haesaert, G. (2018). Is nodding syndrome in northern Uganda linked to consumption of mycotoxin contaminated food grains? *BMC Research Notes*, 11, 678. <https://doi.org/10.1186/s13104-018-3774-y>
- Eisenberg, L. (1977). Disease and illness. Distinctions between professional and popular ideas of sickness. *Culture, medicine and psychiatry*, 1(1), 9–23. <https://doi.org/10.1007/BF00114808>
- Feldmeier, H., Komazawa, O., & Moji, K. (2014). Nodding syndrome in Uganda: field observations, challenges and research agenda. *Tropical medicine and health*, 42(2), 109–114. <https://doi.org/10.2149/tmh.2014-S15>
- Finnstrom, S. (2006). Wars of the past and war in the present: the lord's resistance movement/army in Uganda. *Africa: Journal of the International African Institute*, 76(2), 200–220. <https://www.jstor.org/stable/40027109>
- Foger, K., Stahlberg, G., Sejvar, J., Ovuga, E., Aall, L., Schmutzhard, E., Kaiser, C., & Winkler, A. (2017). Nakalanga syndrome: clinical characteristics, potential causes, and its relationship with recently described nodding syndrome. *PLOS neglected tropical diseases*, 11(2), e0005201. <https://doi.org/10.1371/journal.pntd.0005201>
- Grove, E.N.T. (1919). Customs of the Acholi. *Sudan Notes and Records*, 2(3), 157–182. <https://www.jstor.org/stable/41715820>
- Harlacher, T. (2009). Traditional Ways of Coping with Consequences of Traumatic Stress in Acholi land: Northern Ugandan ethnography from a Western psychological perspective. PhD Thesis. University of Freiburg, Switzerland.
- Henderson, J. N., & Henderson, L. C. (2002). Cultural construction of disease: A “supernormal” construct of dementia in an American Indian tribe. *Journal of Cross-Cultural Gerontology* 17: 197–212
- Hewlett, B.S., & Amola, R. P. (2003). Cultural Contexts of Ebola in Northern Uganda. *Emerging infectious diseases*, 9(10), 1242–1248. doi: 10.3201/eid0910.020493
- Irani, J., Rujumba, J., Mwaka, A. D., Arach, J., Lanyuru, D., Idro, R., et al. (2019). "Those who died are the ones that are cured". Walking the Political Tightrope of Nodding Syndrome in northern Uganda: Emerging challenges for research and policy. *PLoS Neglected Tropical Diseases* 13(6): e0007344. <https://doi.org/10.1371/journal.pntd.0007344>
- Isiko, A. P. (2018). Gender Roles in Traditional Healing Practices in Busoga. PhD Thesis. Leiden.
- Isiko, A. P. (2020). Religious construction of disease: An exploratory appraisal of religious responses to the Covid-19 Pandemic in Uganda. *Journal of African Studies and Development* 12(3), 77–96.
- Kagumire, R. (February 18, 2009). In burial ceremonies, Uganda's north hopes for a new start. *The Independent Magazine*. www.independent.co.ug

