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Original Article

Common Ailments at Presentation and outcome of the Management of Under-Five Children at A private Hospital in Imo State South East Nigeria

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Abstract

Introduction: Infections and communicable diseases have remained top causes of childhood morbidity and mortality in Africa. It is a great concern that despite the preventable nature of the causes of childhood deaths in Africa, childhood mortality rate is still high in our sub-region. Under-five (U-5) illnesses like Diarrhoea, Malaria, Pneumonia, Acute respiratory illness are still high in Nigeria and the leading causes of morbidity and mortality. **Objective**: To ascertain the common ailments at presentation and outcome of management among under-fives at St. Mary's Joint Hospital Amaigbo, Nwangele L.G.A., Imo State that can improve management of the under five cases and ensure efficient allocation of scarce resources. **Methodology**: Across-sectional retrospective study design was used through the review of medical records/proforma of the Paedratric Unit of St Mary's Joint Hospital, Amaigbo, Orlu over a period of five years dated 1st January 2018 to 31st December 2022. The study population comprised all children aged 0 to 59 months that were admitted into the paediatric wards of the Hospital. The age, gender, disease presentation, diagnoses, month of admission and management outcome of these patients, were all retrieved from the paediatric ward registers and hospital medical records. The demographic characteristics of these patients and associations with outcome variables were then analyzed using the Statistical Package for Social Sciences and results presented in frequency tables. **Result**: Out of 404 under-five patients admitted, a little over half, 228(56.4%) were males and113(28.09%) of the respondents were within age group2-11 months. Among the common symptoms presented were fever, 302(74.8%) and majority of the respondents were diagnosed malaria,271(67.1), septicemia, 137(33.9%), acute respiratory infections,85(21.0%), anaemia 72(17.8%) and diarrhealdiseases,66(16.3%). We found that most, 341 (84.4%),of the respondents were discharged home after successful treatment. **Conclusion**: Our study showed that the peak age for presenting with childhood illnesses was 2 -11 months of age and male to female ratio was about 1.3;1. Most of the admitted patients were discharged home after successful management, with a few referred and others opted for discharge against medical advice while a few died.

Recommendation

- Measures to curtail malaria fever such as free distribution of insecticide treated bed nets to families in Amaigbo community and environmental sanitation to reduce the breeding of anopheles mosquitoes.
- The pediatric emergency unit should be fully established within the hospital to enable the medical experts arrest any life-threatening conditions as quickly as possible.

Keywords: Key words: Common ailment, Presentation, Outcome, Management, Under-five, Amaigbo.

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Introduction

Under-five refers to the period between birth and 59 months of age (0-59 months). This period is the most crucial in a child's life, as immunity is relatively low and many developmental processes are ongoing, and factors affecting this period will ultimately affect the growth and development of the child[1]. Understanding the common ailments, illnesses and diseases that are prevalent in this age group is very crucial to managing cases that will present at the clinics, in order to prevent complications and reduce child morbidity and mortality[2].

The health and diseases of children globally have profound effects on the development of nations. Huge resources are lost to the morbidities and mortalities associated with the ailments, and consequently, socio-economic and human developments are stunted[3].Despite several studies done at various centers concerning presentations and outcomes of management of childhood illnesses, under-five children mortality tends to be on a plateau, implying that majority of the cases are not presented, and those presented are not adequately managed and documented.

The results from this study can be used to improve management of cases that present in our clinics and ensure efficient allocation of scarce resources since they will reveal demographics, common ailments, their modes of presentation and management and the outcomes of their management. This study will serve as an updated and enriched source of data, painstakingly drafted to guide policy making concerning management of ailments among under- five children. It will also fill the gaps on areas where much data is not available to make better diagnosis and provide more effective treatment.

Methodology

Study Area: The study was conducted at St. Mary's Joint Hospital Amaigbo, Nwangele LGA, Imo State, South-East Nigeria. The hospital is jointly owned by Amaigbo Community, Imo State Government and the Roman Catholic Mission under the Supervision of the Catholic Diocese of Orlu.

