

# The role of anthropological methods in the Ebola outbreak in Guinea: Bridging cultural and medical perspectives for effective response

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**Abstract.** This study delves into the role of anthropological methods in comprehending the dynamics of the Ebola outbreak in Guinea. The backdrop lies in the need to bridge gaps between biomedical research and socio-cultural insights in disease management. The research employs qualitative methods to explore local beliefs, practices, and perceptions. This study examines community engagement, healthcare access, and response effectiveness through participant observation, interviews, and document analysis. Results emphasize the crucial contribution of anthropologists in fostering trust, promoting culturally sensitive interventions, and enhancing collaboration between communities and healthcare entities. The study underscores the significance of interdisciplinary approaches in addressing complex infectious disease outbreaks.

**Keywords:** anthropological methods, Ebola outbreak, Guinea, community engagement, socio-cultural dynamics.

## 1. Introduction

In the realm of infectious disease outbreaks, such as the Ebola virus in Guinea, the integration of anthropological methods remains underexplored. Despite significant advances in medical research, a critical need exists to comprehend the socio-cultural dimensions that shape disease transmission and response. This study aims to investigate the role of anthropological methods in understanding the dynamics of the Ebola outbreak in Guinea. By delving into local beliefs, practices, and perceptions surrounding the disease, the research seeks to address questions regarding community engagement, healthcare access, and the effectiveness of response strategies. Employing qualitative approaches, this study provides valuable insights into the complex interplay between culture, health systems, and epidemic control. Ultimately, the significance of this research lies in its potential to inform more culturally-sensitive and contextually appropriate interventions, bridging the gap between biomedical and social perspectives in combating infectious disease outbreaks.

## 2. Introduction to EVD

Ebola virus disease (EVD), a severe and often fatal illness caused by the Ebola virus, targets the immune system, resulting in internal bleeding and organ failure. Symptoms, including fever, headache, weakness, vomiting, diarrhea, and bleeding, manifest 2 to 21 days post-exposure [1]. The Zaire Ebola virus (ZEBOV) exhibits a 90% fatality rate [2].

EVD's causes lie in environmental and social factors such as deforestation, habitat loss, and weak medical infrastructure. Human-animal contact and cultural practices like direct-contact burials facilitate transmission. The lack of effective treatments and vaccines compounds the issue [3]. Transmission occurs through infected animals or bodily fluids, with secondary transmission driving outbreaks [4].

Ebola outbreaks started in 1976, escalating during the West African epidemic (2014-2016), primarily impacting Guinea, Sierra Leone, and Liberia. Mortality rates reached 90%, yielding over 28,000 cases and 11,000 deaths [5]. Beyond health, panic, disrupted trade, and high healthcare worker vulnerability ensued. The Guinea outbreak began in December 2013, with an infected toddler. By early 2014, Conakry, Guinea's capital, was affected. Weak surveillance and public health infrastructure complicated control efforts [6]. Although Guinea initially declared freedom from the outbreak in 2015, new cases arose in 2016, totaling over 28,600 cases and 11,325 fatalities.

### **3. Prevention measures against EVD**

Guinea's proactive stance against Ebola encompasses a range of measures to curtail its spread and mitigate its societal impact. Strategies encompass detection and tracking, targeted treatment, hygiene regulation, and safe burials. To prevent transmission, Guinea intensively identifies and isolates infected individuals to prevent transmission, tracking their contacts through robust surveillance systems, mobile laboratories, and tracing teams. In the initial stages of the West African outbreak, diagnosis relied on complex methods like reverse transcription PCR (RT-PCR), primarily conducted in controlled settings. With expanded capacity, Guinea's national laboratories adopted advanced tools such as the GeneXpert platform and rapid diagnostic tests based on lateral flow analysis [7]. The adoption of SMS for daily zero reporting further enhanced surveillance efforts [8].

Promoting preventative practices, Guinea's health organizations issued comprehensive hygiene guidelines, underscoring the significance of hand hygiene, the avoidance of bodily fluids, and refraining from unsafe practices like consuming animal products [9]. Swift medical attention upon noticing Ebola symptoms is stressed, offering varied treatments including rehydration, vitamin therapy, and antibiotic prophylaxis at Guinean Medical Centers [10].

Collaborative international initiatives, involving organizations like Médecins Sans Frontières (MSF) and the International Federation of Guinean Red Cross and Red Crescent Societies, enhance the successful implementation of interventions. Spearheading dignified burials, the International Federation ensured safe practices with 2,080 burials conducted in collaboration with the Guinean Red Cross and International Federation teams. The provision of essential supplies like soap and chlorine gas to Ebola-affected communities further contributed to containment efforts [11].

In summary, Guinea's multifaceted approach, integrating surveillance, hygiene promotion, prompt medical care, and collaborative international support, underscores the importance of holistic strategies in combating Ebola outbreaks.

### **4. Limitations and recommendations based on anthropology**

With the cooperation of many parties, the outbreak in Guinea did not get out of hand under conditions of scarce resources and a paralyzed health system, but there are still some weaknesses in these strategies and approaches. The first is mistrust of public health measures. The government and aid organizations have been met with suspicion and hostility from the local population, who see them as outsiders trying to exploit or harm them. This mistrust is rooted in the country's history of colonization and exploitation. Mistrust and suspicion of the government and aid organizations have further led to violence against healthcare workers, including attacks on treatment centers and medical staff. One famous example was the killing of eight members of a high-level delegation of doctors, politicians, and journalists by locals [12].

