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Prevalence of Common Medical Conditions Among Children Residing in Orphanages in Kaduna State, Nigeria

By

Soyobi VY[1,2], Obohwemu KO[3,4], Suberu PO[5]

[1]*Oni Memorial Children Hospital, Ibadan, Nigeria*
[2]*Riverside Nursing Home, Aberdeen, United Kingdom*
[3]*Department of Health, Wellbeing & Social Care, Global Banking School, Birmingham, United Kingdom.*
[4]*PENKUP Research Institute, Birmingham, United Kingdom*
[5]*Cardiorespiratory Unit, Leeds Teaching Hospitals NHS Trust, Leeds, United Kingdom*

Corresponding Author: *Obohwemu Kennedy Oberhiri ORCID: 0000-0001-5175-1179 KObohwemu@globalbanking.ac.uk*

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Abstract

Background*: Orphanhood is a global issue, worsened in sub-Saharan Africa by the HIV/AIDS epidemic. Nigeria faces a growing orphan population due to violence, terrorism, and natural disasters. Orphans endure child abuse, labor exploitation, trafficking, HIV exposure, limited education, malnutrition, stigmatization, and psychological challenges. Despite interventions, care often focuses on material needs, neglecting medical, social, and psychological well-being. Comprehensive care integrating medical, socioeconomic, legal, and psychosocial support is essential. This study assesses the medical and social challenges of orphans in Kaduna, Nigeria.*

Methodology*: A cross-sectional descriptive study was conducted among 100 orphans in Kaduna orphanages. Structured, interviewer-administered questionnaires collected data on socio-demographic characteristics, medical conditions, behavioral patterns, stigma, psychosocial status, and coping mechanisms. Pilot-testing ensured data quality. Descriptive statistics (frequencies, percentages, mean, median, mode) and cross-tabulation analyzed relationships between variables. Results were presented in tables and charts.*

Results*: The mean age of respondents was 10 years, with 68% male. About 40.2% felt well and energetic, and 54.9% had access to a balanced diet. Half (50.0%) sought hospital care regularly. Significant health concerns included 53.7% underweight, 33.7% with clinical illness signs, and 46.7% not fully immunized. Behavioral issues were prevalent: 27.0% had hyperactivity disorders, 1.8% major depressive disorder, and 22.3% enuresis. Despite challenges, 83.3% reported positive peer relationships, though 11.4% were bullied and 9% faced peer stigmatization. Educational access was high, with only 2.2% not attending school, and 89.2% had good self-esteem. Social support was moderate, with 35.2% indicating strong support and 46.8% adapting goals to cope.*

Conclusion*: This study highlights the significant medical and social problems faced by orphans living in orphanages in Kaduna. Many orphans suffer from health issues, with a considerable number not fully immunized and displaying behavioral disorders. A portion of the respondents also struggles with poor self-esteem. Nonetheless, the majority have access to education and demonstrate resilience in coping with their circumstances. These findings underscore the need for a more holistic approach to orphan care, with greater attention to medical, psychosocial, and behavioral health support.*

Keywords: *Orphanhood, HIV/AIDS, sub-Saharan Africa, Nigeria, violence, terrorism, natural disasters, child abuse, labor exploitation, trafficking, education, malnutrition, stigmatization, psychological challenges, comprehensive care, medical support, psychosocial support.*

INTRODUCTION

Life is often described as a journey filled with opportunities and challenges, and for children living in orphanages, these challenges can be particularly acute. Orphanages are institutions that provide care for children who have lost one or both parents, or whose families are unable to care for them

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due to socioeconomic challenges, familial dysfunction, or regional conflicts (Boadu, Osei-Tutu and Osafo, 2020; Disassa and Lamessa, 2021; Hayata, 2022). These institutions, in theory, are designed to offer basic needs such as food, shelter, education, and medical care. However, the reality within many orphanages, particularly in sub-Saharan Africa, falls short of these expectations. In Nigeria, orphanages often lack the resources to address the physical and emotional needs of children, and these shortcomings have a profound impact on the overall well-being of orphaned and vulnerable children (OVCs). Among the most critical of these impacts are the medical conditions that these children endure, which are exacerbated by inadequate healthcare services, poor living conditions, and the socio-economic constraints of their environment (Olowokere et al., 2023; Yuka and Omorogiuwa, 2024).

The phenomenon of orphaned children and institutional care is not new. Throughout history, orphanages have been a response to societal needs for the care of children who lack parental support, and this need is especially pronounced in regions affected by epidemics, poverty, and conflict. In Nigeria, the increasing number of orphaned children can be traced back to several interrelated factors, including the HIV/AIDS pandemic, insurgency in the northern regions, and widespread poverty (Muhammad, 2020; Tani, Otanwa, and Yusuf, 2023). These issues have not only resulted in the loss of parents but have also significantly strained the already fragile healthcare system, leading to widespread neglect of children's medical needs (UNICEF, 2020). According to UNICEF, as of 2020, Nigeria was home to over 17 million orphans, with many of these children concentrated in regions such as Kaduna, where the intersection of poverty, conflict, and inadequate healthcare services has created a crisis of care (UNAIDS, 2018; UNICEF, 2020).

Children in orphanages are particularly vulnerable to health problems due to their living conditions and lack of access to quality healthcare. Malnutrition, infectious diseases, and mental health disorders are prevalent among these children. This vulnerability is heightened by the fact that orphanages in Kaduna, like many others in sub-Saharan Africa, operate under severe resource constraints. Inadequate sanitation, overcrowding, and insufficient medical staff make it difficult to address the health needs of these children effectively (WHO, 2020). Additionally, many of these orphanages lack the capacity to provide preventive healthcare services, which contributes to the high prevalence of both acute and chronic medical conditions. Without timely medical interventions, conditions such as malaria, respiratory infections, and gastrointestinal disorders can become life-threatening, exacerbating the already precarious health situation for these children (Oluwatoyin, 2019).