- Kembel, A.S. (2015). *When the Dead Are Not Silent: The Investigation of Cultural Perspectives Concerning Improper Burials in Northern Uganda*. Masters' thesis. University of Tennessee. <https://trace.tennessee.edu/utk-gradthese/3486>
- Kitara, L., & Amone, C. (2012). Perception of the Population in Northern Uganda to nodding syndrome. *Journal of medicine and medical sciences* 3(7), 464-470.
- Kitara, L., & Gazda, S. (2017). Nodding Syndrome in Northern Uganda, Treatment and Rehabilitation Outcomes. *World Journal of Pharmaceutical Research*, 6(14),150-169.
- Kitara, L.D., Mwaka, D.A., Anywar, A.D., Uwonda, G., Abwang, B., & Kigonya, E. (2013). Nodding syndrome (NS) in northern Uganda: A probable metabolic disorder. *British journal of medicine and medical research*, 3(4), 2054-2068.
- Kleinman, A.(1978).Concepts and a Model for the Composition of Medical Systems as Cultural Systems. *Social Science and Medicine*, (2), 85-93.
- Komujuni, S., & Buscher, K. (2020). In Search of Chiefly Authority in Post Aid Acholi land: transformations of customary authorities in northern Uganda. *Journal of Eastern African Studies*, 14(1), 103-124. Doi: 10.1080/17531055.2019.1711312
- Langdon, E.J., & Wiik, F.B. (2010). Anthropology, Health and Illness: An Introduction to the Concept of Culture Applied to the Health Sciences. *Rev.Latino-Am.Enfermagem*18(3):459-66. www.eerp.usp.br/rlae
- Latigo, J.O. (2008). Northern Uganda: Tradition based Practices in the Acholi region; In Huyse, L., & Salter, M (eds.), *Traditional Justice and Reconciliation after Violent Conflict*. pp. 85-119. Institute for democracy and electoral assistance. Stockholm.
- Manguvo, A., & Mafuvadze, B. (2015). The impact of traditional and religious practices on the spread of Ebola in West Africa: time for a strategic shift.*The Pan African medical journal*,22(1),9. <https://doi.org/10.11694/pamj.supp.2015.22.1.6190>
- McGann, E. (2015). *The Plight of the Lucluc: Examining the Deadly Mystery of Nodding Syndrome*. Honors thesis. Liberty University.
- Mitchell, K.B., Kornfeld, J., Adiamo, J., Ovuga, E., Kamstra, J., Winkler, A.S., Mugenyi, A., &Schmutzhard,E.(2013).*Epilepsy&Behaviour*,26(1),22-24.DoI: <https://doi.org/10.1016/j.yebh.2020.10.030>
- Moll-Rocek, J. (2016). *Healing in Community: Three Acholi Plant Medicines*. Native Seeds Project. <https://wildff.org/healing-community-three-acholi-plant-medicines/>
- Ocaya, V. (1988). Ultimate Reality and Meaning According to the Acholi of Uganda. *Ultimate Reality and Meaning*, 11(1), 11-22. Doi: 10.3138/uram.11.1.11
- Odhiambo A., Ouso T., & Williams F.M. (2003). *A History of East Africa: Traditional concept of disease*. Essex Reason, Education Ltd.
- Olum, S., Scolding, P., Hardy, C., Obol, J., & Scolding, N. J. (2020). Nodding syndrome: a concise review. *Brain communications*, 2(1), fcaa037. <https://doi.org/10.1093/braincomms/fcaa037>
- Ongaya, K., Aturinde, A., Farnaghi, M., Mansourian, A., Maiga, G., Oyo, B. and Bagarukayo, E. (2020) Spatiotemporal Analysis of Nodding Syndrome in Northern Uganda 1990-2014. *Health*, 12, 180-193. <https://doi.org/10.4236/health.2020.122015>
- Sontag, S. (1978). *Illness as Metaphor*. New York: Farrar, Straus and Giroux.

- Soumonni, E. (2012). Disease, religion and medicine: smallpox in nineteenth-century Benin. *História, Ciências, Saúde-Manguinhos*, 19(1), 35-45. <https://doi.org/10.1590/S0104-59702012000500003>.
- UBOS. (2016). The National Population and Housing Census report 2014. Main Report. Kampala, Uganda.
- Weegen, K. (2014). Shifting Meanings of Illness: An anthropological study of nodding syndrome in Tanzania. Master's thesis. Utrecht University-Netherlands.
- White, P. (2015). The concept of diseases and healthcare in African Traditional Religion in Ghana. University of Pretoria. South Africa.
- Whitmre, L. (2013). The Creation and Evolution of the Acholi Ethnic Identity. Master's thesis. Clemson university. https://tigerprints.clemson.edu/all_theses/1681
- WHO. (2012). International scientific meeting on nodding Syndrome-Kampala, Uganda (30 July-1 August 2012): Meeting Report. World Health Organisation. Geneva.

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