

# Morbidity Profile of Adolescents Seen at a Secondary Missionary Healthcare Facility in Southern Nigeria: A 2-Year Review

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## Abstract:

**Background:** Adolescent transition stage of development is associated with several dramatic, peculiar and sometimes chaotic changes with resultant health challenges. The health challenges of adolescents are further aggravated by paucity of data on adolescent health and non-existence/non-implementation of adolescent health policies in most countries, especially the least developed countries.

**Objective:** This study described the morbidities distribution among adolescents who presented at a secondary missionary healthcare facility in Abak, Akwa Ibom State South – South Nigeria.

**Method:** This was a review of morbidity profile of adolescents who presented at Mercy Hospital, Abak, Akwa Ibom State due to one morbidity or the other between January 2016 and December 2017. The case notes of all the adolescents (10-19 years) who presented at the out-patient clinics, emergency rooms and the wards were carefully sorted out. Their gender, age, diagnoses, causes of admission and admission outcomes were extracted, collated and entered into Microsoft excel for analysis.

**Results:** Out of 465 adolescent seen during the period of the study, 187 (40.22%) were males while 278 (59.78%) were females, giving male to female ratio of 0.7:1. The mean and standard deviation of ages of male and female adolescents were  $13.84 \pm 2.40$  and  $15.18 \pm 2.43$  years respectively. About 63% of the males were young adolescent (10-14 years) while 64% of females were in their late teens (15-19 years). Out of the 516 morbidities presented, 70.35% were caused by infections while haemoglobinopathy accounted for 0.39%. Also 125 cases were admitted giving admission rate of 24.22%, complicated malaria was the highest cause of admission (24.80%). Most of the admitted cases, (89.60%) were successfully treated and discharged; 3.2% died while 1.6% left against medical advice (LAMA) within the review period.

**Conclusion:** Most of the morbidities among adolescents in the study were caused by infections and other preventable morbidities. This is a reflection of poverty, ignorance, illiteracy, lack of information on health education and access to preventive healthcare among the adolescent population. The need therefore to improve social-economic conditions of the populace including those of adolescents, enhance information on health education and provide ready access to preventive healthcare among adolescents which will optimize their health with resultant future healthy adult population, is recommended.

**Keywords:** Morbidity, profile, adolescents, Southern Nigeria

## I. INTRODUCTION

Adolescence has been defined by the World Health Organisation (WHO) as the age group spanning between 10-19 years [1-4]. It is a unique stage of human growth and development, the second decade of life, a transition from childhood to adulthood with changes which affect the biological, psychological and social characteristics of adolescents [1,5]. Being a transition stage, adolescence has a vast population of individuals across the globe. For instance, the WHO documents that about 1.2 billion people or 1 in 6 persons representing about 20% of world's population are adolescents, with 90% of them residing in low income countries [1,4,5].

As a critical stage of human development, adolescence is characterised by myriads of health challenges which are both peculiar to this stage of development and common to the general population, sometimes making adolescents readily prone to mortality [1,5-8]. According to report on the state of health of world's adolescents 2015, about 1.3 million adolescents died across the globe, with over 3000 of them dying everyday from preventable and treatable

causes [4,9-10]. Studies have shown that 50% of mental health disorders in adulthood start by age 14 years even though most cases are undetected and treated [9]. This results in about one third adolescent death caused by suicide arising from adolescent depression. Also, between the age 14-19 years, 44 per 1000 girls get pregnant with the attendant risks [4,9,10]. Other health challenges common to adolescent population, which sometimes result in cascade of medico -socioeconomic complications to the adolescents, families and the society at large, include substance abuse including alcohol and tobacco, sexually transmitted infection including HIV/AIDS, homelessness, accidents, interpersonal violence, other infections and abortion complications [4,10-12]. In a study on morbidity pattern in adolescent attending the ambulating care unit in Abakiliki, it was observed that adolescents form sizeable and vulnerable group whose needs are increasingly becoming accumulated [11].

As myriad as adolescent health challenges seem to be, adolescent health policies in some countries, especially the low income countries that harbor highest population of adolescents in the world, are either non-existent or exist only on paper [4,13]. Also data on adolescent health to aid adolescent health policy formulation and implementation are lacking in some settings [4].

This study therefore reviewed the morbidity profile of adolescents who attended a secondary missionary healthcare facility in Abak, Akwa Ibom State, South-South Nigeria. It is envisaged that findings from this study will enrich the pool of literature describing disease distribution among the adolescent in this setting.

