OPEN ACCESS

Orapuh Journal

ORIGINAL ARTICLE

Journal of Oral & Public Health

Epidemiological Profile of Health Problems of Street Children in the City of Bunia, Democratic Republic of the Congo

Suga, S. A., Basua, L. B. M., & Lofandjola, J. M.

Higher Institute of Medical Techniques (ISTM), Kinshasa, Democratic Republic of the Congo

ARTICLE INFO

Received: *13 March 2025*
Accepted: *14 April 2025*
Published: *23 May 2025*

Keywords:
Street Children, infectious diseases, vulnerability, epidemiological profile, health inequities

Peer-Review: *Externally peer-reviewed*

© 2025 The Authors.

Re-use permitted under CC BY-NC 4.0
No commercial re-use or duplication.

Correspondence to:
Amos Savo Suga
amossuga@gmail.com

To cite:
Suga, S. A., Basua, L. B. M., & Lofandjola, J. M. (2025). Epidemiological Profile of Health Problems of Street Children in the City of Bunia, Democratic Republic of the Congo. *Orapuh Journal*, *6*(5), e1245
https://dx.doi.org/10.4314/orapj.v6i5.45

ISSN: 2644-3740

Published by Orapuh, Inc. (info@orapuh.org)

Editor-in-Chief: Prof. V. E. Adamu
Orapuh, Inc., UMTG PMB 405, Serrekunda, The Gambia, editor@orapuh.org.

ABSTRACT

Introduction

Street children live under extremely precarious conditions that adversely affect their health. In Bunia, Democratic Republic of the Congo, these children are particularly vulnerable due to factors like conflict, poverty, abuse, and lack of healthcare, yet limited data exist on the epidemiological profile of their health issues.

Purpose

This study aims to describe the epidemiological profile of health problems among street children in the city of Bunia, identifying associated risk factors and patterns of care.

Methods

A cross-sectional, descriptively correlational study was conducted using retrospective and prospective data from 104 street children treated between January and December 2024 at Rwankole Hospital Center and Bankoko Health Center. These children were referred by NGOs House of Grace (HOG) and Development Action Network (RAD). Data were collected using ODK software and analysed using SPSS.

Results

Among the 104 street children studied, 34.6% had infectious diseases. Most were male and aged 11–18. Key contributing factors included extreme poverty, lack of access to clean water and healthcare, and exposure to environmental hazards. Economic exploitation affected 59.6% of the children, while 38.5% had experienced violence and sexual abuse. Chronic stress and social isolation were also prevalent. Multivariate analysis identified sexual abuse, poor hygiene and healthcare access, chronic stress, and social isolation as significant predictors of infection. Despite these challenges, the recovery rate was 99%.

Conclusion

Street children in Bunia are disproportionately affected by infectious diseases driven by socio-environmental and psychological adversities. Interventions must address access to healthcare, social protection, mental health support, and targeted policy responses to improve their well-being.

INTRODUCTION

Children living on the streets face extremely precarious living conditions, which have significant repercussions on their health. They experience problems such as malnutrition, infectious diseases, and various types of trauma. Their access to healthcare is often hindered by socioeconomic factors and persistent stigma.

These children, who constitute a major social problem in many modern societies, find themselves in vulnerable situations that expose them to various forms of exploitation, including forced labour. This reality results from several interconnected factors, including challenging social conditions and precarious economic dynamics. According to the International Labour Organization (ILO), approximately 152 million children worldwide are engaged in child labour, 73 million of whom are in particularly hazardous jobs (ILO, 2017).

Globally, approximately 28 million children live on the streets. According to a recent report by the Ministry of Labour and Social Affairs in Ethiopia, the number of homeless children in Addis Ababa was approximately 24,000 in 2018, including around 10,500 children living on the streets and 13,500 homeless adults (UNICEF, 2019).

Access to healthcare is often difficult, and the quality of care received is not always satisfactory. Furthermore, these children may be victims of discrimination and violence. Street children are not limited to a single country; the streets and other public spaces of major cities around the world have become places of life and survival for many children and young people. The problem of street life is not recent and transcends geographical borders. It has led to significant international mobilizations and generated a growing number of studies, although the available literature remains substantial yet fragmented. Despite this, clinical writings are rare, while distress and psychological suffering are evident among children and adolescents living on the streets. Although it is impossible to precisely quantify their number, estimates suggest several tens of thousands worldwide (UNICEF, 2012).

Similar evidence indicates that in Ethiopia, more than four million children live in particularly challenging conditions, exposing them to a high risk of sexual and physical exploitation. Research shows that 15.6% of street children engage in risky sexual activities, while 61.6% experience health problems (Chimdessa & Olayemi, 2016).

Tens of millions of street children and youth live worldwide, the majority of whom are boys from low- and middle-income countries. Many of them demonstrate remarkable adaptability and resilience (Hamel & Bohr, 2024).

In Australia, as in other parts of the world, the decision to remove a child from their home and place them in out-of-home care causes significant disruption to the lives of the child, their family, and the community. However, few public child welfare agencies are equipped to address questions about the evidence base regarding children's development and well-being, as well as their journeys through the care system and beyond (Cashmore et al., 2024).

