Int. j. adv. multidisc. res. stud. 2022; 2(5):690-698

## International Journal of Advanced Multidisciplinary Research and Studies

ISSN: 2583-049X

**Received:** 29-08-2022 **Accepted:** 09-10-2022

## Rural Ivorian populations confronted with Buruli Ulcer: A case study in the health area of Bediala, Centre - West, Côte d'Ivoire

<sup>1</sup> Kone Moussa, <sup>2</sup> Adjet Affouda Abel, <sup>3</sup> Kouassi Yao Akissi Hadassa <sup>1</sup> Lecturer and Researcher, Sociologist, University Jean Lorougnon Guédé, Côte d'Ivoire <sup>2</sup> Teacher and Researcher, Sociologist, University Jean Lorougnon Guédé, Côte d'Ivoire <sup>3</sup> Student Master 2, University Jean Lorougnon Guédé, Côte d'Ivoire

Corresponding Author: Kone Moussa

#### Abstract

Despite the decline in Buruli ulcer (BU) cases in Côte d'Ivoire, the Bédiala health area in the Daloa health district continues to be an endemic area with cases discovered each year. In such a context, what are the therapeutic and adaptation responses to the living environment of the populations in this endemic health area ? The objective of this study is to question the resilience that populations develop in the face of BU. Methodologically, this study adopts a mixed approach. Quantitative and qualitative data were collected from patients, former patients, health personnel, traditional therapists, relatives of patients and former patients. Questionnaires, interview guides, observation grids and cameras were used to collect data. The results allow us to note that BU affects different parts of the body of people with a dominance in the lower limbs (68.33%). The urban health center is the only official institution for the fight against BU. The absence of a support structure for people affected and of associations to fight has been noted. In terms of resilience, the use of selfmedication, the abandonment of UHC, the use of traditional therapists and the isolation of the patient are the behaviors described by the victims and their parents. At the professional level, the patients continue their activities. On recovery, professional retraining was observed in some former patients, however 78.96 % retained their activity.

Keywords: Buruli Ulcer, Resilience, Strategy, Bédiala, Daloa

#### 1. Introduction

Buruli Ulcer (BU) was first described in Uganda by Sir Robert Cook in 1887 in the Buruli region from which it takes its name. The condition covers more than 30 countries in Africa and is also found in Asia, Oceania and South America (Boock and Eyango, 2004)<sup>[13]</sup>. It is a human skin infection caused by a mycobacterium (Mycobacterium ulcerans) present in the environment. It is the most common mycobacteriosis currently encountered after tBUerculosis and ahead of leprosy in many tropical countries (Abury and al, 2020).

The ulcerative evolution of this pathology, which generally begins with a nodule, an oedema or a plaque of the skin, can lead to serious physical, psychological, economic and social consequences for those affected. These include disabling after-effects, loss of limbs, stigmatisation, loss of economic activity, children and young people leaving school or not going to school... The economic consequences of Buruli ulcer on patients can depend on late treatment with irreversible disabilities. After recovery, the question of integration into the social and economic fabric emerges in connection with an activity that adapts to the physical handicaps of recovered patients (Coulibaly and al, 2015)<sup>[15]</sup>.

For women who are ill, BU leads to stigma, social isolation, reduced chances of marriage and divorce (Horsburgh and Meyers, 1997). Permanent disabilities would prevent them from doing activities such as trading, farming, catering, adding water and breastfeeding. The inability to do these tasks negatively influences the sources of savings and the health and well-being of children (WHO, 2000; Asiedu and Etuaful, 1998<sup>[9]</sup>).

In addition, BU affects mostly poor families in rural areas who have difficult access to health care (Coulibaly and al, op cit)<sup>[15]</sup>. The therapeutic itinerary of patients is dominated by traditional treatment with late recourse to specialised care centres with large ulcerations (Adjet and al, 2016)<sup>[2]</sup>. The long duration of patients in hospitals in developing countries requires the availability of a healthy relative to attend to the needs of the patient. The stay in the care centre has a direct impact on productivity and is believed to increase poverty (WHO, 2000; Asiedu and Etuaful, 1998<sup>[9]</sup>).



.

In Côte d'Ivoire, in the absence of social insurance, apart from free medical and surgical care and specialised church centres where meals are offered to patients, only the parents have to provide food themselves, with additional costs associated with care. Although the incidence of the disease is declining as a result of the efforts of the National Buruli Ulcer Control Programme (PNLBU), some health districts continue to be endemic areas. Among these, Daloa recorded successively from 2018 to 2021 : 89 cases, 88 cases, 116 cases and 58 cases, i.e. a total of 351 cases over a period of three (03) years. Located in the northern part of this health district, the health area of Bédiala has accumulated 52 cases from 2017 to 2021 and these data make it an area affected by this disease. We therefore ask ourselves : What are the therapeutic responses and adaptations to the living environment of patients and former patients in this endemic health area ? The objective of this study is to examine the resilience that the populations of the Bédiala health area in the Daloa health district develop in the face of BU.