These violent incidents not only hindered efforts to control the outbreak, but also led to the further spread of the virus as infected people fled the area to avoid being sent to treatment centers. The second is the lack of effectiveness in implementing health guidance from the Department of Health. A study showed that the local population in Guinea has serious misconceptions about Ebola. Many people do

not recognize the existence of Ebola, and nearly half of those surveyed incorrectly believed that bathing in salt water could prevent it [13].

Among these difficulties in epidemic prevention, the low public awareness of epidemic prevention is one of the most important reasons. The role of the anthropologist comes into play at this time. Anthropological methods can be used to examine the relationship between resistance to Ebola practices in Guinea and political and cultural factors. These methods often involve conducting ethnographic studies, which involve long-term engagement and observation in affected communities. Through ethnographic studies, anthropologists can gain insight into the social and cultural context of the Ebola outbreak. This may involve examining local beliefs, practices, and attitudes toward health and disease, as well as the political and economic structures that influence access to health care and resources. Anthropologists can also use qualitative research methods such as in-depth interviews and focus groups to explore the reasons behind resistance to Ebola practices. This can help identify the cultural and political factors that lead to distrust of healthcare providers and resistance to public health measures [14]. Through their research, anthropologists can provide insights and recommendations for improving the Ebola response efforts by providing insights and recommendations. For example, they may suggest that public health campaigns be designed to be more culturally appropriate and sensitive to local beliefs and practices.

Yet this anthropological approach has perhaps been criticized for its lack of practice. Without the application of theory to community interventions, anthropologists cannot make their full impact. The good thing is that they are gradually working in Guinea as health promoters, researchers and NGO advocates to apply theory to community practice. Anthropologists tried to build trust between health care workers and affected communities, for example, by involving community leaders in response efforts and by communicating clearly and transparently about public health interventions. These issues are the most important reasons why health interventions in Guinea are difficult to implement.

One example is a community mobilization project in Guinea initiated by Amref Health Africa as part of the response to the Ebola outbreak. The project aims to engage community-based organizations (CBOs), such as women's groups, youth associations, and community leaders, in response activities in their communities to eliminate community reluctance to take control measures. In addition, the project improves contact tracing and safe burial, and increases utilization of health services. The involvement of CBOs as participants in health activities is a new approach advocated by anthropologists. Amref sends rural radio journalists to communities to organize roundtables with representatives of CBOs and members, which are broadcast on rural radio stations and shared widely with health authorities and other humanitarian actors. Amref and community members ensured a good relationship, with mutual trust and understanding, ultimately contributing to the successful control of Ebola [15].

In 2017, a group of researchers led by Ana Maria Henao-Restrepo published in the medical journal *The Lancet* the results of a clinical trial conducted during the 2014-2016 Ebola epidemic in Guinea. The trial involved the use of an experimental vaccine called rVSV-ZEBOV to prevent the spread of Ebola. The vaccine was administered to a group of people who had been in close contact with a confirmed Ebola patient, as well as to healthcare workers. The trial found the vaccine to be highly effective in preventing Ebola virus disease. Among those vaccinated immediately after contact with an Ebola patient, no cases of Ebola were reported 10 days or more after vaccination [16]. Although the vaccine was not approved for general use until after the end of the outbreak, there is no doubt that it played a role in the second outbreak in Guinea in 2021. Examining these issues through the lens of medical anthropology, the strategy emphasizes the importance of a community-based approach to disease control and the value of mapping social networks in understanding the spread of infectious diseases. This approach by anthropologists drove the success of the 2021 vaccination campaign in Guinea.

In summary, the 2014-2016 Ebola outbreak in West Africa had a profound impact on Guinea. Despite the country's effective health and sanitation measures, the outbreak highlighted the need for a more comprehensive and culturally sensitive approach to public health challenges. The contribution of anthropologists is essential to understanding the cultural and social factors that influence the spread of the virus and developing strategies to prevent its spread while respecting local customs. Through the

experience gained during this time, Guinea was able to prepare for future outbreaks and respond more effectively to the Ebola outbreak in 2021. The collaborative efforts of medical experts, public health specialists and anthropologists played a key role in developing more efficient and effective public health measures.

## 5. Conclusion

This study centers on the integration of anthropological methods to comprehend the dynamics of the Ebola outbreak in Guinea, bridging gaps between biomedical research and socio-cultural insights for effective disease management. It can be concluded that the Ebola virus disease (EVD), caused by the Ebola virus, poses severe physiological damage, with symptoms manifesting 2 to 21 days post-exposure, including fever, bleeding, and organ failure. Environmental factors like deforestation and habitat destruction, coupled with cultural practices and inadequate medical infrastructure, contribute to EVD transmission. Anthropological methods shed light on the socio-cultural complexities underlying the outbreak, emphasizing the importance of community engagement, trust-building, and culturally sensitive interventions. Collaborative efforts between healthcare professionals, anthropologists, and communities play a pivotal role in devising effective public health strategies. The success of the 2014-2016 vaccination campaigns in Guinea demonstrates the significance of interdisciplinary approaches, emphasizing community-based interventions and insights from anthropological research.

While this study emphasizes the importance of anthropological approaches, it acknowledges that challenges remain. Future research could delve deeper into understanding how cultural practices impact health behaviors during outbreaks. Additionally, exploring the interplay between historical contexts, mistrust, and resistance to interventions could provide further insights. Continued collaboration between medical experts and anthropologists is crucial for devising comprehensive strategies that address the multi-dimensional challenges posed by infectious disease outbreaks.

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