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Diagnosis of open defecation in Yamoussoukro District (Central Côte d'Ivoire)

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Abstract

The pathological landscape of Yamoussoukro district is dominated by environmental diseases (malaria, typhoid fever, respiratory infections). These diseases are linked to lack of sanitation and hygiene and open defecation. The objective of this study is to draw up an inventory of fixtures of sanitation in Yamoussoukro district and determine the reasons for the practice of open defecation and thus propose effective strategies to combat this practice.

Methodology used consists of direct observation in the field and a household survey. The sampling technique adopted is that of Shawartz, with a sample size of 373 households. Initially, an inventory of the sanitation situation in the study localities was drawn up, revealing a sanitation problem with 62,34 % of households lacking latrines in Kpangbassou, 82,22% in Aboukro, and 82,14% in Duokro.

Analysis of the reasons prompting communities to opt for open defecation (OD) highlights determining factors such as the absence of a law prohibiting it, cultural reasons, perceptions of populations, the low level of income and education of household heads. Although socio-economic factors play a predominant role in the adoption of this practice, it is essential to pay particular attention to the economic aspects. Following these results, solutions were proposed to OD. Suggested strategies include the CLTS / EcoSan approach, enhanced CLTS / EcoSan monitoring and community awareness raising.

Keywords: Sanitation; Open defecation; Yamoussoukro District; Côte d'Ivoire

1. Introduction

According to the findings of the Joint Monitoring Programme (JMP) survey in 2021 [1], more than 494 million people practiced open defecation. However, lack of sanitation or a precarious sanitation system can lead to the prevalence of water-borne diseases (direct and indirect) as well as epidemics.

In Côte d'Ivoire, despite efforts to improve sanitary conditions, the practice of open defecation persists in many regions of the country, particularly in rural areas. Indeed, according to the General Population and Housing Census (GPHC) in 2021 [2], 30.4% of the rural population practices open defecation. The persistence of this phenomenon would be linked to cultural and environmental referents. A study carried out in Yamoussoukro city showed that the pathological landscape is dominated by environmental diseases (malaria, typhoid fever, acute respiratory infections) with nearly

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70% of consultations [3]. These diseases are closely linked to lack of sanitation and open defecation, a phenomenon induced by the absence of latrines as well as poor hygiene practices and the use of contaminated water [4].

The district of Yamoussoukro is home to the political and administrative capital of Côte d'Ivoire. With its mix of urban and rural areas, its national and international visibility, as well as its possible development disparities make it a relevant subject of study for understanding and resolving the problem of open defecation.

In 2020, the Sanitation Directorate organized training for latrine construction and awareness-raising agents in rural areas. This was followed by donations of new latrines to vulnerable families with a view to arousing the interest of residents in the construction of latrines. However, approximately three years after this initiative, only 51% of the population has latrines, representing an increase of only 1%. The difficulty of appropriating the reflex of using latrines with a view to eliminating the practice of open defecation justifies the present study. The general objective of this work is to draw up an inventory of fixtures of sanitation in the Yamoussoukro district and determine the reasons for the practice of open defecation and thus propose effective strategies to combat this practice. Inventory of fixtures of sanitation.

2. Material and methods

2.1. Study area

Yamoussoukro district is located in the center of Côte d'Ivoire and covers an area of 3500 Km^2 (figure 1). The town of Yamoussoukro, capital of the district, is also the political and administrative capital of the country. It is approximately two hundred and forty-five (245) kilometers from Abidjan (economic capital) between latitudes 06° 34 and 07° 80 North and longitudes 04° 57 and 05° 26 West [5].

