



Research Article

Pastoralists Health and Public Health Threat in Ghana

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ABSTRACT



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Pastoralists move their livestock from pasture to pasture following traditional and historic patterns to move towards available forage for their livestock. The availability of pastures is influenced by the seasons and climate change that dictate the distance of movement of pastoralists; it could be cross-regional or cross-country movement. In a unique public health survey, a large sample of these pastoral nomads in Ghana were interviewed in eleven districts in Ghana. The data was collected mainly through interviews, case studies, and reviews of records of nomads in some selected health facilities. Several clear findings emerge including that: (a) these pastoralists have little engagement or trust with public health, (b) commonly engage the public health sector only as a last resort typically when diseases are in an advanced stage, (c) have a very low awareness of public health practices towards disease awareness, avoidance and treatment, (d) have poor access to public health services and (e) typically consume animals that are known to transmit zoonotic diseases from animals to humans. This means that this population is a relatively sick population and carries untreated diseases. In their engagement with the general populations, they would be expected to transmit these diseases to the general population and could be the source of new disease threats, such as, what emerged with COVID-19. It is encouraged that specific strategies be developed to engage this population to improve health conduct and behavior including sensitizing them to the dangers from contracting zoonotic diseases. While this study focuses only on pastoralists in Ghana, it is likely that other pastoral communities in Africa present similar public health challenges.

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Introduction

Nomads are groups of people who eke their lives from livestock and to ensure the continued well-being of their livestock, they embark on seasonal migration with the livestock to places where they can find pasture and water for the animals (Dyson-Hudson and Dyson-Hudson, 1980). Their seasonal migratory behaviour can be patterned, sporadic or spontaneous. In the former, they move from their base, usually, an upland area where they stay and grass the animals during the rainy season when pastures and water abound and move to valleys or to the river banks during the dry season when pastures are dried up in their base and can only be available along the river banks and in the valleys for grassing of their livestock. In the latter, nomads can move to two or more places, depending on the availability of pasture, water, peace, and security for themselves and their livestock (Bassett, 1994; Maru et al 2022).

The nature of the pastoral profession keeps them away from conventional life as they spend most of their time with their animals. Thus, they are seen by most non-pastoral as antisocial and hostile (Assal, 2009; Dyson-Hudson and Dyson-Hudson, 1982). Their profession would also seem to keep them away from modern medical services, and their socialization and interaction with people in the cities and towns is limited.

In a unique public health survey, pastoralists were interviewed about their public health awareness, trust and other issues. This research was supplemented by anecdotes and observations made by health workers. Follow-up reconnaissance observations were conducted between February 2021 and March 2022 in some selected health facilities across Ghana to corroborate these observations.

This paper focuses on factors influencing the vulnerability and susceptibility of pastoral nomads to sickness in Ghana. Literature is clear on the fact that most pastoral nomads suffer from zoonotic diseases (Dzingirai, et al, 2017 and Dzingirai, et al 2016) perhaps because of their closeness to the animals. It is against this backdrop that this paper intends to investigate the factors influencing the vulnerability and susceptibility of pastoral nomads to sickness in Ghana and the associated public health risk that the current situation presents.

Background

In Ghana, about 90% of the nomads are from the Fulani ethnic extraction and therefore pastoral nomadism is coterminous with the Fulani ethnic group. Historically, most Ghanaians have considered the Fulani herdsmen as aliens in Ghana despite the fact that some of them are third and fourth-generation people (Tonah, 2005). In Ghana today, we have what

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we called Ghanaian pastoral nomads and foreign pastoral nomads. The latter are those who migrate seasonally from neighboring countries such as Burkina Faso, Mali, Niger and Nigeria. These are West African countries, and the nomads perhaps take advantage of the ECOWAS protocols which guarantee citizens of member states of free movement of persons and properties into any member state without restriction (Abubakari and Longi, 2022). The regular seasonal movement of pastoral nomads effects not only on their health but also on their education, socialization, and their relationship with non-herders (Dyer, 2001).

The literature about the pastoral nomads is skewed heavily towards their conflictual relations with farmers (Tonah, 2000; Abbass, 2014; Alhassan, 2017; Amankwaa, 2019; Baidoo, 2014; Blench, 2010) only and few discuss their integration process and symbiotic relations with their Ghanaian neighbors (Abubakari, 2022; Oppong, 2002; Hagberg, 2000). Scoones's (2021) study on pastoralists and peasants: perspectives on agrarian change, discusses seven broad themes of pastoral and peasant relations across the globe; uncertainty; mobility, land control and new forms of tenure, dynamic social formations, and the collective social relations and moral economy. He also discusses how they navigate what he termed as complex real markets and deal with chains of politics. This elaborate study of pastoral peasant relations does not touch on the implications for pastoral health.

