

EXPLORING SANITATION CHALLENGES AMONG INDIGENOUS HUNTER-GATHERERS, FARMERS, AND MERCHANTS IN CAMEROON

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ABSTRACT Ensuring proper sanitation remains a critical challenge in rural regions, particularly for Indigenous communities with unique subsistence patterns. In the African rainforests of southeastern Cameroon, this study examined sanitation practices and facilities among hunter-gatherers (Baka), farmers, and merchants. Data were collected through interviews and observations, revealing that Baka hunter-gatherers and farmers often relied on unimproved toilets or designated open defecation areas, while merchants had improved facilities. Even in the absence of formal toilets, the Baka and farming communities maintained fixed defecation sites within settlements. The research also noted aspects of menstrual management within the broader context of health and hygiene. Among Baka women and girls, physical activities differed significantly during menstruation, reflecting a culturally embedded understanding of menstruation's implications on daily life, including hunting and fertility. Unlike many contexts where menstruation is concealed, the Baka openly acknowledged it, integrating this knowledge into their communal practices. These findings highlight the complexity of sanitation challenges and the importance of considering culturally informed behaviors, including menstrual practices. Understanding these dynamics can guide context-sensitive interventions and policies that improve sanitation, health, and dignity for Indigenous communities and other underserved groups.

KEYWORDS: Baka hunter-gatherers; Cameroon; Indigenous; Menstruation; Sanitation; Toilets.

INTRODUCTION

Sanitation is one of the most important public health challenges of our time, yet it is often inaccessible in hard-to-reach areas (WHO and UNICEF 2019). This is compounded in Low and Middle-Income Countries (LMICs), where inadequate support affects mainly women's menstrual health, dignity, and potential. Poor sanitation can significantly impact women's health, making it a crucial aspect of well-being (World Health Organization 1948). Addressing sanitary needs is particularly urgent in areas with limited sanitation infrastructure, as over 900 million people worldwide still lack access to adequate facilities (WHO and UNICEF 2012). This gap is especially apparent in Sub-Saharan Africa (SSA), where sanitation access remains challenging in both urban and rural areas, and issues around



menstrual hygiene are more acute for Indigenous communities (Juju et al. 2020).

Menstruation, although a private matter, is a global health challenge that has significant societal implications and affects menstruators across communities, cultures, and regions. Addressing needs in diverse settings—especially among under-represented and remote populations—is essential for global health equity. Despite representing over a quarter of the world's population, many women and girls manage their menstrual needs with insufficient sanitary resources and in secrecy. Menstruation remains shrouded in myths and misconceptions that often lead to stigma and isolation for women (Bhagwat & Jijina 2020). Meeting their sanitary and menstrual hygiene needs remains a complex global challenge that directly impacts their well-being and potential.

Indigenous populations provide invaluable insights into diverse health beliefs and practices shaped by unique histories, cultural norms, and environmental contexts. Globally, there are numerous Indigenous groups, each with distinct languages, traditions, and health perspectives. However, Indigenous communities often face limited visibility, inaccessibility, and insufficient research attention, causing them to be overlooked in policymaking and resulting in persistent health disparities. For example, Australian research revealed that Indigenous Australians born between 2015 and 2017 have a life expectancy approximately eight years shorter than their non-Indigenous counterparts, highlighting a persistent health gap (Australian Institute of Health and Welfare 2023). Such gaps highlight the need for context-specific studies that illuminate how Indigenous communities navigate essential aspects of well-being, including sanitation.

The Baka hunter-gatherers of Cameroon exemplify both the complexity of such contexts and the rich sociocultural diversity of Indigenous communities. Predominantly residing in the dense rainforests of Central Africa, the Baka have maintained a traditional lifestyle centered on hunting, gathering, and small-scale farming. As a highly communal society, they rely on close-knit social networks, shared responsibilities, and collective well-being, reinforcing their resilience. Their nomadic lifestyle, which involves seasonal migrations between village settlements, forest camps, and farmland, is deeply connected to forest resources as their primary food source. Despite environmental limitations, the Baka emphasize consuming fresh, locally-sourced foods, fostering strong family and community bonds (Yamauchi et al. 2000; FAO and Alliance of Bioversity International and CIAT 2021). Their unique systems, beliefs, and practices reflect a culturally rich society that continues to sustain and preserve their traditional way of life. Access to sanitation facilities within this nomadic existence can be limited, and while Menstrual Hygiene Management (MHM) may not be the central focus of their sanitation practices, understanding it within their broader lived reality can reveal important cultural dimensions.