In the Democratic Republic of the Congo, Ituri Province faces a catastrophic situation due to the atrocities of armed conflicts that have persisted for nearly two decades. Children are not spared from this situation. The fate of Congolese children, particularly those in Ituri, is concerning, as they encounter difficulties accessing quality care, especially following incursions by local armed groups, which exacerbate their distress. A significant number of these children end up living on the streets (UNICEF, 2020).

In this context, the situation in the eastern part of the country remains worrying regarding the care of street children, as they face significant ethical and health risks. In Ituri Province, insecurity driven by anti-civic armed groups negatively affects child survivors, leaving both physical and mental scars. These children face numerous problems, including social inequality, uncertain livelihoods, social exclusion, and poverty. According to our recent survey, 60% of these children live on the streets, and 20% suffer from various pathologies, unfortunately without adequate curative care. Moreover, they also lack access to healthcare.

In light of the above, we sought to investigate the epidemiological profile of pathologies affecting street

children in the city of Bunia. This primary question raises several secondary questions:

- How common are the pathologies observed among street children in the city of Bunia?
- What are the factors contributing to the development of these pathologies among street children in the city of Bunia?
- How are these pathologies treated among street children in the city of Bunia?
- What are the consequences of these pathologies for street children in Bunia?

This study aims to describe the epidemiological profile of pathologies affecting street children in the city of Bunia. Specifically, it seeks to:

- Determine the epidemiological frequency of street children in the city of Bunia.
- Identify factors associated with the health of street children in the city of Bunia.
- Describe the healthcare available to street children in the city of Bunia.
- Determine the outcomes for street children in the city of Bunia.

METHODS

Our study was conducted at the Rwankole Hospital Center and the Bankoko Health Center, two healthcare facilities located in the northeast of the Democratic Republic of the Congo, in Ituri Province, specifically in the city of Bunia.

Our research is quantitative in nature and descriptively correlational. It employs both retrospective and prospective approaches. The study considered data from January 1 to December 31, 2024. Data collection lasted a total of two weeks in the field.

The study population consisted of all street children who had suffered from illnesses and had received monitoring by the non-governmental organizations House of Grace (HOG) and the Development Action Network (RAD) in the two healthcare facilities in the city of Bunia.

Our sample was exhaustive, comprising 104 subjects. We used a cross-sectional method to conduct this study.

We employed the documentary analysis technique to gather data. Through this technique, we consulted the records of street children based on direct observation at reception centres and analyzed some administrative documents that provided details about their backgrounds and past situations.

To collect data, we used the Open Data Kit (ODK) software, which facilitated data collection, while previously established data was managed using the GFE (Easy Business Management) software.
After data collection, we conducted item counting using a scoring system. The data were then imported into the Statistical Package for the Social Sciences (SPSS) software, allowing us to calculate the respective frequencies.

The sociodemographic characteristics of the respondents included age, sex, education level, social status, and categories.

The independent variable in this study was the frequency of diseases. The study variables selected were as follows:

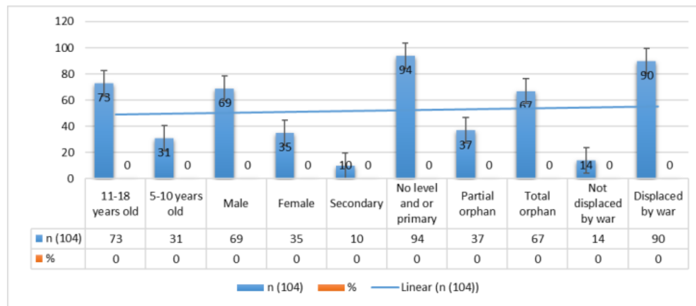
- Support for street children in the city of Bunia.
- The main pathologies observed among street children in the city of Bunia.
- Factors associated with the health of street children in the city of Bunia.
- The outcomes of street children in the city of Bunia.

The study variable was the frequency of pathologies among street children in the city of Bunia.

All children whose files contained complete and relevant data and who were supervised by the NGOs HOG and RAD were included in the study. Children who did not meet these criteria were excluded.

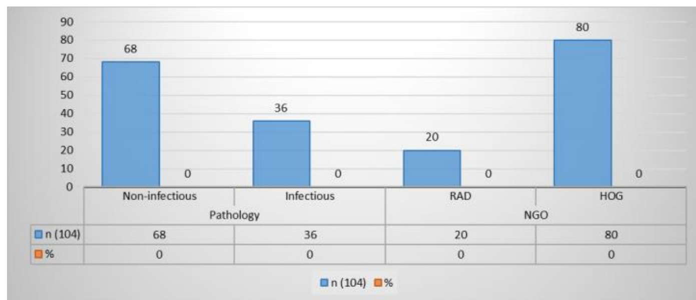
RESULTS

Figure 1:
Sociogeographical Characteristics of Respondents



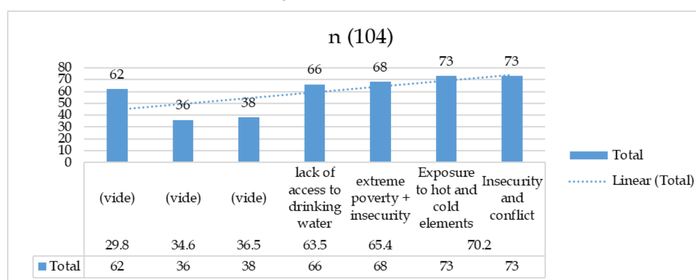
The majority of our respondents, 70.2%, were in the 11-18 age group. The study was dominated by male subjects (66.3%), and a large number of children had no education level.