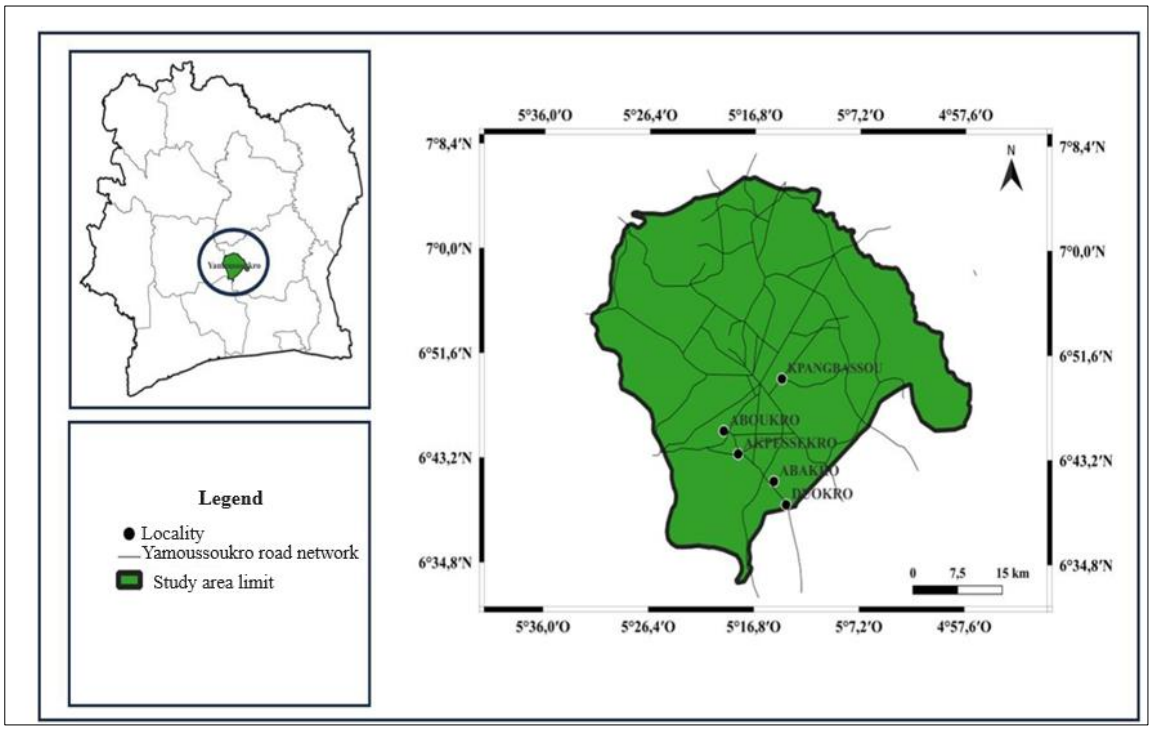

Figure 1 Location of study areas

2.2. Sampling procedure and survey

Five (5) villages in Yamoussoukro district (Kpangbassou, Aboukro, Akpessékro Abakro and Duokro) practicing open defecation were selected. The sampling technique adopted is that of Shawartz **[3]**, with a sample size of 373 households distributed across the localities (table 1). Data collection took place from May 17 to June 15, 2023 through semi-structured interviews. It consists of collecting the opinions of respondents (the head of household or his representative) on access to sanitation and hygiene. This questionnaire concerns, among other things, the ownership, type and maintenance of latrines, place of defecation, consequences of OD, hygiene education. Households were chosen randomly

by traveling through each village from the outside to the inside, covering the entire locality. Also, direct observation made it possible to identify behaviors, actions, interactions or events of interest without intervening or disrupting the observed situation. In this study, the following sociodemographic characteristics of the households surveyed were taken into account : number of members ; number of children less than 5 years old ; sex, age and level of education of the person interviewed ; main activity of the head of household.

Table 1 Number and distribution of households per village

Villages	Men	Women	Total	Households	Samples
Kpangbassou	571	555	1 126	223	32
Abakro	284	248	532	100	15
Duokro	2 095	1 879	3 974	661	113
Aboukro	776	509	1 285	344	36
Akpessekro	3 303	2 931	6 234	1 353	177
Total	7 029	6 122	13 151	2 681	373

Source : Regional Directorate of Statistics of Yamoussoukro (2023)

2.3. Data processing and analysis

Data processing consisted of data coding. The proportions of the various parameters were calculated to provide an accurate assessment study of the representation levels of specific parameters. IBM SPSS 2021 software allowed us to codify and analyze the data. This made it easier to cross-reference and sort the data entered. The results obtained were illustrated visually through the use of graphics such as histograms and pie charts using Excel 2019 software. Alongside, they were presented in tabular form to increase clarity and understanding.

