

Full Length Research Paper

Drivers of Food Choice and Implications for Building Immunity against COVID-19 in Ghana and Burkina Faso

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ABSTRACT: This paper examines the drivers of food choice in Anglophone and Francophone settings in the West African Savannah, and highlights the implications for building immunity against COVID-19. The study used scientific and indigenous methodologies to purposively sample and interact with 28 key informants, 13 focus groups, and three Case Studies, which included smallholder farmers, indigenous institutional functionaries, food security activists, traditional leaders, clan/lineage heads, and women's groups in Ghana and Burkina Faso. The content of transcripts was analyzed to generate quantitative information to understand the distribution of opinion on specific issues. The study found that, among Gourounsi/Kasena smallholder farmers in Ghana and Burkina Faso, appearance and taste are stronger drivers of food choice than health and nutrition. However, "food that has soul" (tasty and micronutrient dense) is the underlying driver of food choice among Gourounsi/Kasena smallholder farmers in both countries. Millet has the highest soul among the crops, and late millet has the highest soul among all millets. Millet flour drink has the highest soul among all the recipes of millet. Study participants say eating "food that has soul" is wholesome for humans and it engenders food production systems that are ecologically balanced. Gourounsi foods also nourish the body and potentially boost its immunity against microbial attacks. Gourounsi/Kasena foods should be incorporated into the national COVID-19 response for countries in the West African Savannah.

Keywords: COVID-19, food choice, food that has soul, immune system, West Africa

INTRODUCTION

Good nutrition is the foundation of health (Good Nutrition and COVID-19, 2020). Indeed, the relationship between health concerns and healthy eating attitudes fully mediated by food choice motives has long been established (Sun, 2008). In the IsiXhosa culture of South Africa for instance, Chakona and Shackleton (2019) found that pregnant women are obliged to eat specific foods (herbs, plants, animals) for the health and wellbeing

of the mother and the unborn child. Though taste shapes food choice, aesthetics (appearance) has become such a strong driver of food choice that Van der Laan, *et al.* (2012) have been suggested that healthy food choice could be promoted by presenting healthy foods in more attractive packages. But, according to Juárez-Ramírez *et al.* (2019) social and cultural factors appear to be the underlying drivers of food choice.

In West Africa, food is deeply rooted in the region's rich traditions, lifestyles, and customs (Fieldhouse, 2013).

Notwithstanding that many and varied factors drive food choice, what we ingest - or refuse to ingest - is a telltale of the integrity of our immune system (Aman and Masood, 2020). An immune system protects the body against microbial attacks, and the most effective way to boost immunity against infections is to maintain adequate nutritional intake, and a healthy lifestyle (Omar *et al.*, 2020; Good Nutrition and COVID-19, 2020; Zavascki and Falci, 2019). Whereas Tippairote *et al.* (2021) recommend dietary management as a strategy to minimize the potential risk of SARS-CoV-2 infection, Awindor (2020) and Abdulai (2016) specifically mention millet as one of the crops that nourish the people of Northern Ghana.

From a "global health emergency" the World Health Organization (WHO) declared the Coronavirus disease 2019 (COVID-19) a "global pandemic" (Gallegos, 2020; Ramzy and McNeil, 2020), nevertheless a "controllable pandemic" (KPMG Ghana, 2020). By August 24, 2020, COVID-19 had affected 216 countries, infected over 30 million people and left more than 900,000 dead. Ghana's active coronavirus cases stood at 108,226 with 874 deaths (WHO Ghana, 2021) whereas Burkina Faso's active cases are 13,625 with 169 deaths (WHO Burkina Faso, 2021). The pandemic has wreaked considerable economic and social costs, bringing down Ghana's GDP by 27.9% and pushing 3.8 million Ghanaians into temporal poverty (Amewu *et al.*, 2020), and plunging the Burkinabe national economy into recession as a result of which, according to the IMF, the country has faced difficulties in servicing its external debt (Gnassou, 2021). In compliance with WHO-recommended non-pharmacological measures against COVID-19, Ghana criminalized not wearing of facemask in an Executive Instrument (E.I 164) where offenders could be jailed up to 10 years or fined up to GHS60,000 (USD11,000) or both (Government of Ghana [GoG], 2020).