Nomads face various health challenges resulting from their way of life, beliefs and attachment to the livestock. Studies in Sudan by El Shiekh and Kwaak (2015) reveal that nomads encounter difficulties in accessing and utilizing the services of trained midwives or other skilled maternal health service providers. Perhaps due to the fact that they are dispersed and scattered far away from health facilities and also due to their cultural beliefs that reward and encourage families with many children as a status symbol in society (Montavon et al. 2013). As a result, nomads, shy away from using family planning methods. They are also reported to have high rates of maternal mortality and morbidity due to poor spacing of pregnancies.

Nomads are among the high categories of people who practice female genital mutilation (FGM). Though the practice is outlawed in many countries, it is still secretly practiced by the nomads. Perhaps, because they stay far away from towns and cities, where law enforcement agencies are normally stationed and could clamp down on them, they are shielded from the eyes of the law and continue to carry out this cultural practice. El Shiekh and Kwaak (2015) report that most nomads in Sudan practice FGM. The Maasai in East Africa also circumcise both girls and boys to initiate them to adulthood. Lyimo (2013) reports that circumcision exposes the victims to the risk of contracting HIV/AIDS. FGM has serious health implications for the victims because it is often carried out by untrained people. In some instances, victims bleed to death and survivors has serious challenges in delivery.

Nomads and Zoonotic diseases

Nomads live closely with the livestock and sometimes they hunt wild animals such as rodents, bats, and birds for food. Their close contact with animals exposes them to zoonotic diseases that are transmittable from animals to humans (Tasker and Scoones, 2022). Domestic and wild animals carry pathogens that cause more than 60% of infectious diseases in man (Karesh et al, 2012). Karesh et al (2012) mentioned over 10 pathogens and diseases that are shared by animals and can cause disease in humans. These include leptospirosis, cysticercosis and echinococcosis, toxoplasmosis, anthrax, brucellosis, rabies, Q fever, Chagas disease, type A influenzas, Rift Valley fever, severe acute respiratory syndrome (SARS), Ebola haemorrhagic fever, and the original emergence of HIV. Zoonotic diseases are often

categorised variously including their degree of person-to-person transmissibility and constitute 'the greatest burden on human health and livelihoods, amounting to about 1 billion cases of illness and millions of deaths every year' (Karesh, et al, 2012: 1936).

Pastoral nomads and herders are mentioned as one of the social groups susceptible to zoonotic diseases such as trypanosomiasis and Rift Valley Fever (RVF) in Kenya (Dzingirai, et al, 2016). They further postulate that changes in the climate can have a major influence on vectors, especially mosquitoes carrying RVF. Their study on Henipah in Ghana also reveals that, though Ghana is not identified as a high-risk country for the outbreak of the disease, the natural reservoir hosts for Henipah (Hendra and nipah viruses) are pteropid fruit bats which are very common and eaten by many people in Ghana. These diseases can be transmitted from human-to-human and can cause death rates of between 40- 100%. Poor people, including nomads, farmers, and bat eaters in general are particularly at risk for contracting Henipah (Dzingirai, et al, 2016; Dzingirai, et al, 2017).

The Social ecological theory

The social ecological theory propounded by Bronfenbrenner (1977) stipulates that human behavior is affected by a wide range of variables on the individual level and the broader social, cultural, physical, and policy environments. It explains health to be affected by the interaction between the individual, the group/community, and the physical, social, and political environments (Sallis, Owen, and Fisher, 2008; Stokols, 1992).

For pastoralists, who rely heavily on livestock and their surrounding natural resources for their livelihood and well-being, the social-ecological framework can help understand how social, economic, and environmental factors affect their health outcomes. This framework takes into account factors such as access to healthcare services, cultural practices, land use patterns, environmental degradation, climate change, and socio-economic factors that may impact their nutrition and overall well-being.

Five layers of impact on health behavior were proposed by McLeroy, Bibeau, Steckler, and Glanz (1988): intrapersonal variables, interpersonal processes and main groups, institutional factors, community factors, and public policy. The authors discussed potential intervention techniques at each level of impact in addition to identifying level-specific factors on health behavior (McLeroy et al., 1988). They asserted that it is crucial to think about model levels as more than merely settings for interventions. The precise individual and environmental changes a program seeks to bring about should consider the extent of involvement. For instance, the authors propose that interventions at the intrapersonal level seek to alter people's knowledge, beliefs, and abilities.

Contrarily, interventions at the interpersonal and institutional levels aim to alter social dynamics and work settings, respectively. According to the authors, collaborations with organizations, churches, neighborhoods, and other mediating institutions lead to changes in communities; community-focused initiatives typically aim to improve health care or give disadvantaged groups more influence. Finally, interventions at the public policy level frequently have as their goals the implementation of public policies with consequences for health behavior or the facilitation of citizen advocacy.

