

**Profiling Discharge Against Medical Advice Among Paediatric Under-five Years Old: Experience From Igbinedion University Teaching Hospital, Nigeria.**

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**Abstract**

**Background:** The increasing children (under-five years) morbidity and mortality rates in Nigeria is worrisome. Paediatric discharge against medical advice (P-DAMA) poses a particular challenge because under-age children lack autonomous power in their health decision-making, which may complicate their health problems. This study aimed at determining the prevalence of under-five P-DAMA and also to document its associated factors in Igbinedion University Teaching Hospital, Okada, Nigeria, with a view to curbing it.

**Methodology:** This retrospective study reviewed all the admissions- and discharge- registers, and case-notes of all the under-five admissions between 2017-2019 in the private-owned Igbinedion University Teaching Hospital, Okada, Nigeria. Information extracted included their socio-demographics, clinical diagnoses, hospitalization duration and rationale for DAMA. Retrieved data were analyzed using the SPSS, Version 23.0.

**Results:** There were 99 cases of under-five P-DAMA with complete information out of a total admissions of 3816 giving an overall prevalence of 2.6%. The incidence of P-DAMA (4.0%) was highest among preschoolers aged 31-60 months who constituted 57.6% of them; and girls predominated boys at a ratio of 7:4. Majority (53.5%) were from lower socio-economic class residing mainly in rural villages (53.5%). Infectious diseases, including malaria (26.8%), diarrhea (20.1%), neonatal sepsis (13.4%) and bronchopneumonia (13.4%) were common diagnoses of these children. The mean duration of children hospitalization before DAMA was 5.2 days. Parental/guardian fear of accumulation of hospital bills (25.3%) and perceived improvement in child's clinical condition(s) (21.2%) were the most frequent reasons adduced for DAMA. However, in 29.3% of cases, the reasons for DAMA were neither reported nor documented in the childrens' medical records.

**Conclusion:** Parental poverty and ignorance are major factors fuelling P-DAMA in the studied hospital. Government should adopt universal health insurance coverage policies to protect the under-five child-patients from the consequences of such irregular discharges.

**Keywords:** Discharge against medical advice (DAMA); Infectious diseases; Nigeria; Private tertiary hospital; ~~Semi-urban~~; Under-five Paediatric patients.

### 1.0 Introduction

Discharge against medical advice(DAMA)is an irregular discharge from a healthcare facility; it is defined to denote a situation when a hospitalized patient decides to leave the hospital before the managing physician or hospital recommends discharge.<sup>1</sup>Discharge against medical advice is encountered by health personnel all over the world. Paediatric DAMA (P-DAMA) poses a peculiar challenge because children as minors lack autonomous power over their health decision-making, and under-fives cannot understand or contribute to these decisions. Discharges against medical advice, made on behalf of these children, may complicate the health problems from which they are suffering as well as causing social and psychological problems for members of the healthcare team.<sup>2</sup>

Child morbidity and mortality rates are high in developing countries, such as in Nigeria with its teeming young population. It has been estimated that the current Nigeria's under-five year-old(under-5) population is 31 million (16.6%), and Nigeria is currently rated as the world's number one contributor to deaths of children under the age of five years.<sup>3</sup>

Paediatric DAMA is more common in the developing countries. The prevalence rate of P-DAMA varies from very low in developed nations, such as 0.32% in Oman<sup>4</sup> up to 25.75% in the lower-middle-income countries.<sup>5,6</sup>In one study, P-DAMA was mainly reported among children aged under one year old, followed by children aged 1-5years.<sup>7</sup>Previous studies conducted in Nigeria in the past 15 years have reported prevalence of P-DAMA among paediatric populations to range from 1.5% to 7.5%<sup>8-11</sup>. One alarming trend is that even critically ill children with life-threatening complications were reported to have been discharged against medical advice.<sup>6,10,11</sup>

Some of the factors identified to be major contributors to P-DAMA included: financial constraints, financial burden occasioned by hospitalization, high cost of hospital services, parent/guardian burnout(stress), lack of noticeable improvement in child's disease condition, desire to seek alternative/complementary medicine, apparent improvement in child's clinical condition, and poor communication between patient, parent or guardian and the healthcare providers.<sup>2,3,6-9</sup>When P-DAMA occurs, it often leads to prolonged morbidity and increased risk of mortality.<sup>1,8,12</sup> Discharges against medical advice have also been associated with higherre-admission rates and longer subsequent hospital stays,<sup>13</sup> which could lead to increased cost of care and increased burden on hospital facilities. In Nigeria, it is generally assumed that private tertiary healthcare centres are usually more expensive to patronize compared to government(state or federal)owned hospitals.