Figure 2:
Frequency of Illness and Place of Care



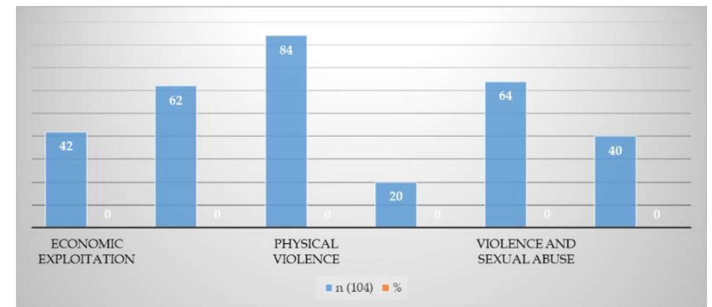
The frequency of infectious pathologies was 34.6%, and 80.8% were supervised by the NGO HOG, while 19.2% were followed by RAD.

Figure 3:
Environmental Factors and Living Conditions



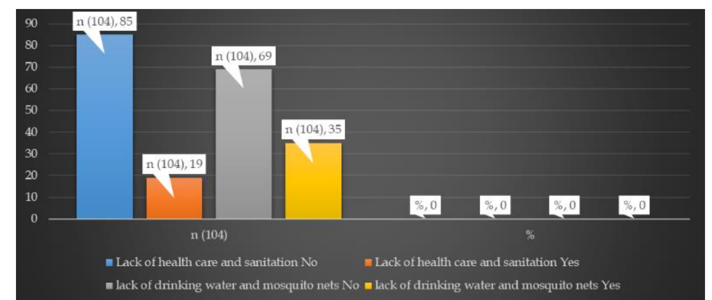
The proportion of children subjected to insecurity and conflict was 29.8%, while those under extreme poverty and insecurity made up 34.6%. Additionally, 41.3% did not have access to drinking water, and 36.5% were exposed to hot and cold elements.

Figure 4:
Factors Related to the Social and Economic Situation



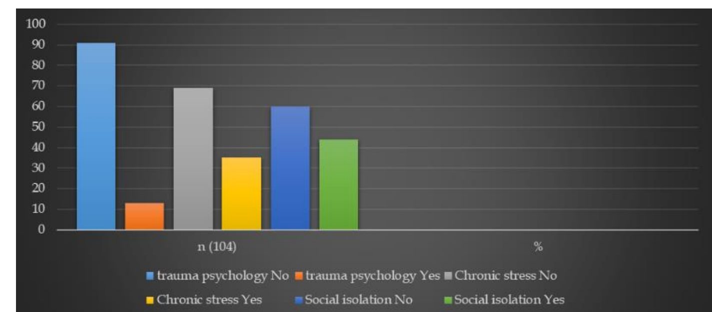
59.6% suffered economic exploitation, 19.2% suffered physical violence, and 38.5% were victims of violence and sexual abuse.

Figure 5:
Health-Related Factors



18.3% did not have access to health care and sanitation, and 33.7% did not have access to drinking water and mosquito nets.

Figure 6:
Factors Related to Psychology



12.5% of the study subjects had experienced psychological trauma, chronic stress was observed in 33.7%, and 42.3% reported being socially isolated.

Figure 7:
Treatment Received

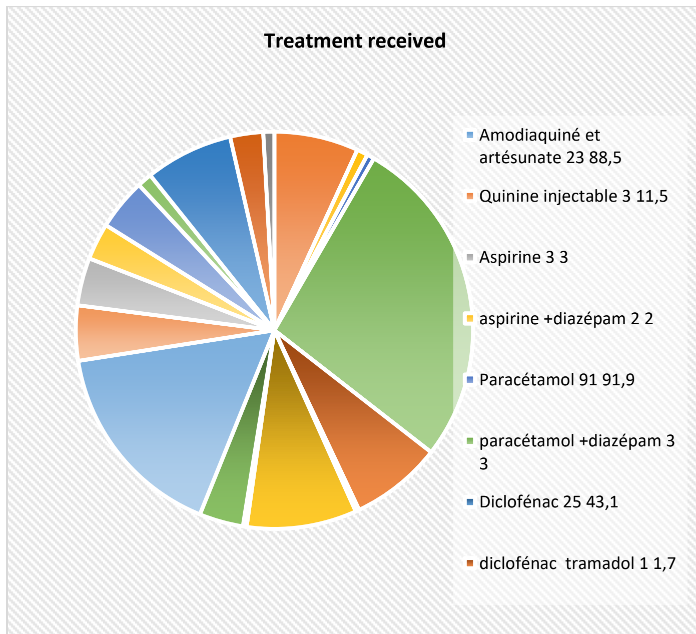
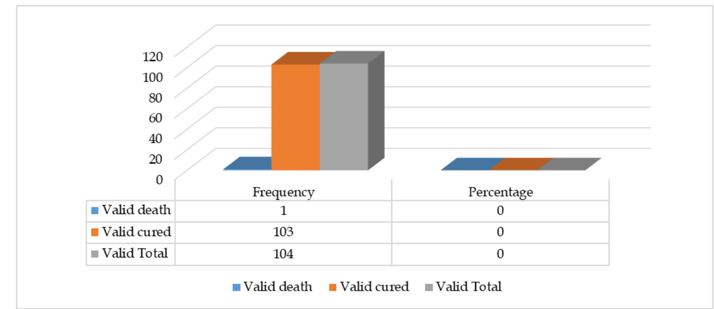