3. Results

3.1. Inventory of fixtures of sanitation

The data from our survey show that the majority of households do not have latrines (50 to more than 80%) outside of Aboukro (14.67%) (figure 2). Latrine ownership is not influenced by the environmental factor.

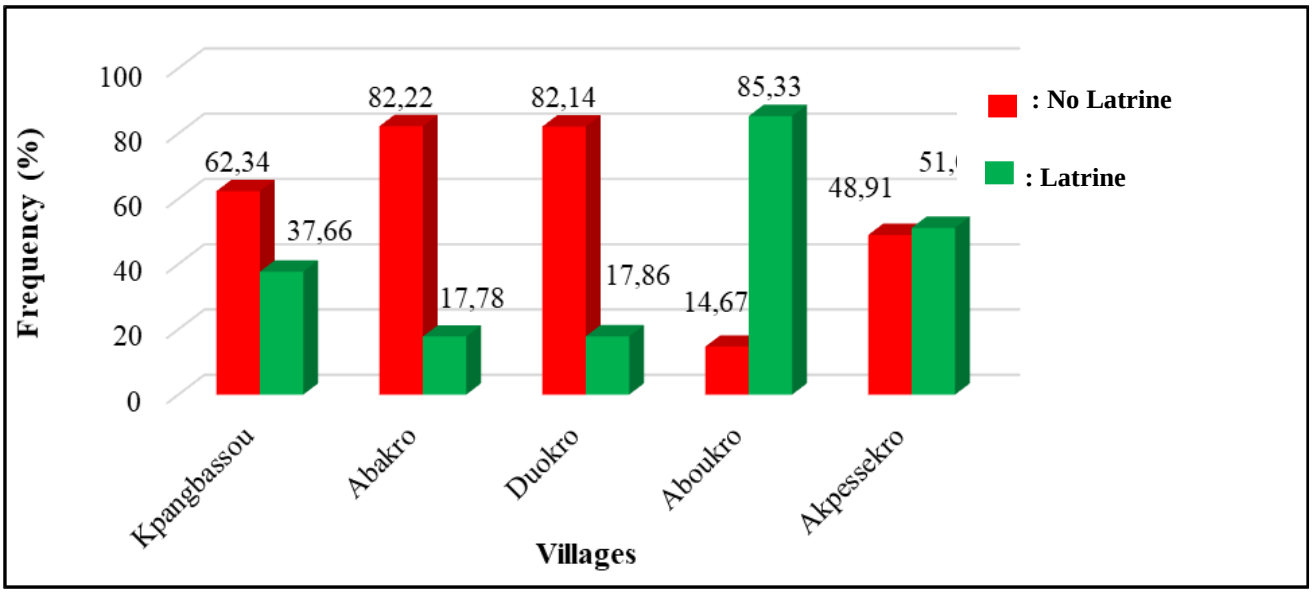

Figure 2 Latine inventories in study villages

The latrines found in these localities are most often unimproved. No village has more than 20% modern latrines. The survey reveals that most latrines are not hygienic. More than half of the latrines visited are in poor condition and emit

a very foul odor. We sometimes find remains of feces on the slabs. Only 23% of latrines are in good condition. Households without latrines defecate in the open (more than 88%).

3.2. Factors favoring the practice of open defecation (OD)

Level of education seems to influence latrine ownership. Indeed, among heads of household with a level of education (at least primary school), 77% have a latrine, while 23% do not. For uneducated household heads, 37% have a latrine, while 63% do not.

