

Pattern of Childhood Morbidity in a Private Paediatric Centre in Lagos Nigeria

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Abstract

Introduction: There is global reduction of childhood mortality rate but this is not reflective in child survival both in sub-Saharan Africa and South Asia which accounts for approximately 50% of global burden of childhood deaths. There are various causes of morbidity and mortality among children, these aetiologies also vary from country to country, though infectious diseases {diarrheal diseases, respiratory tract infections, malaria, measles, HIV/AIDS}, neonatal illnesses {neonatal infections, perinatal asphyxia, prematurity} and varying forms of malnutrition are the predominant causes of childhood illness and death in sub Saharan Africa. This study aim to review the pattern of childhood illness in a private paediatric hospital, determine the predominant cause of childhood morbidity in an urban area and evaluate the mode of payment. **Methodology:** This is a retrospective descriptive study of pattern of childhood illness in a private paediatric hospital in Lagos; Abby's Paediatric Care, Omole Phase 2, Lagos, a 10 bedded paediatric facility. Detailed information of each hospital consultation/care was retrieved from the Electronic Medical Records [EMR] of the hospital consultations over a 2years period [August 2017-June 2019]. Data obtained were analyzed using the statistical package for social science version 22.0. **Results:** A total of 429 hospital consultations were made over the two-year period with M: F ratio of 1:1.1. Children aged between 12-60months constitute 51% of total cases seen within this period. 69% of total cases seen were due to infections and 17% were well visits. Also, 273 (64%) of the visits were paid out of pocket and only 64(14.9%) required hospital admission over the period reviewed. **Conclusion:** Infectious diseases still rank as the commonest cause of childhood morbidity in our environment and most patients still pay out of pocket for the management of their illnesses.

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INTRODUCTION

The decline in the burden of childhood death was first noticed in the 18th century; however an accelerated reduction rate of 4 percent was recorded between the years 2000-2017; thus resulting in the global child mortality rate of 39 deaths per 1000 live birth [1-3]. The global reduction of childhood mortality rate is unfortunately not reflective of the status of child survival in sub-Saharan Africa and South Asia which accounts for approximately 50% of global burden of childhood deaths [1,4]. The reason for the high death rate could be eluded to various reasons such as the large population size, ineffective government policies, planning & enactment, poor health seeking habits, poverty, poor and inadequate health facilities among other challenging factors in the continents [5-7].

The aetiology of morbidity and mortality among children varies from country to country, though

infectious diseases {diarrheal diseases, respiratory tract infections, malaria, measles, HIV/AIDS}, neonatal illnesses {neonatal infections, perinatal asphyxia, prematurity} and varying forms of malnutrition are the predominant causes of childhood illness and death in sub Saharan Africa. These are seen in sub Saharan Africa despite various international initiatives towards promoting simple, affordable and effective preventive measures to lessen the burden of childhood illness and mortality [1,7,8].

Nigeria, the most populous nation in sub Saharan Africa with a population of over 180million citizens, with children under the age of 15years accounting for approximately 46%, is saddled with the high burden of childhood mortality [Neonatal mortality rate [NMR], Infant mortality rate (IMR), under 5 mortality rate (U5MR)] [1,9,10]. Although, recent National Demographic and Health Survey shows

improvement in the childhood mortality rate, this is still at disparege compared to developed countries and towards achieving the sustainable development goals by 2030[1, 11,12]. Infectious diseases and perinatal asphyxia among other childhood diseases account for the predominant cause of childhood illness and mortality in Nigeria, despite several initiatives by the governments, national and international partners towards combating these menaces among children and the citizenry as a whole [1, 11, 12].

These pragmatic initiatives towards reducing the burden of childhood illness and deaths is not the sole responsibility of the government but a joint effort by public and private health institutions, parastatals, non-governmental organization [NGOs] and the citizens. Thus this study was to review the pattern of childhood illness in a private paediatric hospital, determine the predominant cause of childhood morbidity in an urban area and evaluate the mode of payment for the services.