## 2. Methodology

### 2.1 Study site

This study was carried out in the Bédiala sBU-prefecture. Bédiala is located in the department of Daloa, in the Haut-Sassandra region. The sBU-prefecture of Bédiala covers 992 km2 and has a population of approximately 82,000 (RGPH, 2014). It is located 33 km from Daloa and borders the localities of Leunoufla, Bandiahi, Zuénoula (Figure 1).

The health area of Bédiala is made up of ten (10) villages (Bédiala 1, Bédiala 2, Bahifla, Bialata, Nanoufla, Fahazra, Goinzra, Banoufla, Ourouta, Gnanagonfla) and 24 camps. Bédiala has a CSU which serves as a place of care for people with BU. Its staff is composed of a doctor, four (04) nurses, three (03) midwives, one (01) pharmacy manager, six (06) health assistants, two Universal Health Coverage agents, one (01) security agent and twenty-five (25) Community Health Agents (Source : Field data from the staff of the Bédiala CSU).



Source: Koné and al, 2022

Fig 1: Presentation of the Sub - Prefecture of Bediala

### 2.2 Study population

A mixed survey was conducted among people with BU, former patients and their relatives, health workers, care facilities, and BU focal points. Two types of sampling were designed : quantitative and qualitative. At the quantitative level, in the absence of data and the inability to contact people with the disease and those who had recovered at the CSU, due to the abandonment of hospital care, we opted for accidental and snowball sampling. Thus, 30 former patients and 30 patients from the BU were interviewed, for a total of 60 people.

For qualitative sampling, we opted for purposive sampling. This sampling includes the strategic actors likely to provide us with information on the pathology. Four (4) health workers in Bédiala, four (4) traditional therapists, the mayor (1) of Bédiala and twenty-one (21) relatives of patients and former patients of the BU were interviewed.

#### 2.3 Data collection tools

An observation grid, a dictaphone, a camera, questionnaires and interview guides were used for data collection. The observation grid was used to collect information on the location of ulcerations, the presence of strategic groups and structures involved in the care of people with BU.

Semi-structured interviews were conducted with relatives of patients, health workers, tradithérapeutes and the mayor using interview guides. Data were recorded during these interviews using a dictaphone. Questionnaires were submitted to former patients and patients of the BU. The interviews covered the location of the disease, the use of care, the costs of treatment, the resilience developed during the disease and in the former patients. The camera was used to take pictures to document some of the realities on the ground.

#### 2.4 Data processing

The information collected through questionnaires during the field survey was subjected to computer processing using sphinx V4.5 software. Excel version 2016 and Word version 2016 were used successively for the construction of graphs and illustrative tables, the transcription of qualitative data and the input of the full text. A content analysis of the data was carried out by thematising the various responses of the respondents in order to highlight their meaning and significance for the qualitative data.

### 3. Results

# **3.1** Location of the disease on the body and management structures

The description of the location of ulcerations and sequelae presents the parts of the body affected by this pathology and makes it possible to measure the somatic aggressions linked to BU. This description is associated with the profile of the patients through an exposition of some socio-demographic characteristics available on them.



ce : Field data, June-July 2022

Fig 2 : Location of disease on the body

# **3.1.1 BU : A physical assault exposing an agricultural population**

BU affects different parts of the body of affected people. As shown in the following figure, the affected body parts are the feet, arms, fingers, breasts, genitals, hands, armpits, shoulders, knees and calves in ulcerated and former patients. The lower limbs (68.33%) are the most affected parts of the body among the patients and former patients interviewed in the Bédiala health area. The respondents had ulcerations or scars on their feet (56.66%), calves (6.67%) and knees (5%). In the upper limbs, 13.33% of the quantitative sample had ulcers or scars on the arm, 3.33% on the hands and 8.33% on the fingers. The shoulder (1.67%), the axilla (1.67%), the sexes (1.67%) and the breasts (1.67%) are also affected. Picture 1 illustrates this result.



Source : Field data, June-July 2022

Picture 1: Observed cases of Buruli ulcer

60% of the respondents were farmers and 16.66% were students. The least infected people are shopkeepers, dressmakers, hairdressers, security guards, mechanics and bricklayers. The percentages of their workforce vary between 6.66% and 1.67%.

The profession of the people we met could justify the location of ulcerative lesions and scars on the feet. The patients and former patients have activities related to agriculture. Indeed, through socialising work, students in rural areas accompany their parents in rice fields, in lowlands, in aquatic environments suspected of being the reservoir of the bacteria causing BU. They often participate in activities. These agriculture-related activities are carried out without the use of gloves, protective clothing and footwear in aquatic ecosystems. Therefore; feet, arms and fingers are more exposed to aquatic insect bites.

BU is a disease that affects all age groups without exception, namely children, adults and the elderly. The most affected

persons (43.33%) are over 40 years old and the least affected persons (20.00%) are between 0 and 20 years old. Out of a total of 60 people surveyed, more than half (65%) were women, compared with 35% of men with BU in the health area surveyed.

But what are the charitable structures and endogenous strategic groups fighting against BU in the Bediala health area ?