Table 1:
Treatment Received

Variables	Modalities	n (26)	%
Antimalarial treatment	Amodiaquine And Artesinate	23	88.5
	Injectable Quinine	3	11.5
Treatment received with antihistamines	**Modalities**	**n (92)**	**%**
	Promethazine	3	3.0
	Diasepam	2	2.0
	Paracetamol	91	91.9
	Diasepam	3	3.0
Received anti-inflammatory treatment	**Modalities**	**n (58)**	**%**
	Diclofenac	25	43.1
	Diclofenac Tramadol	1	1.7
	Ibuprofen	30	51.7
	Tramadol	1	1.7
	Asprin	1	1.7
Received antihelminthic and deworming	**Modalities**	**n (69)**	**%**
	Albendazole	12	17.4
	Metronidazole	1	1.4
	Vermox	55	79.7
	Vermox Metronidazole	1	1.4
Antibiotic treatment	**Modalities**	**n (92)**	**%**
	Amoxycilin	15	16.3
	Amoxy+ Bactrim	13	14.1
	Amoxy+Metro	10	10.9
	Cefitriaxone+Metro	14	15.2
	Genta+Ampicilin	31	33.7
	Bactrim	9	9.8

Our study reveals that a significant proportion of children received amodiaquine and artesunate (88.5%), and 91.9% received paracetamol as an analgesic, followed by Gentamicin associated with Ampicillin (26.1%).

Figure 8:
Exit Terms and Conditions



Recovery was observed in 99.0%, and death was recorded in 1.0%.

Bivariate Analysis

Environmental Factors and Living Conditions

Table 2:
Environmental Factors and Living Conditions

Variables	*Terms & Conditions*	Disease Frequencies				X^2	*p*
		Infectious *n (36)*	%	Non-infectious *n (68)*	%		
Insecurity and Conflict	No	46	63.0	27	37.0	0.608	0.435
	Yes	22	71.0	9	29.0		
Extreme Poverty and Insecurity	No	16	23.5	52	76.5	10.66	0.001
	Yes	20	55.6	16	44.4		
Exposure to Hot and Cold Elements	No	19	26.0	54	74.0	7.98	0.005
	Yes	17	54.8	14	45.2		
Lack of Access to Drinking Water	No	12	18.2	54	81.8	21.55	0.00
	Yes	24	63.2	14	36.8		

The frequency of infectious diseases was more prevalent in children experiencing extreme poverty and insecurity (71.0% vs. 29%) ($X^2 = 10.66$, $p = 0.001$). A statistically significant relationship was found between these variables. Similarly, a higher frequency of infectious diseases was noted among children exposed to hot and cold elements (54.8% vs. 44.4%) ($X^2 = 7.98$, $p = 0.005$). Furthermore, a statistically significant relationship was observed between lack of access to drinking water and the frequency of infectious diseases ($X^2 = 21.55$, $p = 0.000$).

Factors Related to the Social and Economic Situation

Table 3:
Factors Related to the Social and Economic Situation

Variables	*Terms & Conditions*	Disease Frequencies				X^2	*p*
		Infectious n (36)	%	Non-infectious n (68)	%		
Economic Exploitation	No	17	40.5	25	59.5	1.06	0.3
	Yes	19	30.6	43	69.4		
Physical Violence	No	30	35.7	54	64.3	0.23	0.62
	Yes	6	30.0	14	70.0		
Violence & Sexual Abuse	No	10	15.6	54	84.4	26.5	0.00
	Yes	26	65.0	14	35.0		

The frequency of infectious diseases was predominant among children who had experienced violence and sexual

abuse (65% vs. 35%) (X^2 = 26.5, p = 0.000), with a statistically significant relationship between these two variables.

Health-Related Factors

Table 4:
Health-Related Factors

Variables	*Terms & Conditions*	Disease Frequencies				X^2	*p*
		Infectious n (36)	%	**Non-infectious** n (68)	%		
Lack of Health Care and Sanitation	No	22	25.9	63	74.1	15.67	0.000
	Yes	14	73.7	5	26.3		
Lack of Drinking Water & Bed Nets	No	23	33.3	46	66.7	0.14	0.7
	Yes	13	37.1	22	62.9		
Lack of Health Care and Sanitation	No	22	25.9	63	74.1	15.67	0.000
	Yes	26	65.0	14	35.0		

The frequency of infectious diseases was higher among children without access to health care and hygiene (73.7% vs. 26.3%) (X^2 = 15.67, p = 0.000). A statistically significant relationship was found between these variables.