Study Design: A cross-sectional retrospective study using validated proforma to retrieve vital information from the medical records of all the under 5 children from 1st January 2018 to 31st December 2022.

Study population: All the under 5 children who were admitted into the paediatric wards of St. Mary's Joint Hospital Amaigbo within the study period.

Sample Size Determination

Using the Cochrane formula[4], with a confidence interval of 95%, and p-value of 0.5

$$n = \frac{Z^2PQ}{d^2}$$

n = minimum sample size when the population is more than 10,000

Z = 1.96; the standard normal deviate corresponding to the 95% confidence interval.

P = prevalence rate (50%) = 0.5

d = desired level of precision = 0.05

Q = 1-p = 1-0.5

substituting the formula above

$$n = \frac{1.96^2(0.5)(1-0.5)}{(0.05)^2}$$

$n = \frac{3.8416*0.25}{0.0025}$

n = 384.16 = 384

The minimum sample size is 384

The total number of pediatric patients in the study area over the study period was less than 10,000, hence the sample size was determined using the corrected Cochrane formula[5].

$$nf = \frac{n-1}{1+(\frac{n}{N})}$$

Recall:

nf = desired sample size when the study population is less than 10,000

n = desired sample size, when the study population is more than 10,000 (384)

N = Estimate of the population size (2000)

$$nf = \frac{384-1}{1+(\frac{384}{2000})}$$

$$nf = \frac{383}{1+0.192}$$

$$nf = \frac{383}{1.19}$$

= 321.8 ~ 322. (**for expected response rate of 100%). Response rate was however 79.70%**

Therefore, required sample size = 322 /0.7970 = **404**

Sample Technique

The systematic random sampling method was used.

The sample interval was calculated as follows:

Total Study Population: 2000

Desired sample = 404

Sampling interval = $\frac{2000}{404}$

= 4.97 (approximately 5)

Thus the respondents were randomly selected from a starting point, at a fixed interval of 5.

Study Instruments

Validated proforma was used to collect

- Biodata of respondents
- Mode/point of presentation (Emergency unit, outpatient clinic)
- Diagnosis at presentation
- Outcome of management (Discharged after successful treatment, referred to a tertiary facility, discharge against medical advice (DAMA) or Demise (Death)).

Data Analysis

Data was collated and analysed using the Statistical Package for Social Sciences (SPSS) version 27 IBM U.S.A and results were presented in frequency tables, bar charts, pie charts and histogram.

Ethical Consideration

Formal consent was obtained from the medical director of St. Mary's Joint Hospital Amaigbo prior to the commencement of the study, with full assurance of patients' confidentiality.

Study Limitations

- It was a hospital-based study conducted only on St. Mary's Joint Hospital, Amaigbo. The study needs to be replicated at other health facilities in Imo State and elsewhere.
- The obsolete/manual method of record keeping slowed down the data collection process, hence the modern E-records mode was suggested to the hospital management.

Financial support and sponsorship: The study was funded by the team of researchers and no sponsorship was received.

Conflicts of interest: None.

Results

Table 1: Weight of Respondents

Weight category (kg)	Frequency	Percentage
<3.5	5	1.2
3.5-8.4	130	32.2
8.5-13.4	135	33.4
13.5-18.4	82	20.3
18.5-23.4	35	8.7
>23.5	17	4.2
Total	404	100.0

Table 2: Statistics of weight of Respondents

N		404
Mean		11.663
Median		11.000
Mode		7.0
Std. Deviation		5.3978
Maximum		26.0
Minimum		2.5
Range		23.5
Percentiles	25	7.125
	50	11.000
	75	15.000

The Table 1 shows the statistical representation of weights respondents. The mean weight was calculated to be 11.67kg, Median weight being 11kg, Modal weight was 7kg and Standard deviation was 5.3978. The maximum recorded weight was 26kg whilst the minimum weight was 2.5kg, giving a range of 23.5. Also, it was observed that those who fell into the 25^{th} percentile were weights 7.13kg, 50^{th} percentile were 11kg and above 75^{th} percentile were 15kg. The histogram (figure 1) gave a representation of a normal distribution curve as most of the respondents fell in the center of the curve and the other data were sparsely distributed at the peripheries.