Ecological models presuppose that there are several levels of impact, and that these levels interact and reinforce one another. According to Stokols (1992, 1996), an individual's environment, social, physical, and cultural components all work together to influence their health. Furthermore, he argues that the

environment is multilayered since institutions and neighborhoods are a part of broader social and economic systems. Consequently, the environment may have diverse effects on a person's health depending on their particular beliefs and habits. Therefore, addressing each of these elements at once will result in longer-lasting health gains. However, Stokols (1996) adds that it could be impossible to change every component of a person's surroundings or personality, therefore he suggests that treatments concentrate at least on two levels of influence

Source of data

The data was collected as part of the project *Access-Authority Nexus in Farmer Herder Conflicts in Ghana*. Though the project focused on Asante Akyim North and Sekere Afram Plan Districts, the particular research was an extended version and covered eleven regions since the pastoralists are in every region in Ghana. Data collection spends over seven months, from December, 2021 to June 2022. This is the seasonal period where nomadic activities take plan in Ghana. The respondents were pastoral nomads including their entire family members of age 13 and above who agreed to be interviewed. Since sickness has physical, psychosocial, emotional, mental, financial and religious connotations, sometimes leading to stigmatization and isolation, it was deemed prudent to engage only those who were willing to be interviewed. As such, this was a convenience sample. For those who agreed to grant us interviews, we booked appointments with them after we assured them of the anonymity and protection of their privacy. We secured the appointments through individuals who were trusted by this community and had common contact with the population. Since the majority of the nomads did not speak English and common Ghanaian languages fluently, we recruited and trained five research assistants of Fulani background, who could speak Fulfulbe fluently. Each of the assistants was responsible for two regions. We also ensured that the respondents were interviewed at places of their choice, including at health centres, in the bushes where their camps are located. For those we interviewed in their homes, we also observed their housing conditions as well. Some of them were interviewed by our research assistants and others by the health workers and the trusted people through whom we met them. These variations were necessary as they were meant to satisfy the wishes of the respondents.

Results and Discussions

Socio-demographic background of Respondents

The study covered 483 nomadic respondents across eleven regions in Ghana over seven months. Almost 64% are male with the remainder being female (see Table 1). More than a quarter (27.12%) of the respondents are in their teens while nearly half (46.16%) were youth between the ages of 20 and 35 years old. The youth and those in their teens together constitute 73.28% of the sample.

Over a quarter (28.77%) of the sampled population are from the Savannah region¹ followed by 16.77 in the North East region. Generally, 71.21% of the nomads are in the five northern regions while the Ashanti region hosts 11.18%. In terms of country of origin, 22.56% are from Mali, 16.35% are from Burkina Faso, 14.69% are from Nigeria, 9.10% are from Niger, while 22.15% are said to be Ghanaians. The survey revealed that most of the nomads are in Ghana for over two years, a factor

which also accounts for the high proportion of nomads claiming to be Ghanaians.

Table 1: Socio-demographic background of Respondents

Age group	Male		Female		Total	
	Freq	%	Freq	%	Freq	%
13- 19	66	13.66	65	13.45	131	27.12
20- 35	131	27.12	92	19.04	223	46.16
36-45	97	20.08	12	2.48	109	22.56
46-60	15	3.11	5	1.03	20	4.14
	309	63.97	174	36.03	483	
Region	Male		Female		Total	
	Freq	%	Freq	%	Freq	%
Ashanti	45	9.31	9	1.86	54	11.18
Bono East	7	1.44	2	0.41	9	1.86
Central	9	1.86	3	0.62	12	2.48
Eastern	21	4.34	4	0.82	25	5.17
Greater Accra	15	3.10	5	1.03	20	4.14
North East	30	6.21	23	4.76	53	10.97
Northern	45	9.31	36	7.45	81	16.77
Oti	12	2.48	9	1.86	21	4.34
Savanah	83	17.18	56	11.48	139	28.77
Upper East	15	3.10	12	2.48	27	5.59
Upper West	27	5.59	17	3.52	44	9.11
	309	63.97	174		483	
Country of origin	Male		Female		Total	
	Freq	%	Freq	%	Freq	%
Benin	5	1.03	1	0.20	6	1.24
Burkina Faso	56	11.59	23	4.76	79	16.35
Cameron	3	0.62	0	0	3	0.62
Chad	2	0.41	0	0	2	0.41
Côte d'Ivoire	5	1.03	1	0.20	6	1.24
Ghana	37	7.66	70	14.49	107	22.15
Guinea	34	7.03	9	1.86	43	8.90
Mali	74	15.32	35	7.24	109	22.56
Niger	27	5.59	17	3.51	44	9.10
Nigeria	56	11.59	15	3.10	71	14.69
Senegal	6	1.24	2	0.41	8	1.65
Togo	4	0.82	1	0.20	5	1.03
Sub-total	309		174		483	
Religion	Male		Female		Total	
	Freq	%	Freq	%	Freq	%
Islam	286	59.21	161	33.33	447	92.54
Christian	4	0.82	1	0.20	5	1.03
Animist	19	3.93	12	2.48	31	6.41

¹ The Savannah region is the largest in terms of landmass in Ghana. It has a total landmass of 46,922 sq Km, constituting about 1/5 of the total land area in Ghana. It is sparsely populated with an estimated population of 581,368 people in 2022.