Factors Related to Psychology

Table 5:
Factors Related to Psychology

Variables	*Terms & Conditions*	Disease Frequencies				X^2	*p*
		Infectious n (36)	%	**Non-infectious** n (68)	%		
Trauma Psychology	No	31	34.1	60	65.9	0.09	0.75
	Yes	5	38.5	8	61.5		
Chronic Stress	No	15	21.7	54	78.3	15.01	0.000
	Yes	21	60.0	14	40.0		
Social Isolation	No	7	11.7	53	88.3	32.9	0.000
	Yes	29	65.9	15	34.1		

The frequency of infectious diseases was predominant among children with chronic stress (60% vs. 40%) (X^2 = 15.01, p = 0.000), and socially isolated children also had a higher frequency of infectious diseases (65.9% vs. 34.1%) (p = 0.000). These relationships were statistically significant.

The Correlation Between Different Characteristics and Disease Frequency

Table 6:
The Correlation Between Different Characteristics and Disease Frequency (a-e)

a. Sociodemographic Characteristics

Variables	*Correlation (rho)*	*p*
Age	*0.012*	*0.905*
Sex	*0.081*	*0.416*
Level of Study	*0.105*	*0.287*
Social Status	*0.135*	*0.173*
Other Categories	*0.05*	*0.613*

b. Environmental Factors and Living Conditions

Variables	*Correlation (rho)*	*p*
Insecurity and Conflict	*0.076*	*0.440*
Extreme Poverty and Insecurity	*0.322*	*0.001*
Exposure to Hot and Cold Elements	*0.227*	*0.004*
Lack of Access to Drinking Water	*0.445*	*0.000*

c. Factors Related to the Social and Economic Situation

Variables	*Correlation (rho)*	*p*
Economic Exploitation	*-0.101*	*0.000*
Physical Violence	*-0.047*	*0.633*
Violence and Sexual Abuse	*0.505*	*0.000*

d. Health-Related Factors

Variables	**Correlation (rho)**	**p**
Lack of Health Care and Sanitation	0.388	0.000
Lack of Drinking Water and Mosquito Nets	0.038	0.758

e. Factors Related to Psychology

Variables	**Correlation (rho)**	**p**
Trauma Psychology	0.031	0.758
Chronic Stress	0.308	0.000
Social Isolation	0.563	0.000

The results of the Spearman correlation showed a moderate positive correlation between lack of access to drinking water and the frequency of infectious diseases (COR = 0.445, p = 0.000). A strong positive correlation was found between social isolation and the frequency of diseases (COR = 0.563, p = 0.000). A weak negative correlation was found between economic exploitation and disease frequency (COR = -0.101, p = 0.000).

Multivariate Analysis (Logistic Regression)

Variables	**Modality**	**SE**	**Forest**	**p**	**GOLD**	**95% CI**
Violence and Sexual Abuse	Yes	0.705	6,809	0.009	6.292	[1.581-25.050]
Lack of Hygiene & Access to Health Services	Yes	1.016	9,919	0.002	24.504	[3.347-179.387]
Chronic Stress	Yes	0.770	10,567	0.001	12.207	[2.701-55.179]
Isolation	Yes	0.810	15,294	0.000	23.761	[4.857-116.255]

The multivariate analysis revealed that four variables were retained as significant risk factors for infectious diseases among street children in Bunia. Children subjected to

violence and sexual abuse had 6.292 times the probability of contracting infectious diseases (OR = 6.292, 95% CI [1.581-25.050], p = 0.009). A lack of hygiene and access to health care increased the risk 24-fold (OR = 24.504, 95% CI [3.347-179.387], p = 0.002). Chronic stress increased the risk by 12 times (OR = 12.207, 95% CI [2.701-55.179], p = 0.001), and social isolation increased the risk by 23 times (OR = 23.761, 95% CI [4.857-116.255], p = 0.000).

DISCUSSION

Sociogeographical Characteristics

Our study found that the majority of respondents, 70.2%, were in the age group of 11-18 years, and the study was primarily dominated by male subjects (66.3%). A study conducted by UNICEF contradicts our results, indicating that the phenomenon of street children is expanding in large cities, such as Kinshasa, where their numbers were estimated in the last survey, conducted in 2017, to be between 30,000 and 50,000, including 44% girls. Most of these children are young girls, aged between 11 and 15, who find themselves unable to provide for their families, leading many to abandon their children (UNICEF, 2017). Our results can be explained by the fact that the male gender was more prevalent in our survey sample.

Frequency of Illness and Place of Care

Regarding the frequency of illness, 34.6% of the children were affected by infectious pathologies, with 80.8% being supervised by the NGO HOG, compared to 19.2% who were followed by RAD. This study confirms our findings: children are arriving on the streets at increasingly younger ages, with the average age being just four years old. Additionally, field workers are deeply concerned about the increasing phenomenon of child abduction for organ trafficking, as well as the prostitution of young girls on the streets, which exposes them to sexual violence, sexually transmitted infections, and unwanted pregnancies.

We believe that our results are statistically significant because the children in our study were displaced by war, and their living conditions on the streets of Bunia expose them to these social challenges.

Environmental Factors and Living Conditions

Among the respondents, 29.8% of children were subjected to insecurity and conflict, while 34.6% lived under extreme poverty and insecurity. Furthermore, 41.3% lacked access to drinking water, and 36.5% were exposed to hot and cold weather extremes. The frequency of infectious diseases was higher among children in extreme poverty and insecurity (71.0% vs. 29%), with a statistically significant relationship between these two variables (X^2 = 10.66, p = 0.001). A similar pattern was observed among children exposed to hot and cold elements (54.8% vs. 44.4%) (X^2 = 7.98, p = 0.005). Finally, there was a significant relationship between the lack of access to drinking water and the frequency of infectious diseases (X^2 = 21.55, p = 0.00).