The high prevalence of malnutrition among children in orphanages is of particular concern. Malnutrition, in its various forms, can have devastating effects on children's physical and cognitive development. In Kaduna State, stunting rates—an indicator of chronic malnutrition—have reached as high as 44%, according to the National Population Commission (NPC) and the Nigeria Demographic and Health Survey (NDHS) (NPC, 2018). Stunting not only affects children's growth but also has long-term implications for their educational and social development. Orphanages, which often rely on inadequate and irregular funding, struggle to provide balanced diets, leading to widespread malnutrition among their residents. This problem is compounded by the fact that many orphanages do not have access to nutritionists or healthcare professionals who can monitor and address the dietary needs of these children (Shawar and Shiffman, 2023).

Infectious diseases also pose a significant threat to children residing in orphanages. The combination of overcrowding, poor sanitation, and limited access to healthcare services creates an environment in which diseases such as malaria, tuberculosis, and respiratory infections can spread rapidly. Malaria, in particular, is endemic in many parts of Nigeria, including Kaduna State, and is one of the leading causes of morbidity and mortality among children (WHO, 2022). Studies have shown that children in orphanages are more likely to contract malaria than their peers living in family settings due to the poor implementation of preventive measures such as the use of insecticide-treated bed nets (ITNs) and regular fumigation of living spaces (Yeboah, 2023). Similarly, tuberculosis and respiratory infections are common due to the overcrowded living conditions in many orphanages, where proper ventilation and hygiene practices are difficult to maintain.

The mental health of children in orphanages is another critical area of concern. Orphaned children are at a higher risk of experiencing psychological distress due to the loss of parental care and the challenges associated with institutional living. The trauma of losing one or both parents, coupled with the often harsh and neglectful environment of orphanages, can lead to a range of mental health issues, including anxiety, depression, and post-traumatic stress disorder (PTSD) (Lawrence, Makhonza & Mngomezulu, 2022). These mental health challenges are often exacerbated by the lack of trained mental health professionals in orphanages, as well as the stigma attached to seeking psychological help in many parts of Nigeria. Studies have indicated that children in orphanages are more likely to exhibit behavioral problems, including aggression and withdrawal, which are often a manifestation of unresolved psychological trauma (Allen & Nakonechnyi, 2022; Lawrence, Makhonza & Mngomezulu, 2022).

In recent years, there has been growing recognition of the importance of addressing the health needs of children in institutional care settings. International organizations such as UNICEF and the World Health Organization (WHO) have emphasized the need for comprehensive healthcare strategies that include both preventive and curative measures for children in orphanages (UNICEF, 2020; WHO, 2021). These strategies include improving access to healthcare services, providing adequate nutrition, and implementing measures to prevent the spread of infectious diseases. However, despite these efforts, many orphanages in Nigeria, including those in Kaduna State, continue to face significant challenges in

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providing even the most basic healthcare services to their residents.

One of the key barriers to improving the health outcomes of children in orphanages is the lack of financial resources. Many orphanages rely on donations and sporadic government funding, which are often insufficient to meet the healthcare needs of their residents. This lack of funding means that orphanages are unable to hire qualified healthcare professionals, purchase necessary medical supplies, or implement preventive health programs (Aliyu et al., 2018). Additionally, the bureaucratic hurdles associated with accessing government healthcare services further complicate the situation. Many orphanages are located in remote areas with limited access to healthcare facilities, making it difficult for children to receive timely medical attention.

The role of government and non-governmental organizations (NGOs) in addressing the health needs of OVCs cannot be overstated. While the Nigerian government has made some efforts to support orphanages, these efforts have been largely inadequate. Many orphanages operate without proper oversight or regulation, and as a result, the quality of care provided to children varies widely (Akanle & Ojuri, 2020; Amoo, 2022; Onayemi & Hapunda, 2023). NGOs, both local and international, have stepped in to fill some of the gaps, providing funding, healthcare services, and training for orphanage staff. However, these efforts are often limited in scope and sustainability, and much more needs to be done to ensure that all children in orphanages receive the care they need.

Children residing in orphanages in Kaduna State face a wide range of health challenges, including malnutrition, infectious diseases, and mental health issues. These challenges are exacerbated by the poor living conditions in many orphanages, as well as the lack of access to quality healthcare services. Addressing the health needs of these children requires a comprehensive approach that includes improving the funding and regulation of orphanages, increasing access to healthcare services, and implementing preventive health programs.

Despite the significant number of OVCs in Kaduna and the challenges they face, there is a notable lack of comprehensive data on the specific medical conditions affecting these children. This gap in knowledge is a major barrier to the development of effective interventions that can address the health needs of children in orphanages. While several studies have highlighted the general health challenges faced by OVCs in Nigeria, few have focused specifically on orphanages as a unique environment with its own set of health risks and challenges. This study seeks to fill this gap by providing a detailed analysis of the prevalence of common medical conditions among children in orphanages in Kaduna State. By understanding the prevalence of common medical conditions among children in orphanages, policymakers and healthcare providers can develop targeted interventions that improve the health and well-being of some of the most vulnerable members of society.

METHODOLOGY

Information on Study Area

Kaduna State is situated in the North-west geopolitical zone of Nigeria. The capital of the state is Kaduna City, one of the three primary urban centers in the state alongside Zaria and Kafanchan. It lies along the Kaduna River and covers an area of 1,190 square miles (3,080 km²), with geographical coordinates of 10°31'23" N and 7°26'25" E. The state is home to over 60 ethnic groups, including the Gbayi, Hausa, Fulani, Gwong, Atuku, Bajju, Atyab, Gure, and Ninkyop, among others. Kaduna serves as an economic hub in the region, acting as a major trade and transportation center, connecting neighboring agricultural areas and states (National Bureau of Statistics, Nigeria, 2021).