Previous studies on P-DAMA in Nigeria have been conducted mainly in Government-owned university teaching hospitals, which are located in highly urbanized cities.<sup>8-12,14,15</sup> In for mation is scant on reports on DAMA from private tertiary health establishments in developing countries, and little is known about the prevalence and patterns of P-DAMA in the private tertiary hospitals in Nigeria. In recent times, some of the private universities have developed standard medical

faculties and colleges with facilities and patients' patronages that are almost better than some of the public universities; and that are comparable to leading hospitals in the world. We are profiling paediatric discharges against medical advice in the Igbinedion University Teaching Hospital (IUTH), Okada, Nigeria, a private-owned secular tertiary health care centre that serves mainly rural and semi-urban populations. The study set out to determine the prevalence under-five paediatric DAMA, its socio-demographic and clinical associations, and also to investigate the reasons/circumstances adduced by parent/guardian for such discharges in IUTH. It is envisaged that the findings of this study will complement the information obtained from previous studies conducted in government-owned hospitals, and thereby contribute towards developing holistic policies that would help to reduce P-DAMA in the developing nation.

## **2.0 Methodology**

This is a 3- year case control retrospective study conducted among under-five year-old patients on admission at the Igbinedion University Teaching Hospital (IUTH), Okada, Edo state, Nigeria. The IUTH is the first private university teaching hospital in Nigeria. The premier tertiary health care centre is located in Okada, a semi-urban 'university town', that is the headquarters of Ovia North East Local Government Area, South-South geo-political zone of Nigeria. Igbinedion University Teaching Hospital is a secular medical establishment that offers foremost tertiary care to her patients. There are specialists in different clinical departments and facilities to train medical students, nurses, medical laboratory scientists and pharmacists. The hospital also serves as a referral centre to primary and secondary health care facilities in Okada to township and its environs, including neighboring rural and semi-urban settlements in Ondo state. The affiliated Igbinedion University Okada (IUO) has recorded several landmark achievements, including being the first private university to produce medical doctors in Sub-saharan Africa.<sup>16</sup>

The IUTH has a Department of Paediatrics & Child Health, which consists of 4 units: Children Emergency Room (CHER), Special Care Baby Unit (SCBU), Children Outpatient and Paediatric Ward.

### *2.1 Data Collection*

The Study Pro forma was used to record relevant data gathered from the ward/unit Admission and Discharge Registers, and Case files. The data collected included: Child's age from birth, gender, parents' socio-economic status, Health Insurance Coverage status, tribe/ethnic origin and domicile class. Additional information obtained were child's medical condition/ diagnosis, duration of hospital stay, reason(s) for DAMA, signatories to the discharge document, and counseling provided. The socio-economic class of the families was determined according to the Oyedeji's Social Classification System, which uses parental occupation and the highest level of formal education.<sup>17</sup> Those in socio-economic classes 1 & 2 were grouped as "high", those in 3 as "middle" and those in 4 & 5 as "low" income groups. Domicile was classified as rural or semi-urban using already determined Nigerian Human Development criteria.<sup>18</sup> The medical diagnoses were further classified into two major groups based on the results of clinical laboratory investigations: i) Infectious Disease group consisting of children diagnosed on admission with severe malaria, acute diarrhea, neonatal sepsis, bronchopneumonia/respiratory tract infection and

meningitis; ii) Non-Infectious group of children that presented with disorders such as sickle cell disease (in crisis), poisoning by drug(s), trauma, burns or road traffic accident victim.

Ethics and DAMA Documentation: No formal ethical review was required as the study was undertaken with retrospective analysis of routine of routine clinical data. Case files were reviewed to see if there was any form documentation for DAMA either as a signed document or signed entry in the case notes and also for episodes of re-admission directly related to the disease condition before DAMA.