This study aligns with previous research that identifies the most common reasons for street children living on the streets, including the search for employment, disagreements with parents, peer pressure, and the need for food, all of which reflect the impact of poverty. Another study estimated that approximately 120 million children live on the streets, with 60 million in South America and 30 million in Africa. Some countries, such as India, have approximately 11 million street children, while Bangladesh has 445,000, Kenya 250,000, Morocco 25,000, and Kinshasa 200,000. According to the United Nations, the true extent of the problem is often underestimated in many regions, with one in three children worldwide suffering from severe deprivation, including homelessness (UNICEF, 2021).

Our results are statistically significant, as extreme poverty, insecurity, and environmental degradation are interconnected and mutually reinforcing. The children in our survey were largely displaced by war, and most lacked the resources to combat these social issues.

Factors Related to the Social and Economic Situation

In our study, 59.6% of children suffered economic exploitation, 19.2% experienced physical violence, and 38.5% were victims of violence and sexual abuse. The frequency of infectious diseases was notably higher among those who had suffered violence and sexual abuse (65% vs. 35%), with a statistically significant relationship (X^2 = 26.5, p = 0.00).

Our findings are consistent with those of the International Labour Organization (ILO), which highlights that children living on the streets face precarious living conditions, often leading to various forms of exploitation, including forced labor. This phenomenon is driven by several

interconnected factors, such as social conditions and economic dynamics. Approximately 152 million children worldwide are involved in child labor, with 73 million engaged in hazardous work (ILO, 2017).

Our results can be explained by the severe social and economic conditions experienced by the children in our study. Extreme poverty is the primary cause of these children living on the streets. When families cannot meet their basic needs (food, housing, education), children are often forced to leave their homes in search of survival.

Health-Related Factors

Eighteen point three percent (18.3%) of the children in our study did not have access to healthcare or sanitation, and 33.7% did not have access to drinking water or mosquito nets. The frequency of infectious diseases was more predominant among children who lacked access to healthcare and sanitation (73.7% vs. 26.3%), with a statistically significant relationship ($X^2 = 26.5$, $p = 0.00$).

The health risk factors for children living on the streets are diverse and interconnected. Socioeconomic background plays a fundamental role in these factors. Poverty, lack of education, and family dysfunction are often the underlying causes that push children to the streets. A study by UNICEF (2017) highlights that most children living on the streets come from disadvantaged backgrounds, where malnutrition and lack of medical care are prevalent.

Additionally, the environment in which these children grow up is a major risk factor. Exposure to violence, substance abuse, and unsanitary living conditions increase their vulnerability. According to the World Health Organization (WHO, 2020), these children are also more likely to be victims of physical and sexual abuse, which further deteriorates their mental and physical health.
Our findings underscore that the majority of our survey subjects lack access to health services due to issues such as the absence of identity documents, fear of authorities, and discrimination. Furthermore, the nomadic lifestyles of many street children, along with their lack of financial resources, can make it difficult for them to access healthcare. We believe that many street children in Bunia do not have access to clean drinking water or adequate sanitation facilities, contributing to the spread of diarrheal and parasitic diseases among them.

Factors Related to Psychology

In our study, 12.5% of children had experienced psychological trauma, 33.7% exhibited chronic stress, and 42.3% reported social isolation. The frequency of infectious diseases was more prevalent among children with chronic stress (60% vs. 40%), with a statistically significant relationship ($X^2 = 15.01$, $p = 0.00$). A similar pattern was observed for children who were socially isolated (65.9% vs. 34.1%) ($p = 0.000$), indicating a statistically significant relationship.

Studies have shown that approximately 60% of street children exhibit signs of depression, anxiety, or other psychological disorders (Thompson et al., 2019). These issues are often the result of traumatic experiences, social isolation, and stigma. Lack of access to mental health care further exacerbates this situation.

Beyond physical health problems, street children are also exposed to a wide range of psychological conditions. Their experiences of violence, neglect, and exploitation can lead to disorders such as anxiety, depression, and post-traumatic stress disorder (PTSD). A study by Ghosh et al. (2021) found that nearly 60% of street children exhibit symptoms of severe depression, while 50% suffer from anxiety disorders.

Psychological treatments available to these children are often rudimentary or nonexistent. Mental health professionals often lack adequate training to treat children who have experienced complex trauma. Moreover, the "asylum" approach, which isolates children in institutions, is sometimes favored, but this can worsen their condition by distancing them from their communities and failing to provide real solutions to their problems (Smith et al., 2018).
Our results can be explained by the fact that most of the children in our study are living under chronic stress. This prolonged stress leads to the sustained release of hormones such as cortisol, which can suppress immune system activity, particularly the function of lymphocytes (immune cells) that fight infections. Stress also leads to behavioral changes that increase the risk of infection, such as poor hygiene (e.g., less frequent handwashing),

unhealthy eating habits, insufficient sleep, and increased substance use, such as alcohol or tobacco.