METHOD AND MATERIALS

A retrospective descriptive study of pattern of childhood illness in a private paediatric hospital in Lagos; Abby's Paediatric Care, Omole Phase 2, Kosofe Local Government area Lagos. Lagos State is located in Southwestern Nigeria, with a population of

approximately 21million, the economic capital and the socio-ethnic melting point of the country with diverse tribe and culture [13] The hospital is a 10 bedded paediatric facility located about 21km from the state capital; Ikeja. It has the full complement of nursing services, laboratory scientist, two medical officers and two Pediatricians. Detailed information of each hospital consultation/care which included the age, gender, reason for hospital visit/diagnosis, method of payment, out/inpatient care was retrieved from the electronic medical records [EMR] of the hospital consultations over a 2years period [August 2017-June 2019]. Data obtained were analyzed using the statistical package for social science version 22.0 [14].

RESULTS

A total of 429 hospital consultations were made over the two-year period, out of which 211(49%) were male and 218(51%) were female. The age distribution of the cases reviewed showed that children aged between 12-60months constitute 51% of total cases seen within this period. Furthermore, 273 (64%) of the visits were paid out of pocket compared to the 156(36%) visits which were catered for by the health insurance or health management organization (HMO). Only 64(14.9%) required hospital admission over the period reviewed. Shown in Table I.

Table-I: Demographic characteristics, method of bill settlements and the pattern of care (out/in patient)

Characteristic	Frequency n (%) N=429
GENDER	
Male	211(49)
Female	218(51) M:F-1:1.1
AGE DISTRIBUTION	
0-12	82(19)
>12-60	220(51)
>60	127(30)
PAYMENT METHOD	
Health Insurance (HMO)	156(36)
Out of Pocket/Private	273(64)
OUTPATIENT/INPATIENT DISTRIBUTION	
Out-patient	365(85.1)
In-patient	64(14.9)

F= Female M=Male, HMO=Health Management Organization.

INDICATION FOR HOSPITAL VISITS AND DISTRIBUTION BY AGE GROUP

Hospital visit due to illnesses accounted for 83% while the remaining was for well visits. Of the 355 sick visits; less than 5% of the visits were due to surgical consultation only, while 269 (76%) visits were as a result of infective illness.

Among the well visit; 55(74%) were for immunization purposes, while the remaining were for evaluation of child growth and development and other

health enquiries like breastfeeding issues, colic in newborn, sleeping pattern in children etc.

In the children within the 0-12months age group, the hospital visits were majorly due to infection and the need for immunization compared to those in the other age groups whose visits were due to both infective and non-infective illnesses. Figure 1 shows the indication for hospital visits while Table 2 and Figure 2 depicts the age and gender distribution of hospital visits.