Research Sites

- Adonai Orphanage Home: Established on April 10, 2010, by Reverend Mrs. Elizabeth Afuape, Adonai Orphanage is a non-governmental, non-profit, faith-based organization. It is located at 1B Chalawa Crescent, Banawa, opposite Dambo International School, Kaduna South, Nigeria.
- Mercy Orphanage Home: Founded on November 24, 2001, by Reverend Dr. Tunde Balanta, Mercy Orphanage Home is also a non-governmental, non-profit, faith-based organization. It is situated at 12-14 Kagoro Close, Ungwan Romi, Chikun, Kaduna South, Nigeria.
- Jamiyarr Matan Arewa Orphanage Home: Established on May 27, 1963, Jamiyarr Matan Arewa is a social organization aimed at unifying northern women and providing them with a platform for welfare activities.

Study Design

This research was conducted using a cross-sectional descriptive study design. Cross-sectional studies are observational studies that examine the relationships between variables in a population at a specific point in time (Polit & Beck, 2021).

Study Population

The study focused on orphanages located in Kaduna.

Inclusion Criteria

- Any child under 19 years of age living in an orphanage in Kaduna.

Exclusion Criteria

- Any child over 18 years of age or children under 19 years who were unwilling to participate or not in the right frame of mind to participate.

Sample Size Determination

The sample size (n) drawn from the selected subjects was determined using the formula below:

$n = z^2pq/d^2$

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Where n=minimum sample size required, p=0.207[27], q=1-p (=0.793), z=the value of standard normal deviation taken to be 1.96(at 95% confidence interval), d=sampling error tolerance at 95% confidence interval taken to be 0.05 (5%).
$n=1.96^2x0.207x0.793/0.05^2$
n=0.631/0.0025=252.2

Therefore, minimum sample size required N=252.2

However, the final sample size for a population less than 10,000 ($n_f=n/(1+(n/N))$
n=Initial sample size
N=Estimated population of the study area
n_f =Final sample size
n=252.2
N=120
$n_{f=}$ 252.2/ (1+ (252.2/120)
$n_{f=}$ 81.3

Non-response rate of 10%. Hence final sample size is
81.3/0.90 = 90.3
Therefore nf= 90

Sampling Technique
A two-stage sampling technique was employed:

- Stage 1: Random sampling of three out of the seven orphanages in Kaduna.
- Stage 2: All children in the selected orphanages, meeting the inclusion criteria, were sampled.

Mercy Orphanage Home had 46 children, 40 of whom met the inclusion criteria and were sampled. Adonai Orphanage Home had 46 children, all of whom were sampled. Jamiyaa Matan Arewa Orphanage Home had 14 children, all of whom were included in the study.

Tools of Data Collection
An interviewer-administered questionnaire gathered data on the medico-social challenges faced by children in orphanages. Some answers were provided by caregivers. The data collection tools included:

Mid Upper Arm Circumference (MUAC)
Developed by Shakir in 1975, MUAC measures malnutrition by determining the circumference of the upper arm (Shakir, 1975). A measurement of less than 11 cm indicates severe malnutrition, and children should be referred for immediate treatment. Measurements between 11 cm and 12.5 cm (red or orange) indicate moderate malnutrition, requiring supplementation. Measurements between 12.5 cm and 13.5 cm (yellow) indicate the risk of malnutrition, while a measurement over 13.5 cm (green) suggests the child is well-nourished.

Body Mass Index (BMI)
BMI is calculated by dividing a person's body weight by the square of their height (kg/m²). Categories are:

- Underweight: <18.5 kg/m²
- Normal: 18.5 - 24.99 kg/m²
- Overweight: 25 - 29.99 kg/m²
- Obese: ≥30 kg/m²

Rosenberg Self-Esteem Scale
This 10-item scale measures self-esteem on a four-point Likert scale, with scores ranging from 0 to 30 (Rosenberg, 1965). Scores between 15 and 25 indicate normal self-esteem, while scores below 15 suggest low self-esteem.

Duke-UNC Functional Social Support Scale
This scale consists of eight items to measure the perceived strength of a person's social support network, with scores ranging from 1 (low) to 5 (high) (Cohen et al., 1985). The scores are averaged to determine overall perceived social support.

Hyperactivity/Impulsivity Disorder and Major Depressive Disorder
These conditions were assessed using the DSM-V criteria, with individuals meeting 60% or more of the criteria considered to have the disorder (American Psychiatric Association, 2013).

Method of Data Collection

Six trained research assistants, five of whom were 500-level medical students specializing in pediatrics and obstetrics, and one 600-level medical student, administered the questionnaires under the researcher's supervision. Data collection occurred over three Saturdays from 9 am to 3 pm, with an average of 30 respondents interviewed each day.

Data Management and Analysis
All collected data were verified for eligibility, and incomplete or blank responses were excluded. The data were entered into SPSS version 20.0 for analysis. Descriptive statistics were used to summarize the demographic information, and cross-tabulation was conducted to examine relationships between variables. The results were presented in tables and charts, and the findings were compared to previous studies on medico-social problems in orphanages.

Ethical Considerations

1. An introductory letter from the Department of Community Medicine, Faculty of Medicine, ABU, Samaru, Zaria was presented to the orphanage directors, who gave permission for the study.
2. Informed consent was obtained from eligible participants.

Limitations of the Study

1. Only three orphanages were studied due to time and resource constraints.
2. More variables, such as Mantoux tests and vitamin A levels, could not be assessed due to resource limitations.
3. The study's cross-sectional design, which captures data at a single point in time (December 2016), limits its ability to reflect changes in knowledge and skills over time. As such, caution is advised when interpreting the findings in the current context, as shifts in healthcare policies, training initiatives, and resource distribution since the data collection may have impacted healthcare workers' knowledge and competencies. Furthermore, the reliance on self-

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reported data rather than direct observation introduces potential bias. Healthcare workers may either overestimate their abilities or underreport challenges, which could skew the accuracy of the findings regarding their true clinical performance.