Others	0	0	0	0	0	0
Sub-total	309		174		483	
Education	Male		Female		Total	
	Freq	%	Freq	%	Freq	%
No Formal education	297	61.49	172	35.61	469	97.10
Basic	5	1.03	2	0.41	7	1.44
others	7	1.44	0	0	7	1.44
Sub-total	309		174		483	
Length of stay in Ghana	Male		Female		Total	
	Freq	%	Freq	%	Freq	%
Less than 1 year	126	26.08	5	1.03	131	27.12
1 year	105	21.73	12	2.48	117	24.22
2 years	30	6.21	42	8.69	72	14.90
3 years	25	5.17	46	9.52	71	14.69
4 or more	23	4.76	69	14.28	92	19.04
	309		174		483	

Male nomads who stay in Ghana for less than one year (26.08%) are progressively more than those who stay for one year (21.72%), two years (6.21%), three years (5.17%), and four or more years (4.76%). On the other hand, female nomads are rather more likely to stay longer in Ghana. Only 1.03% said they are in Ghana for less than one year. By the fourth or more years, their number increased to 14.28%. Perhaps, as they move with their livestock in search of pasture, the uncertainty and difficulty involved in moving with women, could have influenced this. As the nomads stay at a place longer and get to know the environment, their women join them.

Vulnerability and susceptibility: What accounts for Pastoral Nomads' Sicknesses

Moving livestock to seasonal pastures is a strategy employed by pastoral nomads who depend on livestock for their survival. In Africa, this way of livestock husbandry is necessary because the livestock must be fed regularly throughout the year (Catley, Lind and Scoones, 2016). It is also a function of the lack of technology and capacity to produce and store enough feed to feed the animals throughout the year (Moritz, 2010). As a result, nomads continue moving their livestock to areas where they can find pastures and water (Scoones, 2021). Unlike in Europe and America where technology is employed to breed livestock, in Africa transhumance and livestock management are still dictated by the weather, climate change, technology availability and capacity to produce and store feed for cattle (Oksen, 2000). Furthermore, livestock production is typically dependent on rainfall variability, bushfires, drought, land tenure system and diseases.

As a result of their constant movement, pastoral nomads are susceptible to diseases. The study identifies three categories of factors responsible for these; namely internal factors, external factors and socioeconomic and cultural factors.

Internal factors

Poor Housing conditions

Nomadism involves continuous movement with livestock in search of pastures. Pastures are located far away from towns and cities. Results from the study indicate that 90% of the nomads stay in temporal thatch structures, 7% provide tents, while the rest, 3% sleep in the open under trees. Generally, the conditions

in these structures are poor. They are exposed to the weather, mosquitos, and other dangerous reptiles. The structures are not big enough to allow the setting up of fire in them to provide heat when the weather is cool. The nomads indicated that their huts leak when it rains. Those who set up their camps close to the lowlands reported that their camps get flooded when it rains. One of the respondents, Zainab Gaani said “sometimes snakes, scorpions, lizards and other dangerous reptiles and arachnids get into our huts. Snakes bite us in our huts sometimes.” Another outcome of this living arrangement is their foodstuff often gets spoiled.

Reviews of hospital records and interviews with nurses and doctors revealed that nomads who report to health facilities are often diagnosed with chronic malaria, pneumonia, and skin diseases, perhaps partly resulting from their poor housing conditions. They also reported high cases of tuberculosis (TB) (See Table 3). Honarvar et al (2014) reported that there is a high prevalence rate of TB among nomads because of their mobility and poor economic status.

Diet and malnutrition

The study found that pastoral nomads frequently suffer from malnutrition resulting from poor diet which is particularly common among women and children. Previous studies revealed that, pastoralists do not raise animals primarily for meat, though they use milk and cheese (Catley, Lind and Scoones, 2016). Meat and eggs are rarely eaten. In particular, milk constitutes an important part of the diet for pastoralists. About 90% of the respondents indicate that they eat milk or milk products daily. Milk is eaten raw or fermented or eaten with gari or flour. A typical meal as described by the respondents is made up of the following: breakfast- Milk with gari or flour or mashed *tou zaafi* (TZ) or porridge. Lunch -TZ, rice, or milk. For supper- TZ, milk, rice. However, the way milk is consumed- more often raw, predisposes the nomads to bovine tuberculosis. Results from the health facilities revealed that about 65% of the nomads were diagnosed with malnutrition, malaria, and tuberculosis. People who are undernourished are more susceptible to diseases.