# **3.1.2** Lack of endogenous charitable structures and policy groups

The Urban Health Centre (CSU) of Bédiala is the only official structure for the treatment of BU in the health area. Under the direction of the doctor, a focal point for the fight against Buruli ulcer coordinates the activities concerning this pathology. The CSU is in contact with the Departmental Health Directorate, the Saint Michel Specialised Centre of Zoukougbeu and the National Buruli Ulcer Control Program.

Almost all (98.34%) of the respondents claimed to know that the CSU provides BU care.

The CSU is involved in the medical treatment of patients by prescribing antibiotics and regular dressing of ulcers. In view of its technical facilities, it refers cases requiring surgery to the Centre Saint Michel de Zoukougbeu. According to NK, (health worker, 20 July 2022) :

« For the detection or confirmation of BU patients, samples of the infected part and images are usually sent to the Saint Michel hospital in Zoukougbeu. It is this hospital that confirms certain cases of BU and sends us the drugs for treatment. When it is too much for us, we send the cases that we cannot treat back to Zoukougbeu ».

The CSU does not have an inpatient ward, physiotherapy room and surgical block for BU patients. It cannot fully provide care for people with the disease. It faces many difficulties such as : the lack of medical equipment, the lack of appropriate rooms for care, the lack of health personnel to care for BU patients.

Apart from the CSU, there is no strategic group of actors in terms of organisation in the fight against this disease in the health area of the study. The study reveals that there are no Non-Governmental Organisations (NGOs), charitable foundations or religious groups supporting patients and former patients.

At the level of the local populations, there is also no organisation or association within them to deal with the disease. The local authorities are not involved in the fight against BU, apart from individual acts of charity for the sick. The mayor of the city, referring to the strategic groups, states :

« Here in Bédiala, when I see people with bad wounds, I help them financially on a personal basis so that they can go to the hospital or to a healer ».

These isolated acts of charity, as announced by the mayor of the city, do not originate from any organisation or group structured against BU. In such a context, the management of the disease is left to the patients and/or their families. What about the responses of the population, the psychobehavioural capacity and the adaptation of the sick and former sick ?

# 4. Resiliencies developed by actors in the fight against BU

#### 4.1 Cases in the community : an alert to the response

Large ulcers, limb deformities and scars (Picture 2) illustrate the presence and consequences of BU in the localities visited.



Source: Field data, June-July 2022

Picture 2: Physical assault of the BU in Bédiala

These ulcerations and the fear of victimisation by the aftereffects of the disease trigger a series of steps, initiatives, and opportunities for therapeutic responses with those involved in the fight. The cases in the patients' entourage sound the alarm for societal offensives (medical, behavioural) against BU. The following verbatim from a respondent describes the presence of cases in the community, the memories linked to the disease, the family and institutional actors involved and the after-effects of the disease despite various forms of resilience.

« This wound attacked several of my relatives who died. I was lucky because my children sent me to several hospitals

and then to healers. Today, I am cured but paralysed; I am alive" (DFB, planter, 23 June 2022)

In concrete terms, how do people deal with the BU ?

# **4.2 Self-medication: First concrete advocacy initiative in the early phase of the BU**

Despite the fact that 98.43% of the respondents were aware of the CSU as a centre for the management of BU, from the beginning of the disease, the patients and former patients did not use the health care personnel. The first therapeutic recourse as a defence initiative against the disease is dominated by self-medication.

Nearly half of the respondents (43.33%) resorted to selfmedication based on local knowledge (plants), street medicines and medicines bought in pharmacies. 31.37% referred to modern medicine and 25% to healers/fetishists (Table 1).

Table 1: First-line	e treatment
---------------------	-------------

Orientation	WorkforceFrequency (%		
Self-medication (with local			
knowledge, plants, street medicines,	26	43,33	
medicines bought in pharmacies)			
Healer/Fetishist	15	25,00	
Health centre (modern medicine)	19	31,67	
Total	60	100	

Source: Field data, June-July 2022

However, self-medication did not prevent the nodules and plaques from developing into large ulcerative lesions. The same applies to traditional medicine and the health centre, which were not able to provide satisfaction (cure) to all patients over a short period. These consequences (the evolution of the nodule or oedema towards large ulcerations, the stench of the wounds, the immobilisation of the patient) led to the mobilisation of additional therapeutic resources in addition to the initial care provided. As a result, instead of this first defence strategy, waves of migration of patients towards health care systems in search of a cure are born.

# **4.3** Abandonment of the CSU and the race to the healers / fetishists

Several patients and former patients we met had given up self-medication and treatment at the CSU in Bédiala to go to the healers and fetishists because of the evolution of their ulceration. Some combined care at the health centre, prayers and traditional treatment. Table 2 presents this reality.

Patient orientation	Workforce Frequency (%)		
Health centre (modern medicine)	3	5	
Healer/bewitcher (traditional medicine)	38	63,33	
Health centre + Healer/Witchdoctor	17	28,33	
Self-medication with street medicines + Health centre	1	1,67	
Prayer Camp + Health Centre	1	1,67	
Total	60	100	

Source: Survey data, June - July 2022

More than half of the respondents (63.33%) treat themselves and have treated themselves at the healers/fetishists after self-medication. 28.33% combine and have combined treatment at the health centre with that of the healers/fetishists. 5% treat only at the health centre. Also 1.66% of respondents treat themselves by combining selfmedication, street medicines, health centre and prayer camp. The abandonment of one system of care for another, their juxtaposition, their combination responds to the need to actively seek healing. Ulceration is frightening. It devalues and dehumanises. Before the risk of death, it causes the loss of a man's social value, whatever his age, his marital status, his profession. Generally, two models of care are sought by the sick or have been sought by the formerly sick. These are hospital medicine and traditional treatment, which are the two most dominant therapeutic paradigms.