RESULTS

A total of 110 questionnaire was administered to assess the medico-social problems of children living in orphanages in Kaduna. A total of 100 questionnaires were retrieved with a response rate of 91%.

Socio-demographic information of orphans living in orphanages in Kaduna

Table 1: Socio-demographic characteristics of respondents

Socio-demographic characteristics of respondents	Frequency (n=100)	Percentage (%)
Age (in years)		
0-4	8	18.0
5-9	26	16.0
10-14	41	41.0
15-19	25	25.0
Total	**100**	**100.0**
Sex		
Male	68	68.0
Female	32	32.0
Total	**100**	**100.0**
Ethnicity		
Hausa	41	41.0
Yoruba	30	30.0
Igbo	10	10.0
Birom	8	8.0
Others	11	11.0
Total	**100**	**100.0**
Religion		
Islam	14	14.0
Christianity	86	86.0
Total	**100**	**100.0**

The table 1 above showed that the age group of respondents 10-14years have the highest percentage (41%) while age group 0-4years has the least percentage of respondents (8%). There are more males (68%) than female (32%) respondents. The predominant tribe is Hausa (41%), followed by Yoruba (30%). Others include Baju, Ebira, Idoma, etc. There are more Christian (86%) than Muslim (14%) respondents.

Prevalence of Common Medical Problems among Orphans in Orphanages in Kaduna

Table 2: Physical well-being of respondents

Variables	All the time [n (%)]	Most of the time [n (%)]	More than half of the time [n (%)]	Less than half of the time [n (%)]	Some of the time [n (%)]	At no time [n (%)]	Total [n (%)]
I feel well and energetic	34(39.1)	35(40.2)	8(9.2)	8(9.2)	2(2.3)	-	100(100)
I feel physically fit to do anything I want	31(35.6)	35(40.2)	10(11.5)	10(11.5)	1(1.1)	-	100(100)
I am comfortable about my weight, shape and physical condition	41(48.8)	29(34.5)	11(13.1)	1(1.2)	1(1.2)	1(1.2)	100(100)
I do get all the sleep I need	37(44.0)	20(23.8)	20(23.8)	4(4.8)	3(3.6)	-	100(100)
I am free from unexplained physical health symptoms	29(35.8)	14(17.3)	11(13.6)	2(2.5)	23(28.4)	2(2.5)	100(100)
I woke up feeling fresh and rested	41(50.0)	18(22.0)	12(14.6)	3(3.7)	6(7.3)	2(2.4)	100(100)

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My daily life has been filled with things that interest me	23(28.4)	29(35.8)	23(28.4)	5(6.2)	1(1.2)	-	100(100)
I eat good balanced diet daily	45(54.9)	20(24.4)	7(8.5)	2(2.4)	8(9.8)	-	100(100)
I feel calm and relax	30(36.6)	30(36.6)	14(17.1)	2(2.4)	6(7.3)	-	100(100)
I usually visit hospital for treatment	41(50.0)	15(18.3)	11(13.4)	7(8.5)	8(9.8)	-	100(100)
I do get all I need anytime the need arise	15(18.3)	15(18.3)	26(31.7)	10(12.2)	11(13.4)	5(6.1)	100(100)
I eat what I want and not what I see	14(17.1)	13(15.9)	11(13.4)	8(7.3)	14(17.1)	24(29.3)	100(100)

From the above table, result shows that a high percentage of respondent felt well and energetic all the time (39.1), most of the time (40.2) and none (0%) none of the time. This implies that about 80% feel well and energetic and approximately 90% feel physically fit and comfortable with their weight, shape and physical condition. About 46.4% of them eat what they want while majority (55.6%) eat what they see rather than what they want, majority (83.3%) eat balanced diet likewise 81.7% visit the hospital whenever they are ill.

Table 3: Body mass index and mid upper arm circumference of respondents

Body mass index and MUAC of respondents	Frequency (n=95)	Percentage (%)
BMI		
Underweight	51	53.7
Normal weight	35	36.8
Overweight	4	4.2
Obese	5	5.3
Total	**95**	**100.0**
MUAC (cm)		
<11.0	2	28.6
11.0-12.5	2	28.6
12.5-13.5	1	14.3
>13.5	2	28.6
Total	**7**	**100.0**

From the table above, more than half (53.7%) of the children are underweight while 36.8% weigh within normal and 5.3% are obese. Less than half (28.6%) of respondents have severe acute malnutrition, 28.8% also have moderate acute malnutrition, 14.3% is at risk of malnutrition and 28.6% of the respondents are well nourished.

Table 4: Clinical examination result of respondents

Signs and symptoms/Age group	0-4(n=8)	5-9(n=26)	10-14(n=40)	15-18(n=25)	Total(n=95)
De-pigmentation of hair	-	-	2	1	3
Muscle wasting	-	-	-	-	-
Moon face	-	-	-	1	1
Flaky paint dermatitis	-	-	-	-	-
Oedema	-	-			
Bitot spot	-	-	-	2	2
Conjuctival xerosis	-	-	-	1	1
Xerosis of the skin	-	-	-	-	-
Cheilosis	1	1	1	-	3
Magenta tongue	-	-	1	1	2

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Loss of ankle and knee jerk	-	-	-	-	-
Atrophic lingual papillae	-	1	-	-	1
Spongy bleeding tongue	-	-	-	1	1
Open fontanella	-	-	-	-	-
Bow leg	1	-	-	1	2
Knock knee		3	1	2	6
Pale conjunctival	1	1	2	1	5
Enlarged thyroid gland	-	-	-	-	-
Mottled dental enamel	1	1	1	2	5
Total [n (%)]	4	7	8	13	32 (33.7)

66.3% of the respondents had no physical signs on clinical examination while 33.7% of the respondent do.