Movement and exposure to danger

Migration of the nomads is not only stressful but also detrimental to the health of both herders and cattle. The results show that some of the nomads traveled over 2,500 km to 3,000 km (in the last year...over a lifetime??). For instance, in an interview with Amadou Barry a herder at Busunu in the Savannah region of Ghana, he said he hailed from Araouane in the Tombouctou region of Mali. Amadou entered Ghana through the Upper West region. He said he entered Ghana through the bush and was first herding his cattle in the Wa East District. He later moved to the West Gonja District where he is currently herding his cattle. Another herder, Issifo Musah, who is said to have come from Batsari in the Katsina State of northern Nigeria. Issifo is currently herding his cattle in the Asante Akim North District in the Ashanti region of Ghana. Issifo said he is in Ghana for the past two years. Another herder, Diallo Mamadu, was interviewed at Yezeisi in the Mamprugu Moagduri District. He said to have come from Sabodala in Senegal. All these people walked thousands of kilometers to their present locations over some period of time.

All the nomads indicated that they lost some of their cattle on the way to Ghana. For instance, Diallo Mamadu from Senegal said he moved through Mali and finally to Ghana. He said he set off with 319 cattle and in the course of his journey, he lost 38 of them while in Mali. The loss was primarily due to poor feeding. He said this compelled him to move further south to Ghana. He said sometimes they move the cattle at night, especially when the sun is hot. Extreme weather events, animal

disease, wildlife attacks and conflict conditions may trigger sudden movements (Maru et al, 2022).

According to Diallo Mamadou, some of their movements were occasioned by crop destruction by his cattle, and he had to leave at night to avoid being caught or attacked by enraged farmers. He added that he fell sick and for two weeks he could not get up. In summary, this treacherous movement across borders and over long stretches of land is not only detrimental to the health of the animals, but also to the health of the herders as well.

Nomadic women have an aversion to transhumance because they said it is full of uncertainties, exclusion, and extra work (Adriansen, 2008). Uncertainties because, it involves movements, sometimes to unknown destinations. Sometimes the movement is not planned, especially when they are moving away from danger. It is tedious also because they typically walk carrying their belongings as well. The women also said they have few social interactions while in the bush apart from their husbands and the animals. It also limits their interactions with others because of distance from the nearby communities and language barriers. It also gives them extra work- to prepare huts, take care of children and travel on foot to market centres to buy food items. Despite nomadic women's dislike for transhumance, they still prefer that because they have access to their husbands and milk. They said it is also their culture and identity.

External Forces

Distance from health facilities

One of the greatest challenges of nomads is the distance to health facilities. This has implications for their access to health care. Here we borrow the definition by Peters et al. (2008) who define access as the timely use of service according to need. However, O'Donnell (2007) indicates that access has four dimensions: availability, geographic accessibility, affordability and acceptability. There are demand-side and supply-side dimensions that drive the use of health services. The demand-side factors influencing the ability to use health services at individual, household or community level, while supply-side determinants are challenges emanating from the health system (Kronfol 2012).

The results show that nomads are faced with geographic accessibility, which has both demand and supply dimensions; the location of health facilities (supply dimension) and the location of nomads' camps (demand dimension) are quite distance apart (Table 2). The distance from the camps of the nomads to the nearest health facility may be a hindrance to their access to health facilities. Nomads set their camps in the remote areas close to pasture and where human activities are limited. These places are usually not accessible by cars and sometimes difficult for motorbikes. The results show that 65.01% of the nomads stay 11 or more kilometers away from the nearest health facility. The percentage is higher for men (85.43%) than women (28.73%). The reason is that it is the men who usually take care of the cattle are in the bushes. During the interviews, the men frequently stated that they sometimes station their wives in the nearest villages/towns for strategic reasons: (1) the men can change camps at any time to avoid danger, (2) in case of danger, the men can easily escape and run away, and (3) the women can trek to the camps at regular intervals to milk the cows and send the milk for sale in the villages/towns. Through this transaction, they get money to buy their daily needs.

Table 2: Access to Health Facilities

Distance to the nearest health facility						
	Male		Female		Both total	
	Freq	%	Freq.	%	Freq.	%
0-5km	17	5.50	53	30.45	70	14.49
6-10km	28	9.06	71	40.80	99	20.49
11 or more	264	85.43	50	28.73	314	65.01
Total	309		174		483	

Challenges in Using Health Facilities						
	Male		Female		Total Sample	
	Freq	%	Freq.	%	Freq.	%
Language barriers	174	56.31	70	40.22	244	50.51
Unfamiliar hospital environment	111	35.92	86	49.42	197	40.78
Difficulty to follow prescriptions	24	7.76	18	10.34	42	8.69
Total	309		174		483	

Even when they attempt to use the health facilities, the nomads face some extra challenges, including language barriers (50.51%), the unfamiliar environment of the hospitals (40.78%) and challenges in following prescriptions (8.69%).