Migrations from one therapeutic system to another or back and forth between the two constitute a pattern of behaviour, defence and mobilisation of resources for the recovery of the assaulted body part. If hospital medicine is effective in treating BU, according to this respondent: "I had the wound, it was in the form of a boil, I had the hospital treatment and one month later I was cured" (KYL, planter, 15 June 2022), in rural areas, where this study took place, fetishists and healers are health care actors. They occupy an important place in their environment and are recognised by the members of their community. In the Bédiala health area, their legitimacy is confirmed by former patients and relatives of patients who have used them. This is why, in terms of resilience, fetishists and healers position themselves as 'Buruli ulcer specialists'. The following verbatims explain the effectiveness of their remedies in the management of BU.

According to A.K.T (planter, 11 June 2022) : "The healer treats all serious cases. That is why I gave him my child's case. After the treatment my child was cured.

According to D. S (trader, 22 June 2022) :

« I went to the hospital for treatment. Some people told me that treatment in hospital worsens the disease. They also told me that in the hospital if it is not good; the part of this body will be amputated whereas at the healer's these types of cases are treated without amputation. Afterwards, I stopped the hospital treatment and went to a healer and it was there that I was cured ».

D.F.B (planter, 23 June 2022) adds :

« My children sent me to the hospital for treatment; I had several injections; it didn't always work. So my children took me to a healer, he made his medicine and I was cured ».

When self-medication has shown its limits and the first treatment at the CSU has not cured the sufferers, recourse to traditional care is the appropriate recourse for the patient and his family. The CSU is thus abandoned in favour of traditional treatment. The responses of former patients through their experiences and those of the patients they met reflect this reality.

Respondents who had used and those who were currently using healers/faith doctors claimed not to have been cured by antibiotics and bandages. Traditional treatment is considered to be a comprehensive treatment in that it combines the physical and spiritual dimensions. Healers and fetishists question the causes of the disease first. This practice is in line with that of the culture from which the patients come. Since every event has a cause, the hypothesis of MU as the cause of BU has its limits in the environment of rural populations. BU can only be a simple wound in the sense of the social representations linked to the pathology. This is why A.K (healer, 18 June 2022) said : "the treatment of modern medicine is also effective but cannot cure spiritual diseases. So if someone is doing for the hospital, he must also do traditional medicines.

The predominance of traditional medicine in the therapeutic itinerary of patients is also supported by the social representations linked to this disease and motivated by the patients, their relatives and the healers.

Therefore, the so-called scientific causes of the BU are confronted with the ways of thinking of the populations and their socio-cultural realities, as Z.T. (35 years old, 22 June 2022) states :

« It is the wizards who cast spells on people. This is what

causes the plague. For example, the spells cast affect people with weak souls much more. Also, the activity carried out by one person can lead to jealousy in others to the point where if someone in the community does not like your business, he casts the spell to prevent you from working. This means that if it is someone who makes a field, he will not go to the field and will spend all his time taking care of himself. He will not go to the field anymore. »

# 4.4 Outpatient care and plants as strategies to combat BU

One of the models of response of the CSU in Bédiala to BU is to organise ambulatory care in the community. The focal point has put in place a strategy of outreach and communication between the CSU and the patients. The health worker (focal point of the BU) often visits patients in their homes and dresses them. Due to the lack of financial means for travel to the health centre, this strategy consists of ensuring proximity care. Even if these visits are not daily, they are a way of improving the care policy.

In traditional medicine, treatment is mainly dominated by herbal therapy. Several plants are used by healers to treat BU. However, many of the respondents had no knowledge of the leaves used by them. Some healers and other respondents were able to name a few plants. These included *Bornégohi and tricatrica* (in Gouro), *Sometoihinga and wormisséga* (Moré) and red seed pepper (*Aframomum melegueta*), 'lêguê yiri (in Dioula), perwlèti (in Gouro), yellow daisy leaf (*Leucanthemum vulgare*), dwarf daisy bark (*Kpakia biglobosa*), mango bark (*Mangifera indica*) and tamarind leaf (*Tamarindus indica*) called Tomi; knife plant (*Sanseviera*) called mother-in-law's tongue.»

According to A. K (Healer, 18 June 2022) : :

« For the dressing if the wound is not too advanced, I do not wear gloves, otherwise I wear gloves. I dress the wound with lukewarm water. Because it is not good to use very hot water to heal the wound. After the dressing I apply the dried Sometoihinga plant. I first crush this plant and mix the powder with the black soap and put it on the affected area. ».

# 4.5 Population resilience and its relationship to the cost of care

The various treatments used by BU patients in the Bédiala health area have a cost. The survey reveals that the costs differ from one medicine to another.