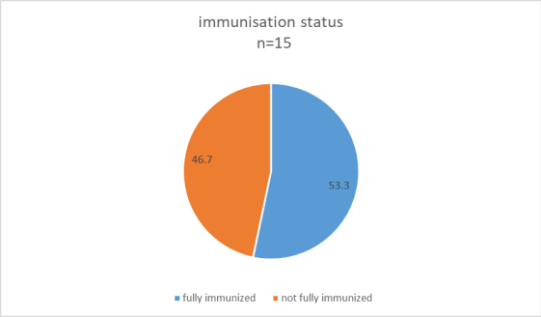

Figure 1: Immunization status of respondents

The number of respondents that are fully immunized (53.3) were slightly higher than those that were not fully immunized (46.7%).

Table 5: Frequency distribution of respondents with BCG scar and the immunization card seen

Number of immunization card seen and presence of BCG scar on respondents among under-fives	Frequency (n=8)	Percentage (%)
Number of immunization card seen	7	87.5
Presence of BCG scar	5	62.5

Table 5 above showed that 87.5% of the under-five's immunization card were seen and 62.5% of them have BCG scar.

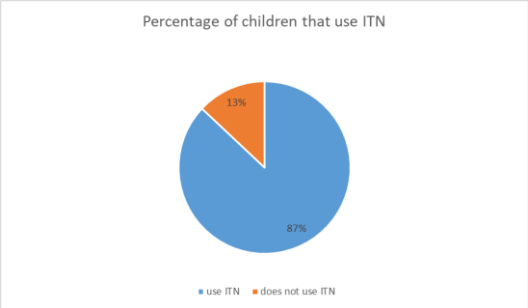

Figure 2: Frequency distribution of children that sleep under ITN

Figure 2 above showed that 87% of the respondents sleep under insecticide treated net.

Table 3: Body mass index and mid-upper arm circumference of respondents

Body mass index and MUAC of respondents	Frequency (n=95)	Percentage (%)
BMI		
Underweight	51	53.7
Normal weight	35	36.8
Overweight	4	4.2
Obese	5	5.3
Total	**95**	**100.0**
MUAC (cm)		
<11.0	2	28.6
11.0-12.5	2	28.6
12.5-13.5	1	14.3

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>13.5	2	28.6
Total	**7**	**100.0**

From the table above, more than half (53.7%) of the children are underweight while 36.8% weigh within normal and 5.3% are obese. Less than half (28.6%) of respondents have severe acute malnutrition, 28.8% also have moderate acute malnutrition, 14.3% is at risk of malnutrition and 28.6% of the respondents are well nourished.

DISCUSSION

The findings of this study shed light on the prevalence of common medical conditions among children residing in orphanages in Kaduna State, Nigeria, contributing to a deeper understanding of the health challenges faced by this vulnerable population. The prevalence rates for various health conditions reported in this study provide a basis for comparison with existing literature, both locally and internationally. Several aspects of the findings are consistent with previous research, while others present unique insights that highlight the particular needs and circumstances of children in orphanages in Kaduna.

The age distribution of the children, with the majority falling within the 10-14 years range and a mean age of 10 years, aligns with previous studies on orphaned children in various settings. For instance, a similar age range was reported in a study conducted in Ogun State, Nigeria, where most respondents were between 10 and 15 years old (Odunmade et al., 2022). This age group is often seen as critical in child development, as children at this stage are transitioning from childhood to adolescence, a period marked by significant physical, emotional, and psychological changes. The higher proportion of males (68%) compared to females (32%) in this study is also consistent with findings from other orphanage-based studies. A similar male-to-female ratio was observed in rural China, where males accounted for 50.9% of the orphan population (Gao, Tadesse, and Khalid, 2022). The slight male predominance in orphanage settings may be influenced by cultural factors that favor the retention of male children within family units, while female children are more likely to be placed in orphanages due to socio-economic reasons.

The finding that more than half of the respondents (57%) had attained primary education reflects the broader trend of limited access to higher education among orphans in Nigeria. This is consistent with studies conducted in other parts of the country, such as Ogun State, where 43.1% of orphans had only primary-level education, and 34.0% had reached junior secondary school (Adeyoyin et al., 2019). The high prevalence of primary education among orphaned children may be attributed to financial constraints and the absence of parental guidance, both of which are critical in ensuring continued access to education. Furthermore, the majority of the respondents in this study were of Hausa ethnicity (41%), which may reflect the demographic makeup of Kaduna State, where Hausa people form the dominant ethnic group.

In terms of general well-being, the majority of the children (40.2%) reported feeling well and energetic most of the time, with 39.1% indicating that they felt this way all of the time. This suggests that the physical health of many children in these orphanages is relatively stable, although the well-being of nearly half of the respondents remains a concern. This finding is slightly different from a similar study conducted in Ogun State, where 60.9% of children reported feeling well and energetic all the time (Odunmade et al., 2022). The slight variation in results may be due to differences in the availability of health services, nutritional support, and caregiving practices between the orphanages in Kaduna and those in Ogun State.

The dietary habits reported in this study, where 54.9% of children consumed a balanced diet daily, align with previous research on nutritional practices in orphanages. Similar findings were reported in Ogun State, where 57.7% of children ate balanced meals daily (Johnson & Adetula, 2019). However, the proportion of children who ate a balanced diet less than half the time or only some of the time remains a concern, as inadequate nutrition can have long-term health consequences, including stunted growth and cognitive impairments. The relatively high percentage of children with regular access to balanced diets in this study may be attributed to the efforts of the orphanages to provide structured meal plans and nutritional support, a factor that is not always guaranteed in community-based care settings.

The frequency of hospital visits among the children also provides insight into their access to healthcare services. The fact that none of the respondents reported never visiting a hospital, and 50% stated they visited the hospital all the time, suggests that the children have relatively good access to medical care when needed. This finding contrasts with a study in Ogun State, where 30% of children reported never visiting the hospital when sick (Odunmade et al., 2022). The better healthcare access observed in the Kaduna orphanages could be due to stronger partnerships between the orphanages and local health facilities or the presence of in-house health services. It is also noteworthy that 35.8% of the children in this study were free from unexplained physical symptoms all the time, further supporting the notion that the orphanages in Kaduna provide adequate healthcare support.