Table 3: Year of Diagnosis of Respondents

Year of Diagnosis	Frequency (n)	Percentage (%)	Cumulative Percent
2018	**46**	**11.4**	**11.4**
2019	**84**	**20.8**	**32.2**
2020	**79**	**19.5**	**51.7**
2021	**92**	**22.8**	**74.5**
2022	**103**	**25.5**	**100.0**
Total	**404**	**100.0**	

Table 3 gives a summary to the number of respondents studied during the research period in St. Mary's Joint Hospital, Nwangele. The **Table** above also shows an upward trend in the number of under-fives paediatric cases managed at the hospital, though there was a little fall

in the year 2020, this might have been due to the Corona Virus pandemic (COVID-19) that might have hindered uninterrupted access to the health care facility.

Table 4: Age of Respondents

Age (in months)	Frequency (n)	Percentage (%)
<2 months	20	5.0
2-11 months	113	28.0
12-23 months	93	23.0
24-35 months	56	13.9
36-47 months	53	13.1
48-59 months	69	17.1
Total	404	100.0

Table 4 shows that the majority of the respondents, 113 (28.0%) belonged to the age group of 2-11 months, followed by age groups 12 -23 months, 93 (23.0%), 48-59 months, 69 (17.1%). Age groups 24-35 months, 56 (13.9%) and 36-47 months, 53 (13.1%) had similar frequency while the least frequent age group was <2 months, 20 (5%).

Table 5: Gender of Respondents

Gender	Frequency (n)	Percentage (%)	Gender
Male	228	56.4%	Male
Female	176	43.6%	Female
Total	404	100%	Total

Table 5 showed that majority of the respondents, 56.4% (228) were males and 43.6% (176) were females.

Table 6: Symptoms at Presentation

Symptoms at Presentation	**Frequency (n)**	**Percentage of Presentations (%)**
Fever	302	74.8%
Cough	129	31.9%
Vomiting	113	28.0%
Diarrhoea	70	17.3%
Abdominal Discomfort	54	13.4%
Pallor	54	13.4%

Loss of Appetite	46	11.4%
Difficulty in Breathing	36	8.9%
Weakness	25	6.2%
Body Swelling	24	5.9%
Convulsion	23	5.7%
Irritability	18	4.5%
Other Symptoms	96	23.8%
Most patients presented with multiple symptoms.		

- Fever accounted for more than two-third, 74.8% of the common symptoms presented with. Cough, 31.9%, Vomiting, 28% and Diarrhoea, 17.3% were also the other common presentations. The other Symptoms (96) noticed comprised of Catarrh (34), Rashes (24), Bruises & Bleeding (20), Ear Discharge (5), Scrotal swelling (4), Unconsciousness (3), Constipation (3), Umbilical Swelling (2) and yellowness of sclera (1).

Table 7: Diagnosis of respondents at presentation

Diagnosis	**Frequency (n)**	**Percentage of Diagnosis (%)**
Malaria	271	67.1%
Septicaemia	137	33.9%
Acute Respiratory Infections	85	21.0%
Anaemia	72	17.8%
Diarrhoeal Disease	66	16.3%
Road Traffic Accident/Trauma	31	7.7%
Febrile Convulsions	17	4.2%
Acute Malnutrition	12	3.0%
Urinary Tract Infections	4	1.0%
Foreign Body in Nose/Ear	4	1.0%
Sickle Cell Disease	3	0.7%
HIV/AIDS	2	0.5%
Other Diagnoses	43	10.6%
1. *Patients may be managed with multiple Diagnosis.*		

Table 7 Malaria, (67.1%) was the most common diagnosis followed by Septicaemia (33.9%), Acute Respiratory Infections (21%), Anaemia (17.8%) and Diarrhoeal Diseases (16.3%). Of the "other diagnoses" made (43), Dermatitis (12) was found to be the most common in the group, next was Otitis Media (5), Domestic Violence, Acute Asthma, Hydrocele (4), Erythematous Allergic Rashes, Measles (3). The Least common were Umbilical Hernia (2), Mumps (2), Shock (2) and Neonatal Jaundice (1), Nephroblastoma (1).