### *2.2 Data Analysis*

All the extracted relevant data were analyzed using Statistical Package for Social Sciences (SPSS) Version 23.0. Continuous variables were presented as mean, median and standard deviation while categorical variables were reported as the number, frequency, percentage or ratio of subjects with a particular characteristic. Results were presented in tables, figures and prose.

### **3.0 Results**

A total of 3816 under-five year-old patients were admitted into the CHER, SBCU and the Children's wards, IUTH, during the study period (Table 1). Out of these, 102 patients were initially recorded to have been discharged from the hospital against medical advice. However, the retrieval of complete medical records was possible in only 99 of the cases. Overall, a final total of 99 cases out of 3816, giving a prevalence of 2.6%, were enrolled as DAMA and included in the study analysis.

#### *3.1 Socio-demographic Characteristics of the Children that DAMA*

The mean age of the DAMA cases was  $27.1 \pm 12.1$  months. Overall, children aged 31-60 months were the highest contributors (57.6%) to DAMA with a prevalence rate of 4.0%. The DAMA cases included 63 females and 36 males with a female: male ratio of 7:4 and with P-DAMA prevalence rates of 3.1% and 2.0%, respectively. A majority 53 (53.5%) of DAMA cases belonged to homes from the lower socio-economic class with DAMA rate of 4.8%. The patients that DAMA were predominantly rural dwellers. Only 2 (2.0%) of the children that DAMA had health insurance coverage, under the auspices of the Nigeria's National Health Insurance Scheme (NHIS).

#### *3.2 Diagnoses among Children that DAMA*

Severe malaria (26.8%) was the commonest clinical diagnosis among children discharged against medical advice, followed by acute diarrhea (20.1%) and neonatal sepsis (13.4%). Other diagnoses and their frequencies are shown in Figure 1. Nine out of the children that DAMA (4 females and 5 males) had multiple morbidities, mainly among the neonates.

#### *3.3 Hospitalization Prior to DAMA and Conditions of Patients at DAMA*

The duration of hospital stay before DAMA and clinical conditions at DAMA are shown in Table 3. The mean duration of hospital stay was 5.2 days. A majority (68.7%) of the case patients DAMA within the first 7 days of admission. Almost one-fifth of the patients that DAMA still had palpable life-threatening health conditions such as anemia, loss of consciousness, severe

dehydration and sepsis, that still needed hospital admission at the time of DAMA. However, only 2 (2.0%) were re-admitted within 24-48hours after DAMA; both from the upper socio-economic class and enrolled in NHIS.

3.4 Rationale for DAMA

All the case patients had evidence of signed DAMA form enclosed in the case files. Figure 2 depicts the reasons/circumstances for DAMA on behalf of the children. The reasons for DAMA were not documented in 29 (29.3%) of the cases; for the rest of the children, however, the care-providers recorded alleged justifications for DAMA as noted in the patients’ hospital records. The common reasons provided for P-DAMA in the present study were financial constraints in 25 (25.3%) and perceived improvement of clinical conditions in 21 (21.2%); the child’s father was the main signatory to the discharge document in 84 (84.9%) of the DAMA cases.

Table 1: Basic Socio-demographics of hospitalized Children in Igbinedion University Teaching Hospital (2017 – 2019)

Characteristic	Frequency	Percentage
<b>Age group (months) (N=3816)</b>		
<1	648	17.0
1 – 12	912	23.9
13 – 30	846	22.2
31 – 60	1410	36.9
<b>Gender</b>		
Female	2022	53.0
Male	1794	47.0
<b>Socio-Economic Class</b>		
Low	1098	28.8
Middle	2130	55.8
High	588	15.4
<b>Health Insurance</b>		
No	3684	96.5
Yes	132	3.5
<b>Tribe/Ethnic Origin</b>		
Bini	1590	41.7
Yoruba	468	12.3
Igbo	354	9.3
Hausa	132	3.5
Ishan	570	14.9
Itshekiri	312	8.2

Ebira	252	6.6
Others	138	3.6
<b>Domicile Classification</b>		
Rural	1176	30.8
Semi-urban	2628	68.9
Unknown	12	0.3