The main obstacle to latrine construction seems to be the financial factor (46% of households having attested to this). The lack of labor also appears to be a major difficulty in acquiring a latrine (35.90%). Lack of willpower is also a challenge (14%). Finally, other reasons such as land-related constraints are mentioned in the village of Kpangbassou (4.10%).

A no less significant segment of the population (37% of households) is not aware of the risks linked to contact with human excrement. More than 64% of households believe that open defecation poses no risk to the community. According to 87% of households, the latrine is of no hygienic and sanitary importance. Moreover, for them, its presence in a dealership involves disadvantages such as bad odors, diseases, unsanitary conditions (80%). According to popular beliefs, excreta is associated with illness, spells and curses. Therefore, one should not have them nearby. Also, more than half of households (53%) have never received education regarding hygiene rules. This indicates a potential need for awareness raising to improve hygiene practices.

The predominant reason justifying the choice of OD is cultural (76%) because according to them, this practice has always existed within their society.

3.3. Strategy to combat open defecation

3.3.1. CLTS / Ecosan approch

It is the combination of two approaches (CLTS and EcoSan). Indeed, CLTS is defined as Community-Led Total Sanitation. It makes it possible to achieve the End of Open Defecation (ODF) by arousing disgust and maintaining ODF. CLTS involves encouraging the community to analyze its own sanitation situation, defecation practices and their consequences, thereby sparking collective action to achieve ODF status. CLTS processes can either precede or occur simultaneously with actions such as : improving latrine design, adoption and improvement of hygiene practices, consistent waste management, wastewater disposal, conservation, protection and maintenance of drinking water sources and other environmental protection measures. CLTS begins with its launch which takes into consideration elements such as the community map and the demonstration of faecal contamination routes. Mapping involves drawing a simple map on the ground, identifying places of habitation, defecation areas, water points, etc., in an open area. The second step, illustrated by concrete examples of “poop-food or poop-water” contamination, aims to demonstrate to the community how excrement, exposed to the open air, can be transferred to the mouth.

EcoSan, for its part, is defined as ecological sanitation. It consists of the establishment of autonomous sanitation infrastructures, such as ecological latrines, “ Bidur ” (cans topped with funnels). The excreta thus produced is collected and used in agronomy as agricultural fertilizer. This approach avoids soiling and treats excreta as a resource rather than waste. It strongly participates in promotion while giving an agronomic value to excreta.

CLTS / EcoSan, an integrated approach, involves the elimination of open defecation and the establishment of ecological latrines to maintain ODF status. With this approach, the latrine ceases to be simply a place for disposing of disgusting waste and becomes a means of producing fertilizer. It particularly encourages populations to take ownership of these ecological latrines and guides them in the agricultural valorization of products from EcoSan.

3.3.2. Community awareness and hygiene promotion

It is based on Behavior Change Communication (BCC). This is a process that aims to convey a specific message to residents. It is characterized by a series of interventions targeted at stakeholders to promote beneficial behavioral changes among individuals in the form of raising community awareness of hygiene and sanitation issues. The SARAR / PHAST method is best indicated in the areas of hygiene and sanitation. It aims to promote change in hygiene behavior within the community.

SARAR (Self-esteem, Associative strength, Resourcefulness, Action planning and Responsibility) focuses on applied research for sanitation equity, while PHAST (Participatory Hygiene and Sanitation Transformation) emphasizes participatory change in hygiene and sanitation. This approach generally involves the training of a community relay who, after being trained, raises awareness of hygiene and sanitation practices in their own community. It encompasses various themes such as: hand washing, use of latrines, personal cleanliness and other practices aimed at improving public health at the community level, awareness of environmental impacts, the link between certain diseases and lack of sanitation.

4. Discussion

The results of the situational analysis reveal a notable lack of access to improved sanitation infrastructure in the villages, particularly in Kpangbassou (62.34%), Abakro (82.22%) and Duokro (82.14%). %). In addition, around 88% of the population practices open defecation and almost half of the existing latrines (42%) are in a state of disrepair, which pushes residents to abandon them. These findings confirm the conclusions of [6], who point out that poorly maintained latrines are quickly abandoned. Traditional latrines predominate in all villages. Although they provide safer waste disposal than open defecation, they offer few health benefits over improved latrines. [7] share this perspective, concluding that traditional latrines provide limited health benefits.