In Western medicine, while some patients claim to have been treated free of charge, other patients have paid money for the treatment.

ZLI (planter, 11 June 2022) says : « I went to the hospital to be treated because I was told that they treat the wound there ». The person who treated me asked me for 16,000 CFA francs. He only did the dressing and gave me some tablets. IBV (student, 20 June 2022) added : « What I didn't like about the hospital was that I had to pay 500 francs for each dressing, not to mention the transport costs to get to the hospital ».

The occasional depletion of stocks of care products leads the CSU's care providers to ask for a personal contribution from the patient to cover the costs of his care. This is what PE (planter, 12 June 2022) explains : "when my son's bandages run out at the CSU, I have to go to Douonou to buy them and that is very expensive". The comments of this farmer confirm that treatment at the CSU is free of charge,

depending on the stocks of medicines and inputs available. The cost of traditional treatment also varies between 10,000 and 300,000 CFA francs according to the respondents. This cost takes into account ancillary expenses (transport) and the fees for the services of the fetishist or healer. However, it should be noted that some practitioners of African medicine treat people for free. This was the case for MG (planter, 23 June 2022) who said : "He didn't ask me anything. I did not pay anything for the treatment. However, as a token of my gratitude, I will give him something after my recovery. In other cases, the caregiver may ask for animals for the treatment (rooster, goat, sheep) and pieces of loincloth. This is justified by the words of ZM (pastor, 23 June 2022) who said : "to do the treatment, the healer asked for 50,000F plus a white rooster". Following this, DBBP, a rafistoleur, (18 June 2022) reported :

« There was a healer who came from Burkina; he told me that he could cure me; he asked me for 300,000 francs for the treatment where he was going to buy a three-horned sheep to cure me. When he started the treatment, seeing no improvement in my condition, he did not come back until today».

The search for financial resources is also a form of resilience of patients and their families in the face of BU. The financial expenses related to care are covered by the patient himself or his family, depending on his social and professional status. The patient's financial support comes regularly from his family and relatives.

# 4.6 Isolation of the patient, a form of resilience linked to ulceration

The large ulcers and odours caused by these have contributed or are contributing to the immobilisation of the affected persons. Thus, they develop feelings of voluntary isolation.

BU is an obstacle to their psychological and socio-economic development. 70% of patients claim to have abandoned their activities since the beginning of their ulceration. Faced with the disease, the most urgent need is appropriate treatment in order to heal quickly. This disposition leads BU patients to devote themselves to treatment of any kind. The disease forces them to involuntarily stop their activity.

The risk of attacking their own ulceration and hurting themselves, the fear of feeling pain leads them to isolate themselves and stay in quiet places away from contact with objects that could attack the ulceration or physical persons. Some patients are also advised to avoid pBUlic places. A student with BU says in this regard :

« When I went back to school and the teacher saw the wound, he asked me to go back home to be treated. He said that if I was healed, I would go back to school. Since then, I have been at home while some go to the field and others to school. (EP, student, 11 June 2022) :

If the isolation of the patient is justified by his will to keep his illness away from physical aggressions of his body (shock with an object), the fear of resentment of the pain and the risk of frequenting a pBUlic place, these reasons are supported by the flight from the look of others.

In rural areas, some patients feel that when faced with the disease, they should avoid attracting the gaze of others (relatives, neighbours and other community members) on themselves. Therefore, they adopt positions of voluntary isolation which consists in staying in their compound and treating themselves. The gaze of others has a meaning

www.multiresearchjournal.com

insofar as no one can decode its positive dimension. However, for the sick, it is usually a look of contempt and denigration and insincere and therefore hypocritical words of compassion.

This is why (KAE, planter, 19 July 2022) reported that :

« The people in the village don't come near me, they think I will contaminate them with the wound. Even a woman told me openly that since then the wound does not heal. Because I am a witch; it is on my hand that the witches cut the meat at night. I'm afraid to tell you this, so that no one will point a finger at me ».

This shows how people look at and regard the victims of the BU.

In addition to this large proportion of patients who have no activity due to the disease, 30% carry out their activities

regularly. 10% do small jobs such as tinkering, shoemaking and driving motorbike taxis. 10% continue to be planters and 10% carry out their commercial activities.

The struggle against daily survival, the resolution of needs (food, clothing, schooling of children) are the sources of motivation despite their ulceration. However, they feel they are taking steps to avoid physical aggression against themselves.

#### 4.7 Resilience of patients after recovery

Former patients allow us to better explain the issue of socioeconomic resilience and reconversion of recovered patients. A relationship is thus established between the profession of the former patient during the illness and that after the illness (Table 3).