Language is a major challenge for this population with 97.10% of them not having a formal education and cannot speak the English at the hospitals. Consequently, the respondents indicated that, the language barrier prevents them from going to the hospital. As one of the female respondents, Ummu Ador noted "We only go to the hospital when the condition is critical and cannot be treated locally". She added that 'the challenge of having to get an interpreter to send you to a hospital is burdensome'. The situation is serious, especially for the women and the hired herders whose economic circumstances are precarious. The hired herders cannot sell a cow to go to the hospital without the approval of the cattle owner, and their salary is not regular. Until and unless the cattle owner comes or approves, they cannot take any decision to go to the hospital. Additionally, some of the hired herdsmen receive their remunerations in the form of live cows after herding the cattle for a number of years agreed upon. If he has not yet finished serving the agreed period and received the cow(s) he cannot sell any to attend a hospital.

The hospital environment appears to be complex for the nomads, especially the big hospitals. The nomads, who are predominantly illiterates find it extremely difficult to navigate the various departments to get treatment. Even how to start the process, according to the nomads is difficult. How to begin at the outpatient department (OPD), how to continue to get their vitals, how to proceed to the consulting room, if the sickness requires some laboratory tests, where to locate the laboratory, how to get the results back to the doctor, where to make payments, and how to get to the pharmacy for the medicines, etc are all difficult tasks they have to navigate. Without being assisted, they sometimes get stranded. These together with their inability to express themselves in English or any Ghanaian language, coupled with their inability to read and get directions on their own, are daunting tasks for them. 'I do not like going to the hospital because it is difficult to get treatment. The last time I sent my child to Tamale Teaching Hospital, it was difficult. We had to sleep at the hospital without getting treatment on the first day', lamented, Fatimatu Ahmed.

Finally, only 8.69% indicated that they found it difficult to follow prescriptions; when, and how to take their medications. Usually, they are given two or more medicines to be taken at different times. Our interviews with the doctors further revealed that most of the nomads fail to come back for reviews. Perhaps, it could be due to several reasons; first, either they have changed camps, or changed place of treatment. Second, they could forget or are not aware of the new date for the review. Third, they may not want to come back to the hospital because of the stress or due to financial of distance challenges.

In view of the above-mentioned factors, when asked about the number of times they attended hospital over the past 12 months preceding the study, over seventy per cent (72.87%) said they never attended hospital (Table 3). The figure is higher for the males (88.67%) than the females (44.06%). Further interrogations with them show that not that they did not fall sick, they did, but only did not attend hospital. Rather, they sought alternative treatment as could be seen later in this paper. Another reason that could explain why the nomads do not like attending hospitals is that they pride themselves as braved and strong people. These virtues seen as prerequisites to behaving as a Fulani or nomad are self-control (*munyal*) foresight (*hakkiilo*), bravery (*cuusal*), and reserve(*semteende*) (Schareika, 2010). To prove this sociocultural value, they try to manage pain and do not easily complain of sickness as a sign of braveness. Perhaps, this explains why the majority of the men reported not attending the hospital.

Table 3: Hospital Attendance Behaviour
How many times have you attended the hospital over the past 12 months?

	Male		Female		Total	
	Freq	%	Freq	%	Freq	%
None	274	88.67	78	44.06	352	72.87
Once	22	7.11	63	35.59	85	17.59
Twice	10	3.23	23	13.21	33	6.83
Three or more	3	0.97	10	5.74	13	2.69
Total	309		174		483	

Reasons for Going to a Hospital

	Male		Female		Total	
	Freq	%	Freq	%	Freq	%
Malaria	15	42.85	20	24.09	35	29.66
Tuberculosis	6	17.14	12	14.45	18	15.25
Pneumonia	2	5.71	9	10.84	11	9.32
Anemia	3	8.57	14	16.86	17	14.40
Snake bites	8	22.85	1	1.20	9	7.62
Child birth	0	0	15	18.07	15	12.71
Others	1	2.85	12	14.45	13	11.01
Total	35		83		118	

Concerning nomadic women, the data show that they attend more hospital than the men, though they express dislike for that. Generally, more than half of the nomadic women (55.94%) professed to have attended hospital, at least once a year compared to only 11.33% of the men (Table 3). The reasons that account for more nomadic women attending hospital than men are not farfetched; first, there are more women in their active

reproductive age (Table 1) than men i.e out of the 174 women interviewed, only 5 were between the ages of 46 and above. This means the rest were in their active reproduction age and may be bearing children. Though issues pertaining to pregnancy, attendance of antenatal, childbearing, attendance of child welfare clinics, etc were hardly discussed during the interviews, the women would have been attending hospitals in cases related to these. This highlights the need to further study this for this population.