The analysis of factors influencing the practice of open defecation reveals social and economic challenges. From a social point of view, the results show that 77% of heads of household with at least primary education have toilets compared to 33% for those who have not received formal education. Thus, it is evident that education plays an essential role in the adoption of hygiene and sanitation behaviors. These observations are in agreement with the work of [8], who asserts that heads of household who have passed the primary level are more able to invest in improving their sanitation facilities. Education, as a key influencer of attitudes and opinions, plays a key role in changing behavior, particularly among less educated populations who may resist new ideas [3].

Furthermore, the failure to ban open defecation within village communities influences the perceptions and behaviors of individuals. When open defecation is considered normal, it is more likely to be adopted, making it difficult to change to healthier hygiene practices. According to [9], these norms influence and guide all aspects of the daily lives of villagers and they also affect sanitation practices. Lack of hygiene education is also an important factor, as it hinders motivation to use toilets. The erroneous perception that excrement does not represent a danger inhibits the desire to adopt latrines [10]. Indeed, individuals who are poorly informed about hygiene and sanitation practices tend to adopt less sanitary behaviors, including open defecation [11].

From an economic point of view, financial constraints constitute a major obstacle to the construction of latrines. Low household income partly explains the reasons for their inability to invest in improved sanitation facilities [12]. In some cases, due to their precarious financial situation, some people use lower quality materials to construct latrines, leading to the practice of open defecation when the latrines deteriorate [13].

At the strategy level, the CLTS / EcoSan approach can play a crucial role in the fight against open defecation in the villages studied. Indeed, in agricultural localities such as these, the implementation of CLTS/EcoSan through the promotion of sanitation by-products, such as agricultural fertilizers, could greatly arouse enthusiasm populations to adopt it. Work carried out by [14] in ten (10) villages in the sub-prefecture of Koumbala, in the north of Côte d'Ivoire, highlights the effectiveness of this approach. According to this study, CLTS/EcoSan constitutes an effective means of community awareness, facilitating the transition towards concrete actions to improve sanitation. Then, reinforced monitoring of CLTS/EcoSan, combining community engagement and sustainable management of excreta, offers tangible hope for creating lasting changes in health behaviors. Indeed, experiments carried out by [15] in villages of Kedougou in Senegal show that monitoring revitalizes community awareness, stimulating the adoption of good sanitation practices. Notable results including a significant increase in the construction and use of latrines. In addition, thanks to community awareness activities, populations in target villages no longer practice open defecation. Even those who had not yet built their family latrines used those of their neighbors. Some villages have become clean thanks to successful community mobilization.

5. Conclusion

Our study set itself the objective of drawing up an inventory of fixtures of sanitation in the Yamoussoukro district and determining the reasons for the practice of open defecation and proposing effective strategies to combat this practice. The inventory revealed insufficient access to sanitation services. More than 88% of households without a latrine

defecate in the open air (mainly in Kpangbassou, Abakro and Duokro). The majority of latrines are traditional and in poor condition.

The factors contributing to open defecation are diverse. At the cultural level, this practice has always existed within communities and therefore considered acceptable. From a social point of view, the low level of education, the absence of local labor and the perceptions of the populations would be the main reasons which push the populations to adopt the DAL. Economic reasons also occupy a prominent place because more than half (54%) of the populations earn less than 75,000 CFA francs per month, which pushes them to concentrate their efforts on other, more pressing needs.

The study proposes the combined CLTS / Ecosan approach to improve sanitation and eradicate open defecation in villages. This approach is essential for sustainable health practices, engaging communities in a participatory manner.

Compliance with ethical standards

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Disclosure of conflict of interest

The authors declare that there are no conflicts of interest that is relevant to the content of this article.

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