Significantly, globally, a large majority of people who have had COVID-19 recovered or did not even know they had it. It's the human immune system at work, and according to Tippairote *et al.* (2021) the immune system is a direct function of our food choice. WHO (2020), the Academy of Nutrition and Dietetic (2020), and the Dietitians of Canada (2020), have therefore called upon countries to pay a closer attention to nutrition at this era of COVID-19, which is consistent with the assertion by Omar *et al.* (2020) that the most effective way to boost immunity against infections is to maintain adequate nutritional intake, and a healthy lifestyle. Based on these considerations, Burkina Faso revised its initial preparedness plan for COVID-19 into a broad national response strategy with nutrition playing a central role (Government of Burkina Faso, 2020). However, today's food systems are not helping consumers to make good

food choices consistent with optimal nutrition outcomes (The Cultural Dimension of Food, 2020). Staatz and Hollinger (2016) have noted that many people are now hooked onto a western diet, which typically has a high proportion of red meat, salt and saturated fat, which somewhat, cause a dysfunctional immune system.

In Africa, people now prefer to eat 'Pizza, burger, fried rice and chicken' - collectively termed as "junk food" - instead of the local foods that are high in essential nutrients and are better for the immune system (The Cultural Dimension of Food, 2020). Liang and Liang (2019) have noted that millet was the primary food source for the poorest people unable to afford expensive food products containing antioxidants. Eloy (2019) has also observed that more and more households in West Africa are eating local foods, opting for local cereals such as millet for dinner instead of rice. The nature of the novel coronavirus pandemic and the emergence of new strains makes the most reliable scientific evidence that connects nutrition and COVID-19 relatively scant. Assembling all the required knowledge about nutrition, food choice behaviours and COVID-19 has thus become a major concern for public health specialists.

This paper examines the drivers of food choice behaviours among indigenous societies in the West African Savannah to shed light on potentially immune-boosting foods to help fight the global coronavirus pandemic. The Gourounsi are of interest because their distribution between Ghana and Burkina Faso allows for a cross border study that enables a comparison of food choice behaviours among one people, of different nationalities and different colonial histories. The significance of understanding the food choice behaviours of the Gourounsi in the West African Savannah lies in the comprehensive insights it can provide regarding food-related policy interventions. This kind of knowledge could potentially help hook people onto an immune-boosting diet that protects them against microbial attacks such as the raging global coronavirus pandemic (COVID-19). On the basis of these considerations, this paper seeks to answer two main questions: What are the most common indigenous foods among the Kasena in Ghana and the Gourounsi in Burkina Faso? What are the drivers of food choice behaviours among the Kasena in Ghana and the Gourounsi in Burkina Faso and to what extent do these food choice behaviours boost or compromise human immunity against microbial attacks such as COVID-19?

METHODOLOGY

Study location

The study area (Figure 1) consists of contiguous Kasem-speaking communities in the Kasena-Nankana West District and Navrongo Municipality in the Upper East



Figure 1: Map of Ghana and Burkina Faso showing Kasena Homeland. Source: <https://kwekudeeripdownmemorylane.blogspot.com/2013/06/gurunsi-people-west-african-tribe-with.html>.

Region of Ghana; Commune Urbaine de Pô and Commune de Tiébélé of the Nahouri Province in the Centre-Sud region of Burkina Faso. The area straddles northern Ghana and southern Burkina Faso and has not been listed as COVID-19 hotspot. Kasena and Gourounsi are the same people with a common ancestry and language (Awedoba, 2011; Cassiman, 2006; Howell, 2001). The words “Kasena” and “Gourounsi” would be used interchangeably throughout this paper. Ancestral veneration guides the agronomic practices of the Gourounsi, and their food systems are organized to take care of the needs of the dead, the living and the unborn (Millar, 2018). Figure 1 shows Kasena Homeland in the two countries.