Table 3: Occupational resilien	ce of people with BU after the disease
--------------------------------	--

Activities Before the disease	Former BU patients	After the disease	Workforce	Frequency (%)	Frequency (%)	
Planters	19	Planters	15	78,96	78,96	
		Driver	1	5,26		
		Mason	1	5,26	21,04	
		Hairdresser	1	5,26		
		Housekeeper	1	5,26		
		Total	19	100	100	
Trader	6	Trader	4	66,66	66,66	
		Housekeeper	2	33,34	33,34	
		Total	6	100	100	
Pupils	2	Student	1	50	50	
		Hairstyling	1	50	50	
		Total	2	100	100	
Security guard	1	Security guard	1	100		
		Total	1			
Sewing	1	Sewing	1	100		
		Total	1			
No activity	1	Student	1	1	00	
		Total	1			

Source: Field data, June-July 2022

Out of 19 cured farmers in the BU, 78.96% or 15 farmers kept their activity and 21.04% retrained as motorbike drivers, masons, hairdressers and housewives.

The majority of those cured of BU (planters) have resumed their activity. For most of them, their ulcers have healed and the after-effects of the disease are less pronounced or disabling. These do not prevent them from carrying out their usual rural activities. They use their affected limbs and claim to be able to handle the machete and the daba, their main working tools, properly.

According to them, agriculture gives them respect and prestige in the community and allows them to satisfy their needs. These farmers cultivate cocoa, rice, cassava, etc.

Among the traders, 66.66% are still traders, while 33.34% have become housewives. As for the students, 50% are still in school and 50% have become hairdressers.

The security guard and the seamstress are carrying out their usual activities. This shows that despite the physical impacts of the BU, they were able to adapt. Also, the one who had no activity was able to attend school despite her disability. BU disrupts the professional, social and economic status of some people with the disease. Despite their difficult living conditions, people with BU do not feel sorry for themselves; they mobilise to engage in activities that generate income for the most part.

In terms of adapting to their condition because of their disability, others use clBUs as crutches.

#### 5. Discussion

BU attacks different parts of the body of affected individuals (feet, arms, fingers, breasts, sexes, hands, armpits, shoulders, knees and calves with a predominance of the lower limbs followed by the upper limbs. This result is in line with that of ABUry and al (2021) when they argue that this disease can affect any part of the body, but most lesions are found on the limbs : lower limbs (60%), upper limbs (30%), other parts of the body (10%). This result is also consistent with Johnson and al (2008). For them, the legs are more affected (65%) and the upper limbs (20%). A study conducted on the profile of BU in Togo by Bayaka and al (2012) also showed that the lower limbs (50.4%) are more affected than the upper limbs (32.6%) and the trunk (13.3%).

Moreover, 65% of women and 35% of men have been affected or continue to suffer from ulcerations and more than <sup>3</sup>/<sub>4</sub> of the victims encountered are over 20 years old in the Bédiala health area. According to ABUry and al (2021), BU affects children from the age of 2 years onwards, without any gender predilection. It affects women more often than men in adulthood (role of water points). Groups of cases are often found around bodies of non-potable water. This result is in line with Adjet and al (2016)<sup>[2]</sup> who showed that females are more exposed to BU (55%). For them, the frequentation of wetlands could justify the high proportion they occupy among the patients encountered, such as the

search for water by women in wet places accompanied by their daughters.

In rural areas, BU attacks all social strata, regardless of age and gender. More than half (60%) of those affected by BU are farmers (women and men). This high rate is due to the fact that they practice agricultural activities in the fields and in the lowlands without protective equipment, which exposes them more to BU. In this perspective, Kadet and al (2019)<sup>[20]</sup> showed that the presence of BU in the department of Zoukougbeu could be linked to natural factors (swampy areas, lowlands, river, etc.). The monotony of the relief and the almost permanent presence of water in the alluvial plains constitute ideal conditions for the proliferation of waterborne disease pathogens, including BU. In addition to these physical factors, there are anthropogenic determinants. Indeed, the significant proportion of the sick is made up of people practising agriculture, in a constantly humid and infected environment as indicated in this study.

The survey of respondents revealed the non-existence of BU strategy groups in Bédiala. The CSU is not a specialised care centre. As a result, apart from the antibiotics and dressings administered to patients, it faces certain difficulties. As pointed out by Koffi and al (2019)<sup>[24]</sup>, the nutritional approach (free distribution of food to BU patients) favoured and facilitated the management and healing of the patient. The study highlighted the link between good nutritional status and BU healing in Côte d'Ivoire. Patients who received nutritional management had a short hospital stay (less than six months) and healed rapidly in 85% of cases. The latter have fewer functional sequelae (7%) than those who did not benefit from the treatment. This aspect of care is non-existent in the Bédiala health area. Management does not include the nutritional dimension and has limitations for an endemic area in the Daloa health district because of its technical facilities.

For the healers/witches, BU has spiritual causes (spells and witchcraft). Similarly, the entourage believes that BU is caused by spells ad considers the victims as stinking, dirty, witchy and demonic. This social reality is described by Asiedu and Etuaful (1998)<sup>[9]</sup> and Kpadonou and al. (2013)<sup>[23]</sup>. Asiedu and Etuaful (1998)<sup>[9]</sup>, state that BU patients are perceived as bewitched (36.7%°). Kpadonou *et al.*, (2013)<sup>[23]</sup> state in a study that 50.8% of people after recovery still attribute the disease to witchcraft (adults and adolescents).