The prevalence of undernutrition in this study, with 53.7% of the children classified as underweight, is a major public health concern. This finding is markedly different from studies conducted in other regions. For instance, a study in Imo State, Nigeria, reported much lower rates of underweight children (19%) (Chukwuma et al., 2015). The high prevalence of underweight children in Kaduna orphanages may be attributed to several factors, including food insecurity, insufficient caloric intake, and chronic infections. The proportion of children who were wasted (4.2%) and stunted (2.1%) in this study is lower than what has been reported in some other studies, such as the 18% wasted and 34% stunted rates found in Imo State (Nwafor et al., 2018). These differences may be due to variations in the age of the study populations, as the Imo study focused on children aged 0-5 years, a group that is

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more vulnerable to malnutrition than the older children included in this study.

In terms of immunization coverage, 53.3% of the children were fully immunized, which is lower than the national average for Nigeria. A study conducted in Techiman Municipality reported that 89.5% of children were fully immunized (Adekoya et al., 2017). This lower immunization rate in Kaduna orphanages raises concerns about the potential vulnerability of these children to vaccine-preventable diseases, particularly in a region where outbreaks of infectious diseases such as measles and meningitis are common. The finding that 87.0% of the children slept under insecticide-treated nets (ITNs) suggests that malaria prevention measures are being implemented effectively within the orphanages, a finding consistent with a study in Abuja, where 79.0% of children used ITNs (Oladokun et al., 2016). However, continued efforts are needed to ensure that the remaining 13.0% of children who do not use ITNs are adequately protected from malaria, which remains a leading cause of morbidity and mortality in Nigeria.

The prevalence of mental health disorders among the children is another significant finding. The study reports that 27.0% of the respondents had hyperactivity/impulsivity disorder, a figure that is higher than the 19.62% reported in a similar study in Cairo (Mohamed et al., 2017). The high prevalence of hyperactivity disorders in Kaduna may be linked to the emotional and psychological stress associated with orphanhood, including loss of parental care and exposure to traumatic experiences. The lower prevalence of major depressive disorder (1.8%) in this study is in contrast to findings from India, where 25.0% of orphaned children were diagnosed with depression (Patel et al., 2019). The variation in the prevalence of depression may be due to differences in diagnostic criteria, cultural perceptions of mental health, and the availability of psychosocial support services. The finding that 22.3% of respondents had enuresis aligns with the 23.03% prevalence reported in Cairo (Mohamed et al., 2017), suggesting that bedwetting remains a common psychosomatic condition among orphaned children, likely exacerbated by stress and emotional insecurity.

The study also highlights the importance of peer relationships in the social development of orphaned children. The majority of the respondents (83.3%) reported having positive relationships with their peers, a finding consistent with a study in South Africa, where 70.0% of orphans reported positive peer interactions (Cluver et al., 2012). The ability to form and maintain healthy social relationships is critical for the psychological well-being of orphaned children, as peer support can serve as a buffer against the negative effects of social isolation and emotional distress. However, the study also found that 11.4% of children reported being bullied, and 9.0% stated they were ostracized by their peers, highlighting the need for interventions aimed at fostering inclusive social environments within orphanages.

The educational attainment of the children in this study is another area of interest. The finding that 97.8% of respondents attended school and 87.7% received formal Western education is a positive outcome, suggesting that orphanages in Kaduna prioritize access to education. This is slightly lower than the 100% school attendance reported in Abuja (Oladokun et al., 2016), but still represents a significant achievement, particularly in a region where access to education can be limited. The high rates of textbook ownership (80.2%) and the relatively small class sizes (78.5% of children were in classes of 20-40 students) suggest that the educational environment in these orphanages is conducive to learning, although further efforts are needed to ensure that all children have access to the necessary learning materials.

The findings on self-esteem, with 89.2% of respondents reporting good self-esteem, are encouraging. This result contrasts with a study in Ota, Ogun State, where females were found to have higher self-esteem than males (Olaniyi et al., 2016). In this study, males reported higher self-esteem than females (60.5% vs. 27.7%). This gender difference in self-esteem may be influenced by cultural and social factors compared to females in Kaduna orphanages, which may be influenced by the patriarchal social structure prevalent in the region.

In terms of coping mechanisms, the study found that more than half (64.6%) of the respondents dealt with their situations, with a significant proportion modifying the way they think or act in response to challenges. This aligns with findings from a study in Ethiopia, where children displayed resilience despite difficult circumstances, but their resilience scores were still below average (Crivello, Tiumelissan & Heissler, 2021). The reliance on coping strategies such as distancing oneself from problems or attempting to forget stressful situations, however, points to a need for more structured psychosocial support within the orphanage system. Such interventions could help children develop healthier coping mechanisms and improve their overall mental health outcomes.

In essence, the findings of this study on the prevalence of common medical conditions among children in orphanages in Kaduna State provide valuable insights into the physical and mental health challenges faced by this vulnerable population. While the prevalence of some health conditions, such as malnutrition and mental health disorders, remains high, other indicators, such as access to education and healthcare, suggest that efforts are being made to support the well-being of these children. Nevertheless, the findings highlight the need for ongoing interventions, particularly in the areas of nutrition, mental health, and social support, to ensure that orphaned children in Kaduna could thrive despite the challenges they face.

CONCLUSION

This study reveals significant medical and social challenges among children in orphanages in Kaduna State, Nigeria. Many children suffer from health conditions and are not fully immunized, making them vulnerable to preventable diseases. High rates of behavioral disorders, such as hyperactivity and enuresis, indicate underlying psychological issues that need

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urgent attention. Additionally, poor self-esteem is prevalent, highlighting the need for comprehensive health and psychosocial support.