Table 2: Socio-demographic Characteristics of Children that DAMA

Characteristic	Frequency	Prevalence (%)
<b>Age group (months)</b>		
<1	6	0.9
1 -12	12	1.3
13 – 30	24	2.8
31 – 60	57	4.0
<b>Gender</b>		
Female	63	3.1
Male	36	2.0
<b>Socio-Economic Class</b>		
Lower	53	4.8
Middle	33	1.5
Upper	13	2.2
<b>Domicile Classification</b>		
Rural	53	4.1
Semi-urban	40	1.5
Unknown	6	50.0

Table 3: Duration of Hospitalization prior to P-DAMA and conditions of Children at DAMA

Frequency	Percentage
<b>Duration (days)</b>	
1-336	36.4
4-7 3232.3	
8-1421 21.2	
>1410 10.1	
Total99 100	
<b>Clinical condition</b>	
Significantly improved3939.4	
Minimally improved1010.1	
No improvement31	31.3
Danger signs still present19	19.2

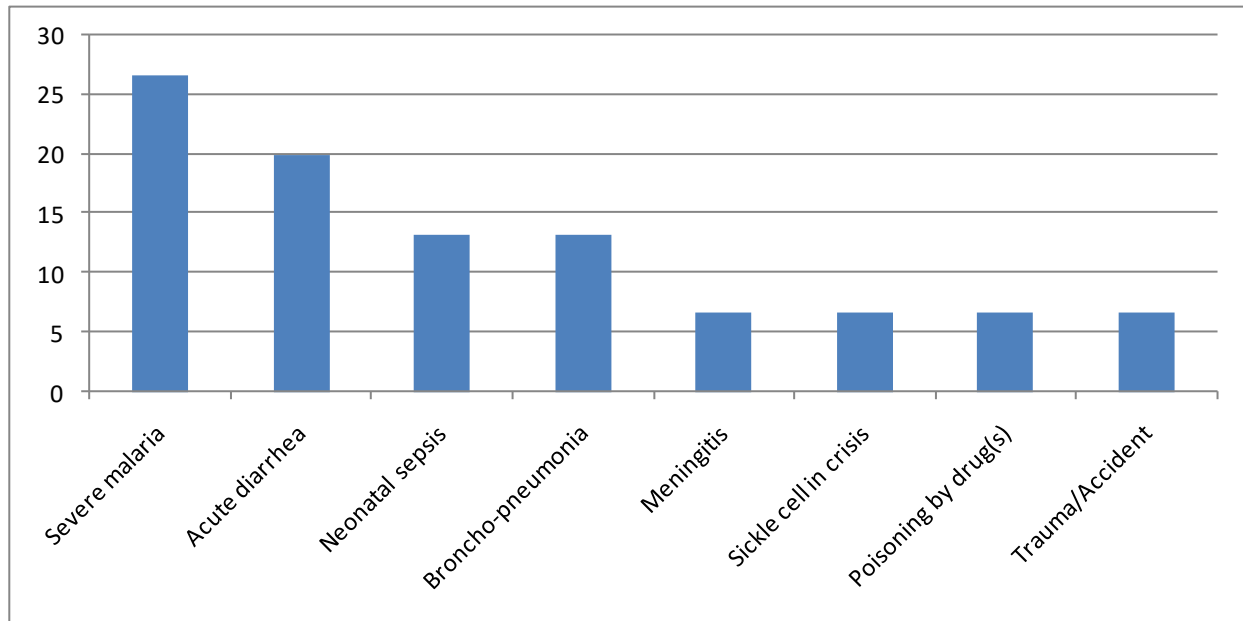
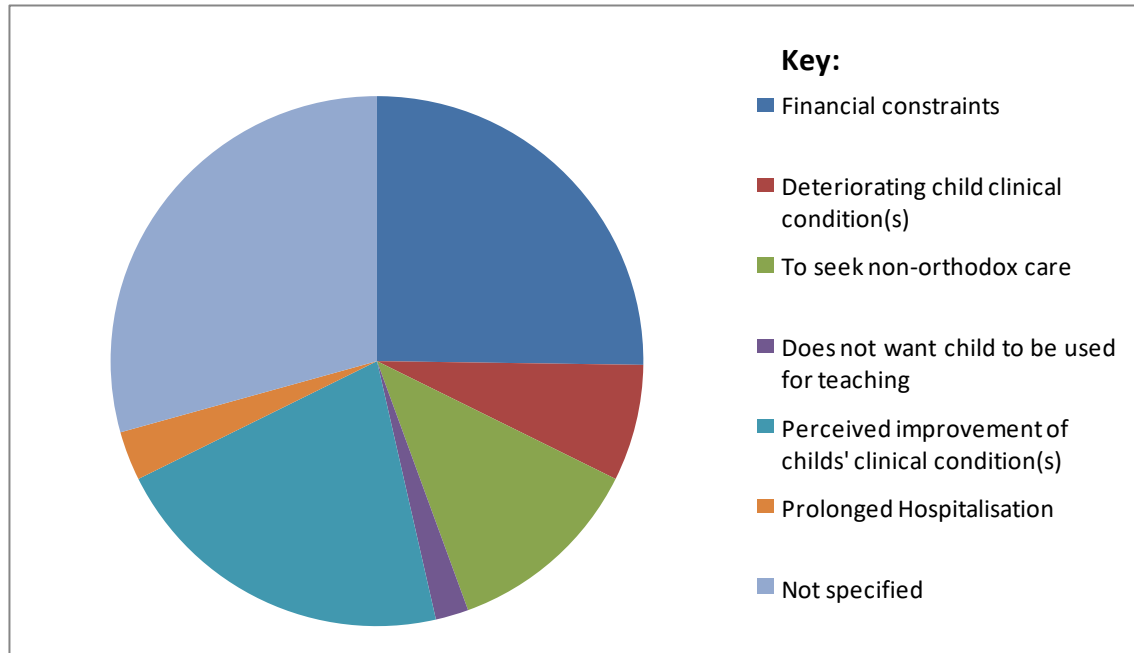