The reasons why patients choose traditional treatments (55%) are complex and relate to people's beliefs as well. These data are identical to those of Johnson *et al.*, (2004). Ehouman and al (2019) <sup>[17]</sup> also testified that people's knowledge of BU is fragmentary. For the people, BU has mystical causes, which leads them more towards traditional medicine that combines physical and spiritual treatments.

These authors listed eight plants that help to avoid injuries or to have aseptic measures especially in endemic areas. Adjet and al (2016)<sup>[2]</sup>, in addition, identified plants in the traditional treatment of BU in the health district of Yamoussoukro in Côte d'Ivoire. This research has identified plants as therapeutic recipes against BU following these authors.

On the sBUject of plural therapeutic itineraries, Kadet and al (2019) <sup>[20]</sup> showed that patients practice medical pluralism (Western medicine and traditional medicine). For them, the consequences are multiple on the affected persons and the disease leaves indelible stigmata on the skin of the affected persons and sometimes causes physical disabilities, which

constitute an obstacle to their social and economic integration.

The study shows many physical impacts on the victims. Most victims of BU have limb dysfunctions. In this sense, Gade and al (2019) referred to the psycho-social aspect of BU. For them, physical suffering is about the pain that accompanies the disease. When BU reaches the stage of severe ulceration, it becomes unbearable for the patients but also for some relatives and friends who abandon the patient. Each treatment session is painful for the patient. BU therefore has a psychological and social impact. The moral aspect of the suffering is reflected in the attitude or prejudices that are developed and relayed about people with this pathology.

The study enabled us to understand that following the upheavals of BU in the lives of the victims during the illness, some manage to continue their activities or retrain professionally. This result converges with those of Kpadonou and al. (2013)<sup>[23]</sup> who show the professional fate of former BU patients. In their study, 81% of the workers resumed their activity, 75% of them the same, while 25% changed their profession. 90% of the children returned to school, 29.4% progressed normally but 70% lost the school year.

#### 6. Conclusion

At the end of this investigation, it appeared that BU is a reality in the health area of Bédiala. The location of ulcerations and the sequelae of this disease have consequences on the lives of people with BU currently and of those who have recovered from it. The disease attacks all parts of the body, with a predominance of the lower limbs in a predominantly agricultural population. The fight against this disease creates resilience in both the sick and the cured in the absence of a strategic group mobilizing fight resources from the point of view of resilience. The quest for healing goes through traditional medicine, given its holistic effectiveness (physical, psychological and spiritual) according to the representations of the exposed populations, despite the existence of the health centre. The isolation of patients is a form of resilience to avoid physical shocks and the gaze of loved ones. Some patients engage in activities to provide for their medical care and needs. Professional reconversions were observed in other patients, even if most of them kept their initial activity before the illness. The fight against BU must continue to be a priority for the PNLBU of this locality by involving all the actors concerned by the pathology and the management of disabling sequelae from a psychosocial and surgical point of view.

#### 7. References

- 1. Abgueguen P, Pichard E, Aubry J. L'ulcère de Buruli ou infection à *Mycobacterium ulcerans*. Inserm U892, université de Nantes, institut de biologie, 44035 Nantes cedex 1, France, 2009
- Adjet AA, Kouame D, Fokou G. Phytothérapie et lutte contre l'ulcère de Buruli dans le district sanitaire de Yamoussoukro (Côte d'Ivoire): identification, description, fonction symbolique des plantes et recettes utilisées. Phytotherapy against buruli ulcer in the Health Distct of Ya. Médecine et Santé Tropicales. 2016; 26:408-413. Doi: https://doi.org/10.1684/mst.2016.0630
- 3. Adjet Abel A. Itinéraires thérapeutiques des malades de l'ulcère de Buruli et difficultés de prise en charge

hospitalière à Djékanou (Côte d'Ivoire). European Scientific Journal, ESJ. 2017; 13(3):197-210. Doi: https://doi.org/10.19044/ESJ.2017.V13N3P%P

- Aubry J. Les facteurs de l'émergence de l'ulcère de buruli à Lambaréné, Gabon, 2008. https://my.editions-ue.com » details » store » book »les…
- Aubry P, Gaüzère BA. Ulcère de Buruli-Médecine tropicale, 2015. https://medecinetropicale.fr... » ulcère\_buruli
- Aubry P, Gaüzère BA. « Maladies tropicales négligées », Médecine tropicales, 2015, p4. http://medecinetropicale.free/cours/neglige.pdf, consulté 22/01/2020
- Aubry P, Gaüzère BA. Ulcère de Buruli Actualités, 2020, Mise à jour le 22/11/2021 www.medecinetropicale.com
- Aujoulat I, Zinsou C, Johnson C, Guedenon A, Portaels F. Prise en charge précoce des cas d'ulcère de Buruli: le poids des croyances et des représentations. Bulletin de l'ALLF. 2000; 7:35-37.