Malnutrition is also a concern, with many children being underweight despite having access to food, suggesting that their nutritional intake is not adequately balanced. Improving diet plans and medical interventions should be a priority for caregivers and policymakers.

On a positive note, most children have access to formal education and perform well academically. Despite their challenges, many orphans succeed in their educational pursuits. Contrary to common assumptions, the majority report low levels of stigmatization, indicating good social integration, which may aid their emotional resilience and overall well-being.

In essence, addressing medical conditions, behavioral issues, and nutritional deficits is crucial for improving the quality of life for orphans in Kaduna. Ensuring full immunization, adequate nutrition, and psychological support, along with maintaining access to education and fostering social support systems, is essential for their long-term development and integration into society. Collaborative efforts are needed to enhance their well-being.

Availability of Data and Materials

The authors declare consent for all available data present in this study.

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Authors' Contributions

The entire study procedure was conducted with the involvement of all writers.

Competing Interests

The authors declare no conflicts of interest.

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REFERENCES

1. Adeyoyin, S.O., Ekundayo, E.O., Akinlade, O. and Ewulo, O. R., (2019) "Health Information Provision for the Vulnerable Orphans in Ogun State, Nigeria" (2019). Library Philosophy and Practice (e-journal). 2371. https://digitalcommons.unl.edu/libphilprac/2371.
2. Adokiya MN, Baguune B, and Ndago JA. (2016) Evaluation of immunization coverage and its associated factors among children 12-23 months of age in Techiman Municipality, Ghana, (2016). Arch Public Health. 2017 Jun 26;75:28.
3. Akanle, O. and Ojuri, A.T., (2020). Understanding the history, needs, and experiences of looked after children with African heritage: lessons from Ibadan, Nigeria. *Adoption & Fostering*, *44*(4), pp.363-376.
4. Aliyu, A., et al. (2018). Health and well-being of children in orphanages in Nigeria: A cross-sectional study. BMC Pediatrics, 18(1), 123.
5. Allen, R.J. and Nakonechnyi, A., (2022). Orphans, Displaced, and Institutionalized Children: Causes of Children Growing Without Parents and a Sampling of Global Responses. In *The Palgrave Handbook of Global Social Problems* (pp. 1-20). Cham: Springer International Publishing.
6. Amoo, O., (2022). Child Rights Law, Adoption Policy and Orphanage Management in Lagos. *Journal of Contemporary International Relations and Diplomacy*, *3*(2), pp.564-586.
7. American Psychiatric Association, (2013). Diagnostic and statistical manual of mental disorders (5th ed.). Washington, DC: Author.
8. Boadu, S., Osei-Tutu, A. and Osafo, J., (2020). The emotional experiences of children living in orphanages in Ghana. Journal of Children's Services, 15(1), pp.15-24.
9. Chukwuma B Duru, Uche R. Oluoha, Kelechi A. Uwakwe, Kelvin C. Diwe, Irene A. Merenu, Ifeadike O Chigozie, Anthony C. Iwu. Prevalence and Sociodemographic Determinants of Malnutrition among Under-Five Children in Rural Communities in Imo State, Nigeria. American Journal of Public Health Research. Vol. 3, No. 6, 2015, pp 199-206.
10. Cluver, L. D., Orkin, M., Gardner, F., & Boyes, M. E. (2012). Persisting mental health problems among AIDS-orphaned children in South Africa. Journal of Child Psychology and Psychiatry, 53(4), 363–370.
11. Cohen, S., Kamarck, L. M., & Mermelstein, R. (1985). Perceived social support and health outcomes: A meta-analysis. Journal of Health and Social Behavior, 26(2), 242-257.
12. Crivello, G., Tiumelissan, A. and Heissler, K., (2021). " The challenges made me stronger": What contributes to young people's resilience in Ethiopia? Young Lives, Available at https://ora.ox.ac.uk/objects/uuid:4cebf473-91d9-4640-b956-cf0ed1aa9efb/download_file?file_format=&safe_filename=YL-WP197%2BCrivello%2Bet%2Bal%2BThe%2Bchallenges%2Bmade%2Bme%2Bstronger.pdf&type_of_work=Working+paper, [Accessed: 29 September 2024].
13. Disassa, G.A. and Lamessa, D., (2021). Psychosocial support conditions in the orphanage: case study of Wolisso project. International Journal of Child Care and Education Policy, 15(1), p.12.