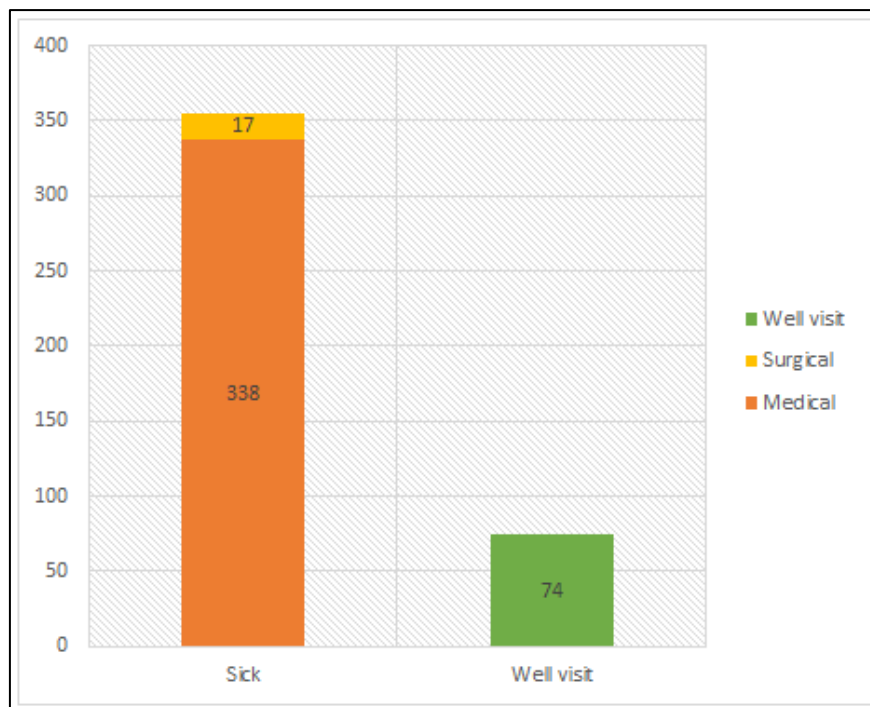


Fig-1: Reasons for Hospital Visit

Table-2: Distribution of Reasons for Hospital Visit by Age

AGE [MONTHS]	WELL VISIT n(%)	NON-INFECTIVE n(%)	INFECTIVE n(%)	TOTAL [N]{%}
0-12	34(41.4%)	7(8.6%)	41(50%)	82(100%)
>12-60	28(12.7%)	35(15.9%)	157(71%)	220(100%)
>60	12(9.4%)	43(33.9%)	72(56.7%)	127(100%)
TOTAL	74(17.3)	86(20)	269(62.7)	429(100%)

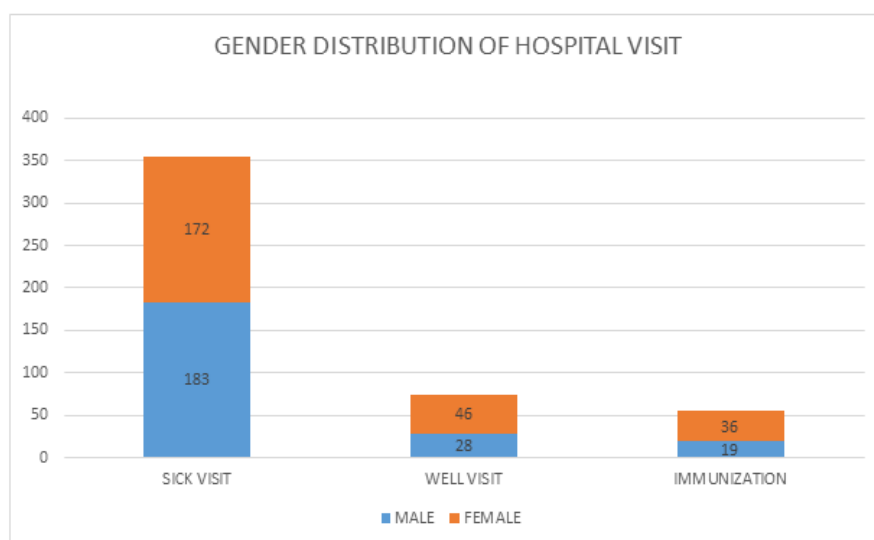


Fig-2: Gender Distribution of Hospital Visit

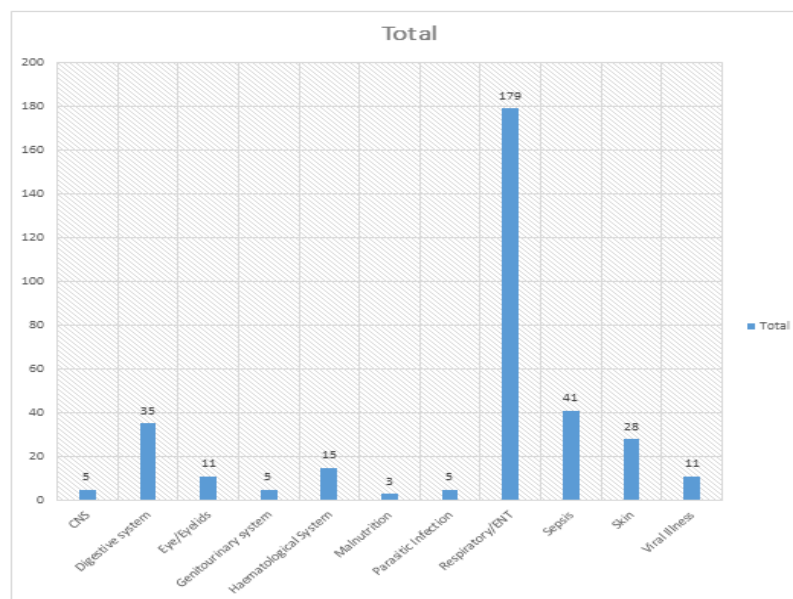
PATTERN OF ILLNESS

Table 3; Shows the different surgical consultations and the distribution with age. Children aged less than 12 months account for the lowest population who were seen for surgical conditions. Laceration injury was the commonest surgical diagnosis.

Figure 3; Shows the pattern of medical consultations with respect to systems. Of the 338 cases, the diseases associated with the respiratory/ear nose and throat (ENT) systemic infection accounted for 53% of the cases seen. Sepsis accounted for 12.1% of disease conditions not associated with a particular system among the children consulted at the hospital.