Study design

This descriptive qualitative study used scientific and indigenous methodologies to purposively sample and interview key informants, focus groups and case studies. Altogether, 28 key informants, 13 focus groups and three (3) Case Studies were carried out. Storytelling, direct observation, analysis of proverbs and wise sayings were also used to collect data. These methods were necessary because some ideas are better expressed in a story, a

metaphor, a picture or poem or in some such symbolic form, rather than in a rational argument or discourse. According to Millar (2018) “*cultural identity, spiritual connections and values are often expressed in this indirect way*”. Table 1 is a matrix of data collection methods and tools, focus of enquiry and, participants involved.

The study design prioritized communities where Kasem/Gourounsi is the main language of communication. The communities also needed to have indigenous knowledge holders, active civil society organizations, local and or international non-governmental organizations, as well as state Agricultural Extension Agents. Focus Group discussants included Clan/Lineage Heads, Traditional Leaders, Thought/Opinion Leaders (women and men), Soothsayers/Diviners/Seers, Priests /Priestesses, Rain guardians, Tigatiina (land overlords), Earth Priests, Farmer Associations, Community Networks, and Farmers.

Data collection and analysis

Data collection and analysis went on simultaneously in accordance with the methodological framework

Table 1: Matrix of data collection methods and tools, focus of enquiry, and participants

PARTICIPANTS	FOCUS OF ENQUIRY	METHOD	TOOLS
Focus Group Discussion	Community involvement in food security policy formulation, implementation, assessment and, effects/impact, food choice		
- Female only - Male only - Mixed (female and male)	Peculiar challenges and opportunities in food security interventions, recipes, food preparation, nutrition and food management, food choice	Focus Group Discussion, Observation, Storytelling, Proverbs	FGD Guide, Voice Recorder Digital Camera
Key Informant Interview	Perception and experiences of food security policy and food systems		
- Farmers - Lineage/Clan heads - Traditional Leaders	Personal involvement in food security policy formulation, implementation, assessment and effects/impact on sustainable food systems	Key Informant Interview, Observation, Storytelling, Proverbs	Key Informant Interview Guide Voice Recorder Digital Camera
Case Studies	Personal experiences of effects/impact of food security policy on food systems, socio-economic and cultural life, food choice		
<i>Food Security Activist</i>	Role of food security policy on farmer incomes, food choice and sustainable food systems	Case Study, Observation, Story telling	Case Study Guide Voice Recorder Digital Camera
<i>Earth Priest Soothsayer</i>	Role of indigenous institutions in agriculture and sustainable food systems	Case Study, Observation, Story telling	Case Study Guide Voice Recorder Digital Camera

developed for the study. Besides, as a constructivist approach, indigenous methodologies recognize that knowledge comes in multiple versions, which means knowledge is pluriversal rather than being a universal construct (Yazan, 2015). All conversations were audio recorded, transcribed and translated into English. The transcripts were then manually logged and coded along identified threads and themes in accordance with the methodological framework. Microsoft Excel Processor was used to enter the data from the coded transcripts, which were then analyzed in Excel spreadsheets and tables and charts generated to provide quantitative information that complemented the qualitative descriptive analyses.

RESULTS AND DISCUSSION

Most common Gourounsi foods

Among the Gourounsi, food is treated with the highest respect as captured in the following wise saying: *“wudiu ye pɛ mo”* (food is a chief). Thus, the attitude of the Gourounsi towards food is that of reverence and consideration. Millets and sorghum dominate Gourounsi foods:

Millet is our chief crop; it has no co-equal; millet-based food is nutritious and healthy - male focus group discussant, Paga, Kasena-Nankana West District Ghana. We should start eating millet flour in the afternoon, then in the evening we eat millet ‘tuo zaafi’ (TZ) with soup prepared with alkaline and dawadawa¹, and because I

am a chief, they would add a piece of smoked guinea fowl meat (laughs) - male key informant, Commune de Tiébélé, Burkina Faso.

Tuo zaafi (TZ) is a Hausa word used to describe a starch-based and pasty meal made from millets or sorghum. Millet is not only popular among the Gourounsi but it is also one of the super foods in northern Ghana, known for its high nutritive value, a finding that has been corroborated (Abdulai, 2016; Awindor, 2020). Millet porridge, also known as *Hausa Koko* in Ghana, is listed among the seven Ghanaian foods recommended for consumption to maintain weight and stay healthy during the period of COVID-19 (Awindor, 2020). This empirical evidence suggests that millets are nutrient-dense and may be good for building the human immune system against microbial attacks such as COVID-19. This finding is not dissimilar to that of an earlier study that found that millet was the primary food source for the poorest people unable to afford expensive food products containing antioxidants (Liang and Liang, 2019).