From Table 3, it is clear that malaria is a common (29.66%) sickness of the nomads who reported having attended hospital. Interviews with the doctors and nurses confirmed this. As discussed earlier, the nature of their camps or huts predisposes them to getting malaria. The men also indicated that they sleep close to the kraals or to the cattle to provide security and to ward off cattle rustlers, so they are at risk of being bitten by mosquitoes. They also do so at the risk of getting zoonotic diseases. Their close contact with the animals exposes them to some zoonotic disease such as bovine tuberculosis that is transmitted from animals to human (Dzingirai et al 2016)). An interview with Dr. Abdullah I. Yahaya, at the Chest and TB Unit of Tamale Teaching Hospital revealed that most of the nomads are diagnosed with TB. He indicated that their closeness to the animals and the consumption of raw milk predispose them to bovine TB (Liverani et al, 2013).

Socioeconomic and cultural forces

Ignorance and poverty

The vulnerability and susceptibility of nomads to sickness appears to be rooted in their roots from ignorance and poverty. When asked whether they know what causes malaria, 52% said the food they eat, 34% to evil spirits, 4% to fatigue, and only 2.6% said the insects that bite them, including mosquitos, (the remainder (7.4%) said they did not know). Similarly, over 73% of the nomads do not know that common diseases such as tuberculosis (TB) can be transmitted from animals to human. It is likely that their ignorance about the causes of malaria, TB and other diseases are due to their high level of illiteracy, poor education and limited exposure to public health messages.

The study further found that there is high a level of poverty among the nomads, especially the women. The results show that about 97% of the nomadic women got their main source of income in the sale of milk and cheese. However, there is no regular market for these products because of uncertainties in their movement, the distance to the markets and the unstable supply of these products.

The study also found that only 32% of the nomads herd their own cattle or cattle belonging to their parents while the rest are hired herders. They cannot sell cattle to solve their personal problems. Even cattle owners rarely sell cattle unless there is a critical problem. Modern animal management would also have animals sold or harvested at certain ages for profit and reduce animal mortality.

Religion and Belief system

Nomads appear to be dogmatic and show resistance to changes in their cultural practices and traditions, even if they are detrimental to their health. The literature is overflowing with evidence that the nomads throughout Africa still practice female genital mutilation (El Shiekh and Kwaak, 2015). This sociocultural practice is injurious and detrimental to the health of girls (ibid). Though all our respondents shied away from confirming that they still practice FGM perhaps because they knew it is a crime in Ghana. It is strongly suspected that the nomads still perform FGM on little girls. It is also possible that because of their seclusion in the bushes, they may not have access to public education on the effects of FMG. Health experts say that apart from the severe pain, and excessive bleeding, in

the long term, victims are deprived of enjoying coitus and face increased risk of childbirth complications (WHO, 2022).

The study further revealed that nomads also engage in early or teenage marriages. Teenage marriage is a sociocultural practice based on how they practice their Islamic faith. Nomads believed that girls are supposed to be married off after their first mensural experience. Interviews with our female nomadic respondents revealed that, though they could not remember the ages at which they got married (because they do not remember their dates of birth), but their descriptions show that they married as early as 14 to 15 years old. We also observed during the interviews that, girls as early 14 to 15 years were married, and some of them had already delivered. Interviews with the doctors also revealed that FGM in combination with teenage pregnancy predisposes girls to get fistula during prolonged labour at home.

The study further found that nomadic women have a strong aversion to exposing their private parts to people other than their husbands. This strong belief prevents them from attending antenatal clinic (ANC) or going to the hospital for delivery. They feel that gynecologists will take advantage of their situation to see their private parts.

Working Conditions

Working conditions of pastoral nomads are difficult. Young herders frequently complain that there is never a moment's rest. They are behind a herd all day and when an animal strays from the camp at night, they must go and search for it. The daily routine of a herder requires great endurance and is often dangerous.

The nature of herding is such that herders have little or no time to socialize or travel. Depending on the time of year, there are especially demanding tasks to perform each day. Herders reported that they sleep close to the cattle and must always be vigilant at night because the cattle can break the kraal and run away or be stolen by cattle rustlers. These affect the quality of their sleep. The dangers of being attacked by cattle rustlers, cattle straying, heavy downpours on them, and snake bites were frequently mentioned as common hazards. In summary, prolonged exposure to heavy rains, hot sun, *harmattan* weather, long working hours, hunger, working days without holidays or weekends, loneliness, and life-threatening hazards were frequently cited as common features of the daily work routine (Bassett, 1994). Given these very precarious working conditions, nomads frequently suffer from stress leading to health problems.