Figure 1: Causes of Hospitalization among Children that DAMA



**Figure 2: Rationale for P-DAMA**

**Discussion**

This study revealed that under-five P-DAMA had a prevalence rate of 2.6% in the IUTH. Remarkably, the under-five DAMA prevalence of 2.6% observed in the hospital is significantly lower than the rates reported in some previous Nigerian studies,<sup>8,9,15,19,20</sup> including Government-owned tertiary hospitals that are located in urban areas; and also much less than in a neighbouring hospital in same South-South region of Nigeria which reported over a decade ago an under-five DAMA prevalence of 5.7%.<sup>21</sup> However, in contrast to more developed countries, the P-DAMA rate recorded in IUTH is greater than the 0.32% reported in general paediatrics in Oman<sup>4</sup> and the 2.0% among under-fives in Singapore.<sup>7</sup> The P-DAMA rate in the under-fives at IUTH is also much higher than the prevalence of 0.96% previously reported in Nigeria by Oyedeji et. Al.<sup>17</sup> in the 80's when health care was generally more affordable because of the economic boom in Nigeria. Apparently, these differences in P-DAMA may be attributed to many factors that influence DAMA such as age group, gender, clinical, socio-economic, ethnicity, cultural issues among others. .

This study has observed that majority of P-DAMA cases occurred amongst the 31-60 months age group, i.e., pre-schoolers; this is alarming considering the possible complications that can affect this particular patient group. The median birth interval in Nigeria is 30.9 months.<sup>22</sup> Parents of children within this age group are likely to have other young children at home; which they need



to care for. This suggests that paediatricians need to consider family-centered care which may reduce the rate of P-DAMA.

As with some Nigerian studies<sup>20,21</sup> and among Omani children,<sup>4</sup> this work found a significantly higher rate of P-DAMA among females. The issue of gender discrimination among the Nigerian child may be considered; it is likely to be the reason as gender discrimination is so pervasive in the society as for instance, there are major differences in school enrollment between boys and girls in Nigeria.<sup>23</sup> The male child is often given preferential treatment in the patriarchal Nigerian society, more so as the father is most times the main signatory to DAMA as observed in the present study.