Treatment Received

Our study reveals that among the respondents, a significant proportion of children received amodiaquine and artesunate (88.5%), while 91.9% received paracetamol as an analgesic. Gentamicin, associated with ampicillin, was administered to 26.1% of the children.

These findings are consistent with a study by Ranjan et al. (2019), which highlights that bacterial infections are common among children living on the streets, primarily due to their exposure to unsanitary conditions and malnutrition. Drugs such as penicillin, amoxicillin, and cephalosporins are often used to treat respiratory and skin infections. Street children have high rates of acute respiratory infections, frequently requiring antibiotic treatment. Drugs such as paracetamol and ibuprofen are commonly used to manage fever and pain, being essential for treating symptoms associated with common infections. Due to the poor hygiene conditions in which they live, these children are also exposed to parasitic infections, such as intestinal worms, requiring the use of drugs like mebendazole and albendazole (World Health Organization [WHO], 2017).

The majority of children in our study were treated with amodiaquine and artesunate. This can be explained by the fact that our survey participants live in an area endemic to malaria and do not have access to mosquito nets, hence the large number of children who received these treatments.

The Correlation Between Different Characteristics and Disease Frequency

The results of our analysis show a low positive correlation between insecurity, conflict, and the frequency of diseases (COR = 0.322, p = 0.001). The same correlation was found for extreme poverty and insecurity (COR = 0.322, p = 0.001), exposure to hot and cold elements (COR = 0.227, p = 0.004), lack of healthcare and sanitary hygiene (COR = 0.388, p = 0.000), and chronic stress (COR = 0.308, p = 0.000). We conclude that the relationship is statistically significant but weak.

A moderate correlation was observed between lack of access to drinking water and the frequency of diseases (COR = 0.628, p = 0.000). The same observation was made for social isolation (COR = 0.563, p = 0.000). The relationship between these two variables and the frequency of diseases is statistically significant.

A weak, almost negligible negative correlation was found between economic exploitation and disease frequency (COR = -0.101, p = 0.000). The relationship between these two variables is almost negligible.

Our findings corroborate a study by Kumar et al. (2016), which highlighted that children living on the streets suffer from a wide range of health problems. Among the most commonly observed pathologies were respiratory infections, dermatological diseases, gastrointestinal disorders, and communicable infections. Approximately 75% of children living on the streets are affected by acute respiratory diseases, often exacerbated by precarious living conditions such as exposure to pollution and harsh weather. Skin diseases, such as fungal and bacterial infections, also affect many children due to poor hygiene and lack of medical care.

Several studies confirm our findings, revealing that most children and adolescents living on the streets feel exposed to various health risks, such as abdominal pain, louse-borne diseases, headaches, weather-related diseases, typhoid/typhus, and heart problems, all resulting from street living conditions. Perceptions of disease risks are key determinants of health behaviors. Evidence regarding perceived susceptibility to a health threat is essential for designing interventions that encourage positive and compliant behaviors (Harvey & Lawson, 2009; Ferrer & Klein, 2015).

Furthermore, the vulnerability of street children in our study was accentuated by their lack of experience in visiting health facilities for general health checkups. Ali and de Muynck (2005) confirmed that street children are particularly vulnerable to health problems, including physical injuries and respiratory and skin infections. Chowdhury et al. (2017) associated the exposure of street children to various skin diseases and communicable infections with their precarious living conditions, including overcrowding, unsanitary sleeping areas, irregular bathing, and a lack of clean clothing. According

to Adam and Aigbokhaode (2018), the self-reported health conditions among these children are also alarming.

Similar studies have revealed that in Ethiopia, more than four million children live in particularly difficult circumstances and are at high risk of sexual and physical exploitation. Data indicate that 15.6% of street children engage in risky sexual activities, while 61.6% of them face health problems (Chimdessa et al., 2017).

Exit Terms and Conditions

Our survey reveals that the majority of street children in the city of Bunia had a recovery, which was observed in 99.0%, and death was 1.0%. A study conducted by the World Health Organization (WHO, 2020) revealed that nearly 60% of street children in urban areas suffer from physical illnesses, which, if left untreated, lead to serious complications and premature mortality.

Limitations of the Study

Our research should have been conducted with several local and international organizations working to protect street children in the city of Bunia. However, most of these organizations do not carry out humanitarian actions focused on health. Thus, we limited ourselves to two NGOs for this study. This is the dimension that limits our research. However, future research could address a theme such as "Analysis of existing policies and programs for displaced street children in Bunia."

CONCLUSION AND SUGGESTIONS

Our study focuses on the epidemiological profile of children living on the streets in Bunia. The main objective of this research was to describe this epidemiological profile. We used a cross-sectional method on a population of 104 children consulted in two local structures. Our sample was exhaustive. To collect data related to our research, we used ODK software, SPSS, and the documentary analysis technique. The following results were expected:

- Children who had been subjected to violence and sexual abuse were 6,292 times more likely to be affected by various infectious diseases.
- Lack of hygiene and access to healthcare exposes these children to the risk of infectious diseases 24 times over.
- Chronic stress exposes street children to various infectious diseases 12 times more often.
- Finally, socially isolated children are 23 times more likely to contract diseases.