Pastoral nomads, especially, the hired herdsmen indicated that their relationship with their masters is sometimes very stressful. They complained that they could lose their salary/wages if the cattle owners are dissatisfied with the condition of the cattle. They are severely rebuked for not taking good care of the animals if the animals run down or lose weight for poor grazing. They also rebuke them or deny them their salary over the loss of a cow or damage to crops. These are stressful moments that could have consequences on the nomads' health. Hired herders also reported that cattle owners commonly do not respect them.

In particular, the nomads reported that the most stressful moments are when the animals destroy crops and they have to pack all their belongings, sometimes at night to change camp to avoid being attacked by enraged farmers over crop damage. They also reported that some crop farmers physically attack them or their cattle or poison sources of drinking water for the animals over crop destruction.

Health-seeking Options

People's health-seeking behaviour, is a function of their understanding and interpretation of the causes of their sickness (Awusabo- Asare and John, 1997). To the extent that, the kind of treatment one seeks is influenced by their belief in whether the sickness is caused by a germ or superstition. The belief in the germ theory is influenced by people's level of education, their previous knowledge, and their level of exposure.

Over the years, nomads have developed mechanisms to self-reliance in medicine. They have developed treatments for themselves and their animals. Perhaps, because of their isolation, they either do not want to depend on public health services or they trust in the efficacy of their own treatment. The nomads frequently tell us that they have antidotes for many ailments. One of the nomads braggingly describes himself as a "walking doctor and veterinarian" because he claims to have medicine for both humans and animals. However, they admit that they go to hospitals, but only when the situation cannot be managed at home.

However, deeper analyses of their responses reveal that nomads practice medical pluralism- seeking treatment from diverse sources. This practice is not only common among the nomads but also Africans generally.

Table 4: Health Seeking Options

Health seeking Options	1 st option- Local treatment		2 nd option- Pharmacy/drug store		Last resort Hospital		Total
	No.	%	No.	%	No.	%	
Male	252	81.55	25	8.09	32	10.35	309
Female	127	72.98	16	9.19	31	17.81	174
Total	379	78.46	41	8.48	63	13.04	483

Analyses of the data suggest that nomads only use the hospital as the last resort. Generally, only 13.04% of the respondents said they use the hospital, implying that it is the last resort after trying other options fail. For most nomads (78.46%) local treatment is the preferred and the first option. Local treatment according to them includes traditional and spiritual healing, mallams, witchdoctors, etc. They also sparingly use pharmacies and drug stores, used by the women and only those close to the towns.

Concluding remarks

The health of pastoral nomads appears to be:

Understudied population, need for further information, no information on general demographics of the population.

They seem to have had some kind of bipolar relationship with the people in the towns and cities; they come to town fortnightly or monthly to buy foodstuffs and other needs and back to bushes. Sometimes they get these things through trusted cattle dealers who have developed businesses relation with them. They usually come to town in pairs or in groups and move straight to transact the business they come to do.

The vulnerability and susceptibility of nomads to sickness are linked to the nature of their work and have serious implications beyond the farmer-herder conflicts. The practice has experienced little or no technological application beyond basic veterinary services and animal health. The primitive method of transhumance has now been exacerbated by climate change and thus forced pastoralists to seek rangelands beyond their regions with consequences and implications not only on their socialization, education, economic and political lives but also on their health. They move thousands of kilometers away from their homes for years. They face social and cultural isolations that compound their socialization and integration processes.

Cattle herding, especially transhumance is performed in the bushes. In recent times, climate change and frequent farmer-herder conflicts compelled the herders to send the cattle far away from places where farming activities take place. These locations further distance the nomads from health facilities. Their geographical locations are inaccessible and unmotorable for easy transportation and movement to the health centres. Thus, they barely use health facilities and rather depend on local treatment. Additionally, ignorance and poverty also pinned them to their fate. Nomads have very little knowledge about the causes of certain diseases such as malaria, TB, and other zoonotic diseases. This makes it difficult for them to prevent themselves from contracting. Even when they fall sick, they prefer using local treatment to attending hospitals. They find it difficult to navigate through the complex hospital environment. They can neither express themselves well nor read instructions because of illiteracy. These have serious implications for their health-seeking options and preferences.

It is important for the Ministry of Health in collaboration with Ghana Health Service, the Veterinary Services, and the border control security to jointly monitor and screen both the livestock and the nomads before they enter or exit the country since they can carry diseases across countries. Their close interaction with the animals and sometimes they come into contact with wild animals, bats and birds may also expose them to certain zoonotic diseases. Since the nomads sometimes go to hospitals, they may transfer these diseases to other people.

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Conflict of interest

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