Drivers of Gourounsi Food Choice and COVID-19

Health and nutrition

Nutrition is a key driver of food choice behaviour among Gourounsi in both Burkina Faso and Ghana. When asked whether “foods eaten in the past and foods eaten nowadays which would you say are more nutritious?” an

food condiment with reported nutritional and medicinal properties popular in the entire savannah region of West and Central Africa.

¹Dawadawa is a fermented African locust beans (*Parkia biglobosa*), which is used as an important

Table 2: Participants' comparison of past and present foods in terms of nutrition.

Between foods eaten in the past and foods eaten now, which meals would you say are more nutritious?	BURKINA FASO						GHANA					
	Pô		Tiébélé		TT	%	KNW		NM		TT	%
	KII	FGD	KII	FGD			KII	FGD	KII	FGD		
Foods eaten in the past	2	2	3	2	9	60	9	6	1	2	18	78.4
Foods eaten nowadays	0	0	0	0	0	0	1	0	1	0	2	8.7
Don't know	4	0	2	0	6	40	2	0	1	0	3	13
Total	6	2	5	2	15	100	12	6	3	2	23	100

Table 3: Participants' comparison of past and present foods in terms of appearance.

Between foods eaten in the past and meals eaten now, which foods would you say have a nicer appearance?	BURKINA FASO						GHANA					
	Pô		Tiébélé		TT	%	KNW		NM		TT	%
	KII	FGD	KII	FGD			KII	FGD	KII	FGD		
Foods eaten in the past	1	0	1	0	2	13.3	4	0	1	1	6	26
Foods eaten nowadays	1	2	3	2	8	53.3	5	6	1	1	13	56.5
Don't know	4	0	1	0	5	33.3	3	0	1	0	4	17.4
Total	6	2	5	2	15	100	12	6	3	2	23	100

average of 69.2% of participants (60% in Burkina Faso and 78.4% in Ghana) said meals eaten in the past were more nutritious than meals eaten nowadays as shown in (Table 2). More than a quarter (26.5%) said they were not sure, out of which 40% were from Burkina Faso and 13% from Ghana. Whereas 8.7% of participants from Ghana said meals eaten nowadays were more nutritious than meals eaten in the past, no participant from Burkina Faso shared that view.

Thus, in terms of perceived nutritive value, meals of the past outperform their present-day counterparts. Meals of the past were basically the traditional whole grains such as millets and sorghum whereas meals of today consist of nutrient low maize and other foods loaded with saturated fats, sugars and oils, a view that aligns with that of Awuku (2019). Gourounsi in Burkina Faso are more attached to their indigenous foods than Gourounsi in Ghana. A study participant makes an eccentric distinction between traditional and modern cuisine:

I love my mother's food more than my wife's - male focus group discussant, Kayoro, Kasena-Nankana West District, Ghana.

Gourounsi traditional foods are associated with health and vitality as compared to modern foods:

When you saw a Kasena young man in the past you knew that yes, this is a young man – he was well built, healthy and strong. But now because of the kinds of foods we eat, you would see a person who had the potential to grow big, healthy and strong but he cannot (emphasis added) - male key informant, Chiana, Kasena-

Nankana West District, Ghana. In the past we did not have Maggi. It was 'dawadawa' spice that was used to prepare meals. So even if you ate a little of the food, it worked well for your body. There was never enough food but they could prepare soup with baobab seeds and when you ate it you were strong, healthy and did not fall sick easily -male focus group discussant, Chiana, Kasena-Nankana West District, Ghana. Now we eat Maggi. The white Maggi is not good – it is disease- male key informant, Commune de Tiébélé, Burkina Faso. I think the foods we eat nowadays are the cause of the upsurge in obesity and non-communicable diseases. We eat too much Maggi, oil, and other spices! – 19-year old male key informant, Manyoro, Navrongo Municipality, Ghana.