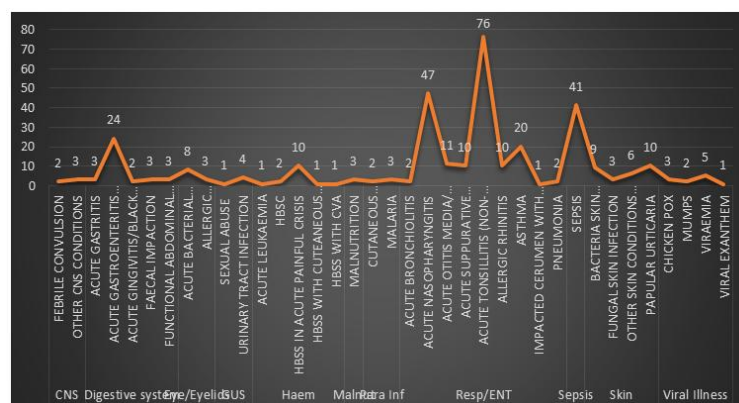
Table-3: Pattern of surgical consultations and age distributions

S/NO	SURGICAL DIAGNOSIS	FREQUENCY
1	INGUINAL HERNIA	1(5.8%)
2	MALE CIRCUMCISION	1(5.8%)
3	BODY LACERATIONS	7(41.2%)
4	FOREIGN BODY IN NOSTRILS/EAR	3(17.6%)
5	TRAUMATIC INJURY TO EYE WITH HYPEMA	1(5.8%)
6	TRAUMATIC INJURY TO FACE/CHEST	2(11.8%)
7	CEREBRAL CONCUSSION SEC TRAUMATIC HEAD INJURY	2(11.8%)
AGE DISTRIBUTION OF SURGICAL CONSULTATIONS		
AGE[Months]	Frequency[N]	Male
0-12	2	2
>12-60	8	5
>60	7	6
		Female
		3
		1

**Fig-3: Pattern of Medical Consultations with Respect to Affected System**

As regards the respiratory/ENT system (179); acute tonsillitis (76), was the predominant respiratory illness, while acute gastroenteritis (24) was the commonest illness associated with digestive system.

Sickle cell disease accounted for about 3.3% of total patient seen and acute painful crisis was commonest sickle cell disease manifestation over the 2year period. Figure 4.

**Fig-4: Spectrum of Diagnosis**

[Others CNS: Cerebral Palsy with Seizure Disorder (1), Autism (1), Delayed Speech (1)]

[Others Skin: Atopic Dermatitis (2), Seborrheic Dermatitis (4)]

DISCUSSION

In this study where an audit of a new paediatric hospital was done, there was a slight female preponderance over the male child, this could be reflective of the preponderance of female child birth from the recent statistical report of the Nigeria Bureau of Statistics on women and men in Nigeria [15]. This is in keeping with previous study done by Mosuro *et al.* in 1997 [16] but contrary to previous studies by Bilikisu *et al.* in 2014 [17] and Chinawa *et al.* in 2018[18].

There is also the predominance of female children presenting for routine immunization, this could be as a result of increased female child birth in Nigeria and Southwest in particular. This is in concordance with the national survey on pattern of children immunized against killer diseases by gender [15]. However, increased number of male children visited the hospital when ill; this could be as a result of increased biological vulnerability of the male gender to infection and increased activity resulting into one form of trauma or the other. This is in keeping with previous studies done by Bilikisu *et al.* [17], Chinawa *et al.* [18].

In this index study, most of the patient paid out of pocket, this could be as a result of the Developing National Health Insurance Scheme [NHIS], the fact that the hospital is a private facility with associated difficulties in registering with health management [HMO]/insurance companies and low level of trust as demonstrated by most of the patient about the scheme. This is similar to previous studies done, that showed that majority of Nigerians still pay out-of-pocket for health care services [19-21] and in concordance with international works [22-24].

Most of the patient seen in this study was Under 5 years of age; this ascertains the vulnerability of this age group as a result of their immature immune system, the need for preventive and developmental health care services such as vaccination services, routine growth and developmental health evaluation visit. This is in concordance with earlier documentation by previous works done both in and outside Nigeria [17, 25-28].