In light of our results, we suggest the following:

To the political and administrative authorities:

- It is essential that governments develop health policies specifically tailored to children living on the streets, taking into account their particular needs. This could include the establishment of integrated health programs, combining medical, psychological, and social services.
- The Congolese government has a duty to take back its responsibilities by intervening in the health plans for these children, as the majority of NGOs have seen them in difficulty following the sudden interruption of USAID aid.
- An intersectoral approach is essential to address the complex problems faced by street children. Political and administrative authorities must encourage collaboration between the ministries of health, social affairs, education, and security.

To Non-Governmental Organizations (NGOs):

- Adopting a multidisciplinary approach to the medical care of street children is crucial. NGOs should form teams comprising doctors, nurses, psychologists, social workers, and educators. This diversity of skills makes it possible to address not only physical health problems but also issues related to the mental health and social needs of the children concerned.
- It is also imperative that NGOs engage in training and raising awareness among medical personnel about the specific health issues facing street children. This includes training sessions on trauma, neglect, and exploitation, as well as a child-centered approach.

To healthcare professionals:

- It is imperative that health professionals receive specialized training on the specific needs of children living on the streets. This training must include awareness of trauma, mental health

disorders, and common medical conditions encountered in this population.

To the street children:

- It is essential that children living on the streets become aware of the importance of their physical and mental health. This could help them become more aware and support their efforts to leave the streets.

Ethical Approval: Ethical approval was secured from the Ethics Committee of the Higher Institute of Medical Techniques (ISTM), Kinshasa, Democratic Republic of the Congo (N°001/CNES/SR/03/2015 du 12 Mars 2015).

Conflicts of Interest: None declared.

ORCID iDs:

Suga, S. A.: Nil identified.
Basua, L. B. M.: Nil identified.
Lofandjola, J. M.: Nil identified.

Open Access: This original article is distributed under the Creative Commons Attribution Non-Commercial (CC BY-NC 4.0) license. This license permits people to distribute, remix, adapt, and build upon this work non-commercially and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made are indicated, and the use is non-commercial. See: https://creativecommons.org/licenses/by-nc/4.0/.

REFERENCES

Aigbokhaode, A. Q. (2018). Sociodemographic factors associated with the healthcare-seeking behavior of heads of households in a rural community in Southern Nigeria. *Sahel Medical Journal, 21*(1), 31–36. https://doi.org/10.4103/1118-8561.232781

Ali, M., & de Muynck, A. (2005). Illness incidence and health-seeking behavior among street children in Rawalpindi and Islamabad, Pakistan—a qualitative study. *Child: Care, Health and Development, 31*(5), 525–532. https://doi.org/10.1111/j.1365-2214.2005.00545.x

Chimdessa, A., Olayemi, O., & Akpa, O. M. (2016). Factors associated with vulnerability to HIV and sexually transmitted infections among street children in selected towns of Ethiopia. *World Journal of AIDS, 7*(3), 230.

Chowdhury, S., Chowdhury, A. S., Huq, K. A., Jahan, Y., Chowdhury, R., Ahmed, T., et al. (2017). Lifestyle and risk behavior of street children in Bangladesh: A health perspective. *Health, 9*(4), 577–591. https://doi.org/10.4236/health.2017.94041

Ferrer, R., & Klein, W. M. (2015). Risk perceptions and health behavior. *Current Opinion in Psychology, 5*, 85–89. https://doi.org/10.1016/j.copsyc.2015.03.012

Harvey, J., & Lawson, V. (2009). The importance of health belief models in determining self-care behavior in diabetes. *Diabetic Medicine, 26*(1), 5–13. https://doi.org/10.1111/j.1464-5491.2008.02628.x

Hassen, I., & MaA, M. R. (2018). Socio-economic conditions of street children: The case of Shashe mene Town, Oromia National Regional State, Ethiopia. *International Journal of Sociology and Anthropology, 10*(4), 72–88.

International Labor Organization (ILO). (2017). *Global estimates of child labor: Results and trends, 2012–2016.*

Kumar, A., et al. (2016). Health status of street children in India: A systematic review. *International Journal of Adolescence and Youth, 21*(3), 341–356.

MASSN-UNICEF. (2014). *Mapping and evaluation of the child protection system in Burkina Faso.* Ouagadougou.

MISEREOR. (2017). *Evaluation of the "Street Children in Kinshasa" project.*

Ranjan, S., et al. (2019). Health issues of street children and their treatment needs. *Journal of Public Health Research.*

Tao. (n.d.). *Indian Dermatology Online Journal.*

UNICEF. (2017). *The State of the World's Children 2017: Children in a Digital World.* UNICEF.

UNICEF. (2019). *Situation and access to services of homeless children and adults in Addis.*

UNICEF. (n.d.). *Child Labor.* Retrieved from https://www.unicef.fr/dossier/exploitation-et-travail-des-children

UNICEF/MASSN. (2008). *Study on child labor in gold mining sites and artisanal quarries in five regions of Burkina Faso.*

United Nations Committee on the Rights of the Child. (2016). *General Comment No. 21 (2017) on Children in Street Situations.*

World Health Organization (WHO). (2017). *Guidelines for the prevention and control of schistosomiasis.*

World Health Organization (WHO). (2020). *World Health Statistics 2020: Monitoring Health for the SDGs.*

World Health Organization (WHO). (2020). *The health of street children: Global estimates and trends.*