Despite substantial global health research, investigations into the practices and beliefs of Indigenous groups—especially those affected by colonization—remain limited, and studies focusing on health and sanitation experiences among hunter-gatherer communities, including Indigenous MHM, are even scarcer (Ciccio et al. 2023). Health determinants, including social, cultural, physiological, gender, and ethnicity factors, shape health outcomes and vulnerabilities within Indigenous com-

munities, with particular impacts on women's well-being. For the Baka of Cameroon, these determinants and their unique living conditions may pose significant challenges for women's health. Notably, unmet MHM needs have attracted growing attention in LMICs (Krusz et al. 2019), pointing to the importance of including gendered and culturally specific perspectives when examining sanitation.

By exploring toilet availability, condition, and use among the Baka hunter-gatherers, farmers, and merchants living in and around Gribé Village in southeastern Cameroon, this case study offers nuanced insights into how communities adapt to and negotiate their sanitation challenges, including how women and girls manage their menstruation. Ultimately, this study contributes to advancing the Sustainable Development Goals (SDGs) related to sanitation and hygiene, underscoring the importance of understanding local circumstances and cultural sensitivities in shaping effective health solutions.

METHODOLOGY

Participants and methods

This study employed an exploratory qualitative design to investigate sanitation among distinct subsistence groups. Conducted between August and September 2018, the study focused on the Baka hunter-gatherers, farmers, and merchants residing in and around Gribé Village in the rainforests of southeastern Cameroon. This location was selected due to its cultural and ecological significance and the diversity of the subsistence groups. In addition, our research team worked with local Non-governmental organizations (NGOs) that had a relationship with the communities.

Participants were recruited using snowball sampling, a method particularly suited for sensitive topics like menstruation in Indigenous communities. From an estimated population of approximately 500 people in the area, 19 individuals were interviewed: 10 hunter-gatherers (eight women), six farmers (four women), and three merchants (zero women). Inclusion criteria for women required participants to have had their first menstruation (menarche). Data collection involved semi-structured interviews and direct observations. Interviews explored toilet location, accessibility, shared usage among households, and sanitary practices, while observations focused on the condition and construction materials of toilet facilities. Menstruation-related data were collected specifically from Baka hunter-gatherer women to understand their unique experiences. This qualitative approach allowed for a nuanced understanding of MHM and sanitation and MHM practices within these underrepresented communities.

RESULTS AND DISCUSSION

I. Presence or absence of toilet facilities

Based on the classification of toilets as per the WHO-UNICEF Joint Monitoring Program Sanitation Ladder (WHO and UNICEF 2017), the Baka hunter-gatherers lacked access to basic sanitation facilities regardless of their settlement type, whether in forest camps or semi-sedentary village settlements. They either practiced open defecation or used unimproved toilets, which were constructed from holes with surrounding grass or plants, or from solid walls and floors that did not meet basic sanitation standards. Similarly, the farmers also lacked basic sanitation facilities in both forest camps and nearby villages (Figure 1).

In contrast, the merchants, who relied on trade with other groups or villages, had access to improved toilet facilities (Figure 2). They shared a communal improved toilet along the main road, and each merchant household also had its own improved toilet with tiled floors and a covered toilet hole, making these facilities more hygienic and structurally sound than those used by the other two groups. The presence and quality of toilet facilities thus varied significantly according to each group's lifestyle and environment. However, all three groups demonstrated an understanding of designated defecation areas even in the absence of formal toilets.

In hunter-gatherer communities, the necessity and relevance of toilets were



Figure 1 Farmers' toilets (a little far away from the house and made of holes and plates)



Figure 2 Merchants' toilets (beside the house and made of solid wall and floor)

viewed differently due to their nomadic lifestyle, which involved seasonal movement and camping in the tropical rainforests. Many did not build permanent or designated toilets. However, the local government, and NGOs, through collaborative research efforts with the residents, worked to introduce sanitation improvements by constructing basic sanitation facilities for these communities. Nonetheless, promoting consistent toilet use and adherence to standard sanitation practices proved challenging (Hayashi et al. 2021).