This current work showed that infectious diseases remain the major causes of morbidity in children; this could be as a result of increased activity and reduced immunity in these age groups. This buttresses the findings from previous studies and WHO reports [1, 8, 17, 18, 25, 26] that there is high burden of infectious diseases among children in sub Saharan African. Though there are several ongoing measures towards reducing the morbidity and mortality pattern from infectious diseases [1, 7, 8].

Respiratory tract infection, sepsis/septicaemia and acute gastroenteritis were the most predominant

causes of hospital presentation in the current study, similar to previous studies done in Nigeria [12, 25, 26].

Although the percentage of malaria in this study is appreciably low among the children reviewed over this period, this low incidence could be alluded to the believe that malaria is endemic in our country, thus most children with febrile illness are commenced on empirical antimalarial drugs before presentation in the hospital since these drugs are regularly promoted through different media communications, the drugs are subsidized, easily accessible in most pharmacy shops in the state and beyond.

With respect to the disease of respiratory tract; there is preponderance of upper respiratory tract infections over the lower respiratory tract infection (pneumonia), this is because upper respiratory tract infection is commoner and less severe. This is similar to findings reported by Fienemika *et al.* in Nigeria [29], Walke *et al.* in Delhi India [30], and Dowell *et al.* in New Zealand [31]. Acute gastroenteritis with (out) dehydration was the commonest cause of digestive system morbidity in this study, this is because of the exploratory habit of children and the fact that Rotavirus vaccine is still been paid for by care givers. This finding is in agreement with earlier studies done across the developing countries, including Nigeria [12, 17, 18, 28, 29]. These findings further buttress the need to strengthen preventive measures such as vaccination (Rotavirus, Haemophilus influenza, and respiratory related vaccines), improve health care system through health education and promotion.

The pattern of skin conditions ranging from infections, papulosquamous eruptions, eczema (atopic dermatitis and seborrheic dermatitis) is in a descending order in the current study. This is in keeping with previous hospital and community based studies in Nigeria and other developing nations [32-35]. This is however at variance with findings from developed countries, with higher proportion of eczematous lesion [36, 37]. The preponderance of bacterial skin infection over all other form of skin infection is also in consonance with earlier published works by Ayanlowo *et al.* 2018 [32] and Atraiide *et al.* 2011[33]. The high burden of infectious skin diseases further strengthens the need for health education, good personal and environmental hygiene, though the predisposing factors were not evaluated in this review considering that it was a retrospective study. Furthermore, the only case of cutaneous tuberculosis with supraclavicular lymphadenopathy was referred for further evaluation and care at a tertiary centre.

Among the children with sickle cell disease, the dominance of sickle cell anaemia over the heterozygous sickle cell disease [HbSC] is in tune with the prevalence of the HBSS in our population and previous studies [38, 39]. The presentation of the

children with the sickle cell disease in acute painful crisis is in unison with prior reports depicting acute painful crisis as the commonest manifestation and indication for hospital presentation in sickle cell disease irrespective of the age and country [40, 41]. A case of cerebrovascular accident and the cutaneous side effect of hydroxyurea in two children living with HBSS respectively, emphasizes the need for routine transcranial Doppler Ultrasound scan to predict risk of stroke and also the need to closely follow up children on hydroxyurea to evaluate for common and uncommon side effects of the drug, though very limited cases were seen in our facility.

With respect to surgical related injuries/consultation; laceration injury/minor cut predominantly to the lower limbs were the commonest form of consultations. Furthermore, these injuries were more prevalent among male gender and children above 12months. These could be as a result of higher sensation seeking; impulsiveness and thus the likelihood to engage in risky behaviours among the males at this age [42-44]. This result is concordance with previous studies among children around the world [45-48].

The only case of inguinal hernia was referred to a centre with adequate surgical facility, while a case of traumatic injury to the eye with hypema was co-managed conservatively with an ophthalmologist and the patients who presented with foreign body in the ears and nostril were managed in the index facility.

This work is however limited, this is due to the retrospective nature of the study, the non-availability of comprehensive surgical facility within the new paediatric centre and the location of the hospital in an highbrow area of the state.

In conclusion, children between 12-60months are responsible for most presentations within this period, infectious diseases still rank as the commonest cause of childhood morbidity in our environment, though there are more of respiratory/ENT infections, there are reduced surgical consultations and majority of patient still pay out of pocket for the management of their illnesses.

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