Good nutrition indeed is the foundation of health (Good Nutrition and COVID-19, 2020), and with more and more households in West Africa opting for local cereals such as millet for dinner instead of rice (Eloy, 2019), food choices may be shifting in favour of healthier foods that help build immunity against COVID-19. However, the case against the Maggi seasoning product is so strong both in Ghana and Burkina that it needs to be further investigated.

Appearance and taste

Aesthetics or appearance, and taste have become important drivers of food choice among the Gourounsi. As (Table 3) indicates, opinion was split between the appearance of foods eaten in the past and foods eaten nowadays.

On the average, over half (54.9%) of study participants (53.3% in Burkina Faso and 56.5% in Ghana), said foods eaten nowadays looked nicer as compared to 19.65% who said foods eaten in the past were nicer in appearance. Averagely, more than 25% of participants (33.3% in Burkina Faso and 17.4% in Ghana), were not sure. As a result of the importance of aesthetics as a strong driver of food choice behaviour, Gourounsi women today have a wider range of ingredients to colour their food:

In our time they prepared soup with alkaline, dawadawa and dry baobab leaves but today if you call this woman right now to prepare food, she could take up to 20 different ingredients. If she chooses, she can cook the soup to be black, red or even white - male focus group discussant, Tambolo, Commune Urbaine de Pô, Burkina Faso.

But appearance, like taste, can be deceptive:

When you cook rice with stews and tomatoes and all that, it makes the food taste good but it is not good for the body. When you use raw groundnuts to prepare food it is more nutritious than when you fry the groundnuts and remove the cortex to prepare food during festive occasions - male focus group discussant, Kayoro, Kasena-Nankana West District, Ghana.

Changing tastes and preferences are driving food choice behaviours across West Africa.

Food for special people/occasions

The first meal for someone who suddenly falls ill is millet flour drink. Also, a sick person or someone is convalescing is given porridge prepared with baobab powder with tamarind to whip up his/her appetite...The sick or convalescing could also be given slimy soup rich with ingredients such as keta schoolboys (herrings), dawadawa and smoked guinea fowl meat- male focus group discussant, Kayoro, Kasena-Nankana West District, Ghana.

When a woman was pregnant, she did not eat cold TZ because the cold TZ eats up the placenta. When I was younger, I saw my grandmother prepare soup with alkaline and dawadawa (chasega doa) for pregnant women to eat everyday as their pregnancy comes to term - male focus group discussant, Kayoro, Kasena-Nankana West District, Ghana.

Foods we eat during solemn occasions [Ancestral sacrifices] are suited more for the body than those we eat during festive occasions. When you use raw groundnuts to prepare food (solemn occasions) it is more nutritious than when you fry the groundnuts and remove the back

to prepare food during festive occasions- male focus group discussant, Kayoro, Kasena-Nankana West District, Ghana.

This finding is similar to that of Chakona and Shackleton (2019) on food choice for pregnant women in IsiXhosa culture. Thus, whereas aesthetics (appearance of food), and for festive occasions may compromise the health of the individual, foods for solemn occasions, pregnant women, and for the sick and convalescing, promote health and potentially have immune-boosting qualities.

“Food that has soul”

“Food that has soul” is the food that has all the nutrients to nourish the body. When you eat food that has soul you glow; when you eat food that has no soul, you wither away - A. Pwagea, personal communication, Jan 1, 2019. We do not see the soul but the food that nourishes your body is what we call the “soul”. It’s like the soul of a human being - you don’t see it. When I eat food that has soul and I wake up the following morning I know how I feel - I feel good... Millet has the highest soul... Among us Kasena, when you drink millet flour water it has soul more than rice- male key informant, Chiana, Kasena-Nankana West District, Ghana. Millet has soul; maize has no soul - male key informant, Chiana, Kasena-Nankana West District, Ghana.

“Food that has soul” is the underlying driver of Gourounsi food choice. Gourounsi foods that have soul include millets, sorghum, beans, bambara beans, groundnuts, neri, pumpkin, baobab seed, sweet potatoes, small potatoes (Frafra potatoes), dawadawa spice and powder, and all recipes made from them. Perhaps as a result of its “soul” the millet-based meal, *Tuo-zaafi*, has been described as Northern Ghana’s most popular food export (Abdulai, 2016).