Our findings share some similarities in morbidity patterns with earlier studies done in Nigeria. Specifically, preventable and treatable infectious diseases such as malaria, diarrheal diseases, neonatal sepsis and broncho-pneumonia when taken together accounted for a preponderant occurrence (73.2%) of DAMA cases in the present study, and continue to dominate causes of paediatric emergencies/admissions in Nigerian tertiary care hospitals.<sup>24,25</sup> These treatable infectious diseases of childhood have been identified by World Health Organization (WHO) as the major causes of mortality in under-fives in the developing countries.<sup>26</sup> The association of infectious diseases with both under-five age, children that DAMA and lower socio-economic class as observed in the present study is not surprising as these conditions are mutual situations that could predispose to many health conditions, including infectious diseases.

The Infectious Disease group of the case patients frequently quoted apparent improvement in clinical condition(s) for DAMA, e.g., those who had sepsis and were waiting to complete antibiotics. This reason appeared obvious because infectious conditions might have been ameliorated within the first week of admission during when appropriate and effective antimicrobial treatment might have been administered to the infected in-patients in the hospital. Perceived improvement in child's clinical conditions might have prompted the parent/guardian to request for DAMA. It is also possible that the decision to DAMA upon perceived improvement may, in fact, be financial in order to prevent the accumulation of hospital bills. Moreover, only about one-quarter of the DAMA case patients stated financial constraints as their reason for DAMA. It is likely that financial burden was the problem in most of the unspecified reasons (29.3%) for DAMA. It is noteworthy, that the two re-admissions (post-DAMA) in this study were both registered in the Nigerian NHIS (data not shown). The low health insurance enrollment has also been documented by other Nigerian workers.<sup>9-11</sup> In contrast, the Singaporean and Omani children with low DAMA rates were on subsidized health insurance scheme.<sup>4,7</sup> Extension of the Nigeria National Health Insurance coverage to incorporate more children may help reduce P-DAMA.

A high majority (84.9%) of the DAMA signatories in this study were fathers of the case patients, a finding similar to reports from other Nigerian studies.<sup>11, 20, 21</sup> This is not surprising because in the study locale just like most African communities, the father is the custodian of the family resources and the sole decision maker.<sup>27</sup> Most mothers do not work outside the home and so are

not empowered to take such decisions. There is none doubting the role of female education and female empowerment as an important pillar in childhood health and survival. This suggests that promoting female education and empowerment may have a role in reducing P-DAMA.

In order to reduce the occurrence of P-DAMA in Nigeria it is advocated that the Government should provide more universal health insurance scheme for all under-five children and/or extend the Nigeria's NHIS coverage to include more children, including those of them patronizing private tertiary health establishments such as IUTH. Holistic approach to the formulation of health policies, which incorporates the under-surveyed but complementary private sector of the health care delivery system in Nigeria is recommended, in order to effectively reduce under-five P-DAMA and the associated consequences of such irregular discharges.

**Limitations and merits of study:**

The findings of this study, although showing similarities to other previous studies from Nigeria, share the limitations associated with hospital-based studies, which are the restrictions in the extrapolation of the outcomes to the general paediatric patients population as DAMA has been noted to vary with culture and environment.<sup>17</sup> Moreover, documentation was incomplete in some case notes which resulted in the exclusion of three P-DAMA cases which might have somewhat affected the data. Nevertheless, this study provides information on the profile of under-five paediatric DAMA in the study locale for the first time. Furthermore, possible factors influencing the occurrence of P-DAMA were highlighted for the sensitization and appropriate actions by policy makers. In order to circumvent these limitations, we suggest prospective studies in more private tertiary health care centres.

**Conclusions**

Discharge against medical advice in under-fives is a serious public health problem. This study has revealed that the prevalence rate (2.6%) of under-five paediatric DAMA is lower than rates from some Government tertiary hospitals in Nigeria. Socio-demographic, clinical and financial factors are attributes that influence P-DAMA. Paediatric DAMA is closely associated with parental poverty and falsely perceived improvement in clinical condition(s). The diagnoses at DAMA in some cases included life-threatening conditions hence making P-DAMA a challenging problem in the health care delivery system.

**Conflict of Interest:** Authors have disclosed no conflict of interest, financial or otherwise.

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