*Corresponding Author: **Obohwemu KO**

14. Earnshaw, V. L., & Chaudoir, S. (2009). Stigma and health care access: A review of the literature. Health Affairs, 28(2), 372-380.
15. Folarin, M. S., & Bello, A. (2016). Child detachment and social well-being among orphaned children in Ogun State, Nigeria. Nigerian Journal of Clinical Practice, 19(5), 622-629.
16. Hayati, Y.U., (2022). The Role of Orphanages in The Welfare of Abandoned Children. Socio Politica: Jurnal Ilmiah Jurusan Sosiologi, 12(1), pp.19-26.
17. Johnson, A.T. and Adetula, O.A., (2019). DIETARY HABIT, FOOD CONSUMPTION PATTERN AND NUTRITIONAL STATUS OF ADOLESCENTS IN PUBLIC AND PRIVATE SECONDARY SCHOOLS IN ILARO, YEWA SOUTH LOCAL GOVERNMENT OGUN STATE.
18. Lawrence, K.C., Makhonza, L.O. and Mngomezulu, T.T., 2022. Assessing sources of resilience in orphans and vulnerable children in Amajuba District schools. *South African Journal of Psychology*, *52*(3), pp.290-300.
19. Major, B., & O'Brien, C. (2005). The stigma of mental illness. Trends in Cognitive Sciences, 9(1), 39-44.
20. Mohamed, M. A., El-Sayed, M. A., & El-Sherbini, H. M. (2017). Prevalence of behavioral problems among orphaned children in Cairo, Egypt: A cross-sectional study. Journal of Child and Adolescent Psychiatry, 6(1), 1-6.
21. Mohamed, S., Mansour, A., & Khaled, A. (2017). Prevalence of mental health disorders in Cairo orphanages. Journal of Child and Adolescent Psychiatry, 28(2), 134-141.
22. Muhammad, A.A., (2020). Common practices in orphanages: A case study of Bauchi Nigeria. IJUS| International Journal of Umranic Studies, 3(1), pp.35-42.
23. National Bureau of Statistics, Nigeria. (2021). Nigeria population and housing census 2021. Abuja: National Bureau of Statistics.
24. National Population Commission (NPC). (2018). Nigeria Demographic and Health Survey 2018. Abuja, Nigeria: NPC.
25. Nguyen, T. H., Nguyen, T. T., & Nguyen, T. M. (2016). Stigma and discrimination against orphans in Vietnamese society. Journal of Social Sciences, 3(1), 1-10.
26. Odunmade, A.O., Oloniruha, A.E., Ibrahim, O.R., & Owunesi, K.M., (2022). Information Seeking behaviours of Orphans and Vulnerable Children in Selected Homes in Ogun State, Nigeria. Journal of Information and Knowledge, 59(2), 87–94. https://doi.org/10.17821/srels/2022/v59i2/168146
27. Olaniyi, O., Olatunde, T., & Akintola, A. (2016). Self-esteem and psychological well-being among orphaned children in Ota, Ogun State. Journal of Health and Social Behavior, 49(3), 391-404.
28. Olowokere, A.E., Aladegboye, M.K., Komolafe, A.O., Adedeji, A.O. and Irinoye, O., (2023). Morbidity profile and physical health status of orphans and vulnerable children in selected orphanages in Ibadan, Nigeria. British Journal of Child Health, 4(5), pp.223-231.
29. Oluwatoyin, M. (2019). Malaria prevention and control in Nigerian orphanages: Challenges and prospects. Tropical Medicine & International Health, 24(4), 478-486.
30. Onayemi, O.M. and Hapunda, G., (2023). Socio-ecological drivers of vulnerabilities of children living within orphan homes and the implications for their nurturance care. *Frontiers in Public Health*, *11*, p.1203510.
31. Patel, V., Sharma, Y. K., & Shah, V. (2019). Depression among orphaned children in India: A systematic review. Indian Journal of Psychiatry, 61(3), 261-267.
32. Polit, D. F., & Beck, C. T. (2021). Nursing research: Generating evidence for practice (10th ed.). Philadelphia: Wolters Kluwer.
33. Pryce, M., Brown, H., & Williams, S. (2020). The impact of institutionalization on the psychological well-being of orphaned children: A systematic review. Child and Adolescent Psychiatry and Mental Health, 10(1), 1-10.
34. Rosenberg, M. (1965). Society and the adolescent self-image. Princeton, NJ: Princeton University Press.
35. Shakir, A. (1975). A simple method for assessing nutritional status in young children. Paediatrics, 55(3), 389-393.
36. Shawar, Y.R. and Shiffman, J. (2023) Global priority for the care of orphans and other vulnerable children: transcending problem definition challenges. Global Health 19, 75 (2023).
37. Skinner, D., Sherr, L., & Cluver, R. (2006). The impact of HIV/AIDS on orphaned and vulnerable children in sub-Saharan Africa: A review of the evidence. Social Science & Medicine, 63(10), 2468-2483.
38. Tani, B.P., Otanwa, U.M. and Yusuf, D., 2023. PSYCHOLOGICAL COPING STRATEGIES OF ORPHANS IN MAKARFI LOCAL GOVERNMENT AREA, KADUNA STATE, NIGERIA.
39. UNAIDS (2018). Orphans and vulnerable children in Nigeria: The impact of the HIV/AIDS epidemic. UNAIDS.
40. UNICEF. (2020). Data on orphans and vulnerable children in Nigeria. Available at: https://data.unicef.org/country/nigeria/, (Accessed: 12 September 2024).
41. World Health Organisation, (2020) Almost 2 billion people depend on health care facilities without basic water services – WHO, UNICEF, Available at: https://www.who.int/news/item/14-12-2020-almost-

*Corresponding Author: **Obohwemu KO**

2-billion-people-depend-on-health-care-facilities-without-basic-water-services-who-unicef#:~:text=The%20report,%20Fundamentals%20first, [Accessed: 13 September 2024].

42. World Health Organisation, (2021) WHO's 7 policy recommendations on building resilient health systems, Available at: WHO's 7 policy recommendations on building resilient health systems, [Accessed: 12 September 2024].
43. World Health Organisation, (2022) Report on malaria in Nigeria, Available at: https://www.afro.who.int/countries/nigeria/publication/report-malaria-nigeria-2022#:~:text=Malaria%20is%20a%20major%20public%20health%20concern, [Accessed: 12 September 2024].
44. World Health Organisation, (2024). The overwhelming case for ending stigma and discrimination in mental health, Available at: https://www.who.int/europe/news/item/26-06-2024-the-overwhelming-case-for-ending-stigma-and-discrimination-in-mental-health, [Accessed: 13 September 2024].
45. Yeboah, A., (2023). *Comparative analysis of factors associated with insecticide-treated net utilization between rural and urban areas in Ghana: implication for malaria control and prevention* (Master's thesis, The University of Bergen).
46. Yuka, V.A. and Omorogiuwa, T.B., (2024). THE WELFARE OF ORPHANAGE CHILDREN AND ITS IMPLICATION FOR SOCIAL WORK PRACTICE. EBSU Journal of Social Sciences and Humanities, 14(3).
47. Zhang, L., Zhang, Y., & Qian, H. (2019). Health outcomes of children in rural China orphanages: A cross-sectional study. BMC Public Health, 19(1), 576-584.

*Corresponding Author: **Obohwemu KO**