“Food that has soul” looks nice, smells and tastes good, makes people healthy and strong, and prolongs life. Besides, food that has soul is the Ancestors’ favourite because of its importance in the performance of traditional sacrifices. However, Gourounsi farming systems have changed to the extent that some indigenous nutritious foods - that have soul - are threatened with extinction:

There is no neri (pumpkin) in Tangassikou anymore. It’s gone extinct. It’s nourishing and it tastes so good; it’s tastier than all the ingredients - male focus group discussant, Tangassikou, Commune de Tiébélé, Burkina Faso.

The local rice, the reddish rice, can you find it now? That is part of the local varieties we used to grow and the scientists say it is the most nutritious rice you can find.

In the health sector they recommend to people to eat that kind of rice. But where do you find it? It was there but not anymore - male key informant, Paga, Kasena-Nankana West District, Ghana.

Foods that have soul have the highest potential for boosting the human immune system against microbial attacks such as COVID-19. The threat of disappearance of some of these indigenous Gourounsi crops (e.g., millet, neri, brown rice) therefore represents a disturbing dietary transition because it implies that healthy Gourounsi foods that could help boost human immunity are going off the menu.

Limitations of the study

This study suffers from a number of limitations. First, the study did not design quantitative tools for data collection though the data was analyzed to generate quantitative information. Secondly, this study did not seek to examine the authenticity or otherwise of Gourounsi beliefs, values, and food choice behaviours, but merely to describe them from observation and to document the personal experiences of participants. Thirdly, the research was conducted in French, English, and Kasem. The dialectical variations of Kasem are manageable, but translating from African indigenous languages into European languages and vice versa can be problematic (Millar, 2004). In translating concepts from one language into another, it is likely, though unintended, that the surface, figurative and philosophical meanings of words and concepts were misrepresented in the process, possibly leading to a misinterpretation of the data and inappropriate conclusions. However, to the best of the researchers' ability, these limitations were managed in such a way that their impact on the processes and procedures for data collection, data analysis, discussions and conclusions, and study recommendations was reduced to a bare minimum, if not completely eliminated.

Conclusions and Recommendations

The Gourounsi, both in Ghana and Burkina Faso, treat food with the highest respect, as reflected in an adage in their language that *"wudiu ye pe mo"*, to wit, food is a chief. The most common Gourounsi foods include millets, sorghum, beans, bambara beans, groundnuts, neri (pumpkin seeds), baobab seed oil and powder, sweet potatoes, small potatoes (Frafra potatoes), brown rice, maize, dawadawa powder and spice made from dawadawa seeds. Millets and sorghum, and all derivatives from them, dominate Gourounsi foods. Health, nutrition, appearance, taste, occasion (solemn and festive), pregnancy, sickness, are key drivers of food choice behaviours among the Gourounsi in Ghana and

Burkina Faso. "Food that has soul" is however, the underlying driver of Gourounsi food choice. Among the Gourounsi, "food that has soul" looks nice, smells and tastes good, makes people healthy and strong, and prolongs life. Besides, "food that has soul" is the Ancestors' favourite because of its importance in the performance of traditional rites and rituals. Millet has the highest "soul" among Gourounsi foods. The consumption of millet triggers food production systems that are socially, economically, ecologically and ethically balanced. Gourounsi food choice behaviours therefore promote human and environmental health. Gourounsi food choices have implications for fighting disease and staving off microbial attacks such as the COVID-19 global pandemic. At this era of COVID-19, "foods that have soul" could potentially boost the human immune system against microbial attacks. It is therefore highly recommended that local, national and subregional efforts to promote healthy food choice behaviours should focus on the consumption of "foods that have soul" while discouraging the consumption of foods solely on the basis of taste, appearance and fashion. The National COVID-19 response in Ghana and Burkina Faso should therefore focus on the consumption of immune-boosting indigenous foods - especially nutrient-dense millet- and sorghum-based recipes. Specifically, the School Feeding Programme in Ghana should prioritize serving school children with tasty, healthy and immune-boosting indigenous Ghanaian foods.

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