http://lib.itg.be/pdf/itg/2000/2000ball0035.pdf

- Asiedu K, Etuaful S. Implication socio-économiques de l'ulcère de buruli au Ghana. Journal ameéricain de médecine tropicale et d'hygiène. 1998; 59:1015-1022. Doi: https://doi.org/10.4269/ajjtmh.1998.59.
- 10. Asiedu K, Scherpbien, Raviglione M. Ulcère de Buruli. Infection à Mycobactérium Ulcérans, 2001.
- 11. Bayaga HN. Approche ethnobotanique et ethnopharmacologique des plantes utilisées dans le traitement traditionnel de l'Ulcère de Buruli à Akonolinga (Cameroun), International Journal of Biological and chemical Sciences. 2017; (11)4:1523-1541.
- Bayaki S, Landoh DE, Kobara B, Djadou K, Yaya I, Yékplé KB, *et al.* Profil de l'Ulcère de Buruli pris en Charge au Centre National de référence du Togo : étude de 119 cas. Taureau. Soc. Pathol. Exot. 2012-2013; 106:32-36. Doi: 10.1007/s13149-012-0241-1
- 13. Boock AU, Eyango S, Wyss K, Mba CN. Enquête préliminaire nationale sur la situation de l'ulcère de Buruli au Cameroun, Ministère de la santé publique, Aide aux Lépreux, 2004.
- Briguglio L, Piccinino S. «Growth and resilience in east asia and the impact of the 2009 global recession ». Revue du développement en Asie. 2011-2012; 29(2):183-206.
- 15. Coulibaly B, Dibi K, Diobo K, Koli B. Répercussions socio-économiques de l'ulcère de Buruli en Côte d'Ivoire. Exemple de la région du Bélier et du District autonome de Yamoussoukro. Revue de Géographie Tropicale et d'Environnement. 2015; 2.
- Ecra EJ, Kanga JM, Irié BVN, Yoboue YP. Les complications de l'Ulcère de Buruli : Analyse de 97 cas. Médecine d'Afrique Noire. 2001; 48(4).
- Ehouman E. Ulcère de Buruli connaissance et rôle des plantes dans la transmission de la maladie dans quatre villages des districts Sanitaires de Daloa et de Bouaké (Côte d'Ivoire). European Scientific Journal. 2019; 15:181-201.
- 18. Johnson RC. Le traitement traditionnel de l'ulcère de buruli au benin, Médecine Tropicale. 2004; 64:145-150.
- 19. Johnson RC, Sopoh GE, Barogui YT, Dossou AD, Fourn L, Zohoun T. Mise en place d'un système de

surveillance de l'ulcère de Buruli au Bénin : point de 4 années de surveillance. Cahiers d'études et de recherches francophones / Santé. 2008; 18(1):9-13. Doi: 10.1684/SAN.2008.0098

- Kadet GB, Kouassi M, Anoh KP. Les déterminants de la distribution spatiale de l'Ulcère de Buruli dans le département de Zoukougbeu. Revue Espace, Territoires, Sociétés et Santé. 2019; 2(3):268-276.
- 21. Kanassoua K, Djadou KE, Kassegne I, Adabra K, Sakiye A, Amavi KA, *et al.* Prise en charge de L'ulcère de buruli au Togo, 2017. Doi : 10.4314/jrsul.v19i2
- 22. Kibadi K, Nkuku L, Singa J, Mputu-Yamba JB, Mokassa L, Muyembe TJJ. Phénomène « mbasu » ou ulcère de buruli à Kinshasa: Mythe ou réalité ! Résultats préliminaires. Journal Congo Médical. 2007; 4(11):1000-1005.
- 23. Kpadonou TG, Alagnide Azanmasso E, Fiossi-Kpadonou H, Hans Moevi E, Niama AA, *et al.* Devenir psychosocioprofessionnel et familial des anciens gueris d'ulcère de Buruli au Benin, Annals of Physichol and Rehabilitation Medecine. 2013; 56:10.
- 24. Koffi YD, Konan AG, Delmont J, Adjet AA, Rey JL. Approche nutritionnelle dans la prise en charge de l'ulcère de Buruli en Côte d'Ivoire. Médecine et Santé Tropicales. 2019; 29(4):409-414.
- 25. Cairncross S, O'Neill D, Mccoy A, Sethi D. La santé, l'environnement et le fardeau des maladies. Note d'orientation Produit par Departement For Internation Development en février 2003 Traduction française en juin 2004, 2003.
- 26. Magill AJ, Ryan ET, Hill DR, Solomon T. Hunter's Tropical Medicine and Emerging Infectious Diseases. Philadelphia : Elsevier Saunders, 2013.
- 27. Marston BJ. Emergence of Buruli ulcer disease in the Daloa region of Côte d'Ivoire. American journal of tropical medicine and hygiene. 1995; 52:219-224.
- OMS. Ulcère de Buruli (infection à Mycobaterium Ulcérans), 2022. https://www.who.int principaux repères »détails
- OMS. Rapport de la situation sur la mise en œuvre de la stratégie régionale et du plan stratégique régional de luttee contre les maladies tropicales négligées 2014-2020 dans la région africaine, 2021. AFR/RC7/INF.DOC/3
- 30. OMS. Lutte contre l'Ulcère (infection à Mycobacterium ulcérans), 2004. https://apps.who.int » A57\_5\_fr
- 31. OMS. Ulcère de Buruli à infection Mycobacterium Ulcérans, 2000.WHO/CDS/CPE/GBUI 118p