Table 8: Mode of Management

Mode of Management	Frequency (n)	Percentage (%)
Outpatient	220	54.5%
Admitted	184	45.5%
Total	404	100%

Table 8 shows that a little over half of the respondents, 54.5% (220) were being managed as outpatients while just below half of them, 45.5% (184) were managed as admission into the hospital wards.

Table 9: Outcome of Management

Outcome of Management	Frequency	Percentage (%)
Discharged Home	341	84.4
Referred to Tertiary Hospital	21	5.2
Discharged against Medical Advice (DAMA)	36	8.9
Demise (Dead)	6	1.5
Total	**404**	**100.0**

Table 9 shows that there were 341 (84.4%) of the respondents who were discharged home after successful treatment, 21 (5.2%) were referred to other hospitals, 36 (8.9%) were discharged against medical advice while there were 6 cases of death (1.5%).

Discussion

The study showed more male respondents than females; which tallied with the findings of Adeboye et al[6], in Ilorin, Kwara State North Central Nigeria.

Majority of the respondents belonged to the age group of two months to eleven months, while the least number were aged below two months.

Fever was the most common presenting complaint; as was also reported by Enya et al[7], in Lagos, South West Nigeria.

However, in Malawi, Mgusha et al[8], noted prematurity as the most presenting complaint as well as the most frequent reason for under 5 admission. In this study however, malaria was the most common reason for admission, followed distantly by septicaemia, acute respiratory infection, anaemia and diarrheal disease. This finding was quite in contrast with that of

Okechukwu et al[9], in Gwagwalada, Abuja Nigeria, and Tette et al[10], in Accra Ghana, where protein energy malnutrition, measles andsevere anemia were the leading causes of hospital admissions.

In Tanzania Lugangira et al [11], in their cross-sectional research on morbidity and mortality of Under5 children in public hospitals found malaria, anaemia and diarrhea as the major reasons for hospital admission, in consonance with our finding. However in Eastern Sudan, visceral Leshmaniasis was the most common cause of hospital admission, according to the findings of Ahmed et al[12].

Concerning the mode of management, the study revealed that majority of the respondents were admitted into the hospital wards, a finding which tallied with that of Parkash et al[13], in Pakistan.

Most of our respondents were discharged home after successful treatment; as was also observed in similar studies in Shagamu South Western Nigeria, and Enugu South Eastern Nigeria by various researchers[14,15].

The prevalence of the discharge Against Medical Advice (DAMA) at St. Mary's Hospital Amaigbo was 8.9% only. This was quite low when compared with the figure of 26% DAMA obtained by Quddusi et al[16], in Karachi district of Pakistan.

There was only 5.2% case referrals in our study, which was comparatively lower than the 44.3% observed by Ibeziako et al[15], in Enugu a high brow area of South Eastern Nigeria.

The mortality rate in our study was 1.5% (6 deaths only) much lower than the 10% figure obtained in Gwagwalada Abuja reported by Okechukwu et al [9]. The reason for the lower mortality at Amaigbo may be due to diligent care of patients by the hospital staff under watchful observation of the highly disciplined Roman Catholic Priests in charge of the administration.

Conclusion

- Peak age of presentation was between 2-11 months
- Preponderance of male respondents at the ratio of 1.3 to 1.0
- Commonest presenting symptom was fever, while the commonest reasons for hospital admission were malaria, septicaemia and anaemia.
- Encouraging low rates of DAMA, referral and demise (mortality).

Recommendations

- Measures to curtail malaria fever such as free distribution of insecticide treated bed nets to families in Amaigbo community and environmental sanitation to reduce the breeding of anopheles mosquitoes.
- The pediatric emergency unit should be fully established within the hospital to enable the medical experts arrest any life-threatening conditions as quickly as possible.

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