II. Recognition of defecation space other than toilet facilities

During their stay in the forest camp, the hunter-gatherers freely defecated several steps away from their sleeping and eating space or upstream from the river where they drew water, and there seemed to be no set rules for defecation sites. However, when living in semi-sedentary settlements, they had a rough idea of the direction and range of their defecation sites along with some rules about where they could defecate. Farmers, like hunter-gatherers, did not seem to have rules about defecation sites when living in forest camps, but in villages, defecation sites were generally defined with a fixed place to defecate. This was more spatially restricted than for hunter-gatherers. A study conducted among the hunter-gatherer community on toilet perception revealed that more than half of the participants practiced open defecation despite mentioning the need for toilets. In addition,

issues with toilet structure, accessibility, privacy and hygiene were reported (Konishi et al. 2022). However, in our study, the participants did not mention the need for improved toilets or a wish to end open defecation.

III. Menstruation of Indigenous women

Baka women reported restrictions on their food, activities, and social interactions during menstruation, indicating a marked difference in their daily routines compared to non-menstruating times. Women who were typically active in cooking, washing, and gathering in the morning when not menstruating instead rested at home during menstruation, suggesting significantly reduced physical activity. According to Lewis (2008), if a man's wife was menstruating—referred to as “Ekila”—he was also required to abstain from hunting to avoid attracting carnivores or causing prey to escape due to the scent of blood, which was believed to affect the entire hunting party's success. However, menstruation did not prevent partners from engaging in sexual intercourse, as women were considered most fertile during this time. Both cases highlight the need for menstruators (both women and girls) to inform male relatives of their menstruation to ensure their safety and take advantage of the time frame for procreation purposes. In addition, stigma and shame were not stated as central to the Baka woman's menstrual experience. On the contrary, the act of menstruation offered an opening for exploration and learning by both male and female relatives (Lewis 2008). According to our findings, girls who had reached menarche mainly learned about menstruation from their mothers, and the younger girls seemed to recognize the existence of female menstruation by the age of 13 years old. The openness within family units and by extension, the community, on women and girls menstrual cycle showcases a unique cultural approach and appreciation of menstruation.

CONCLUSION

In the hunter-gatherer, farming, and merchant communities studied, access to toilet facilities varied by location and facility structure, though even in the absence of improved sanitation facilities, fixed spaces for defecation were observed. There were no notable differences in menstrual management practices among the Baka women; however, their level of physical activity was significantly reduced during menstruation compared to non-menstruating times. For instance, several women described resting more often at home instead of engaging in their usual tasks like gathering food or fetching water, citing discomfort and the community's understanding of menstruation as a time for reduced exertion. These qualitative insights offer a more nuanced picture of menstrual experiences and highlight the need for further research into the sociocultural factors influencing Baka women's health. To promote health effectively and reduce disparities, it is essential to broaden our understanding of health beyond Eurocentric models, recognizing and valuing Indigenous knowledge as distinct from modern practices. Future programs should consider the use of local languages and context-specific approaches that respect

Indigenous beliefs. Cultivating partnerships with Indigenous health organizations and developing outcome indicators that account for culture and ethnicity can help improve sanitary health for all.

RECOMMENDATIONS To address community sanitation issues, there is a need to view challenges through the lens of Indigenous communities by involving them in initiatives that focus on planning, development, and implementation. It must not be taken for granted that Indigenous sanitation and menstruation practices have both environmental and sociocultural origins. Policy changes and interventions must involve and incorporate Indigenous know-how, knowledge, expertise, and preferences to improve menstrual practices, experiences, and toilet use. Decentralization in sanitation is crucial, as it addresses the essential needs of local community members by improving services, introducing new ideas, and utilizing local materials and equipment. This approach allows the continuation and advancement of initiatives even after implementation. There is a need for more investment in Indigenous-led or appropriately co-designed research innovations to ensure these communities have access to accurate, culturally relevant information and menstrual products (Ciccia et al. 2023).

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