## II. METHODOLOGY

**Area of study:** The study was done at Mercy Hospital, Abak, Akwa Ibom State, South-South Nigeria. It is a missionary secondary healthcare facility owned by the Catholic Diocese of Ikot Ekpene. Mercy Hospital takes care of the health needs of Abak community and

beyond. It operates a 24 hour emergency services and out-patient clinics and attends to health needs of adults and children. There are also adult and children wards for admission. Patients in Mercy Hospital are seen by medical officers and consultants. The facility has a general laboratory manned by qualified medical laboratory scientists and a well-organized health management information unit with standard health records library.

## PATIENTS AND METHOD

This was a review of records of all adolescents (10 to 19 years) who presented at the facility from January 2016 to December 2017. Their case notes were carefully retrieved and sorted out in a manner that avoids duplication. A data extraction tool was designed to include age, sex, definitive diagnoses, causes and outcome of admission. The data was collated and entered into Microsoft excel<sup>R</sup> for analysis.

**Data Analysis:** The data obtained from the study were analysed using statistical package for social sciences (SPSS) version 22.0. Categorical variables were summarized using proportions/ percentages and continuous variable using mean and SD. Data was displayed using frequency table.

### Ethical clearance and consent:

Approval for the study was obtained from the management of Mercy Hospital, Abak and Health Research and Ethical Committee of Akwa Ibom State Ministry of Health. No consent was needed from the adolescents or their caregivers as this was a review of secondary data with no identity.

## III. RESULTS

A total of 465 adolescents (10-19 years) presented at the facility during the period of the study. Results obtained are as shown below:

Table 1: Age and gender distribution among adolescents in the study

Characteristic	Frequency (n=465)	Percentage(%)
<b>Gender:</b>		
Male	187	40.22
Female	278	59.78
<b>Age(Years):</b>		
Male (n=187):		
10-14	118	63.10
15-19	69	36.90
Female (n=278):		

10-14	101	36.33
15-19	177	63.67

Table shows the gender and age distribution of the adolescents seen at the facility during the period under review. Out of 465 adolescents, 187 (40.22%) were males while 278 (59.78%) were females, giving male to female ratio of 0.7:1. The mean and standard deviation of the ages of males and female adolescents were 13.84± 2.40 years and 15.18 ± 2.43 years respectively. Greater percentage of the males, 118(63.10%), were younger adolescents (10-14years). On the other hand, majority of the females, 177 (63.67%) were older adolescents (15-19 years).

**Table 2: Summary of causes of morbidity among the adolescents**

Characteristic	Frequency (n=516)*	Percentage (%)
Infections	363	70.35
Trauma	51	9.90
Surgical pathologies	24	4.65
Obstetric/Gynaecological disorders	15	2.91
Rape	15	2.91
Asthma	14	2.71
Cardiometabolic disorders	9	1.74
Gastrointestinal disorder	9	1.74
Neurological/psychiatric disorders	7	1.36
Atopy	4	0.77
Drug Reaction	3	0.58
Haemoglobinopathy	2	0.39

\* Some adolescents presented with more than one morbidity.

Table 2 summaries the causes of morbidity among the adolescents in the study. Out of 516 morbidities, most of the morbidities, 363 (70.35%) were caused by infections. This was followed by trauma ,51(9.90%) while haemoglobinopathy,2(0.39%) was the least cause of morbidities.

**Table 3a Breakdown of the cause of morbidities among the adolescents**

Characteristic	Frequency (n=516)	Percentage (%)
Infections:		
Malaria	130	25.19
HIV/AIDS	62	12.01
Typhoid Fever	39	7.60
PID	31	6.01
RTI's	29	5.62
Skin Infections	28	5.43
Diarrhoea/Gastroenteritis	16	3.10
UTI	9	1.74
Vulvoviginal Candidiasis	6	1.16
Pulmonary tuberculosis	6	1.16
Male STI's	4	0.77
Tetanus	3	0.58
Trauma:		
RTA	31	6.01
Assault	9	1.74
Dog bite	7	1.36
Burns	4	0.77
Surgical Pathologies:		

Appendicitis	15	2.91
Hernias	5	0.97
Fibroadenoma	2	0.39
Malignancy	2	0.39
Obstetric/Gynaecological disorders:		
Dysmenorrhoea		
incomplete abortion	7	1.36
Retained placenta	4	0.77
IUFD	2	0.39
	2	0.39
Rape	15	2.91
Asthma	14	2.71

PID-Pelvic Inflammatory Disease, RTI's-Respiratory Tract Infections, STI's-Sexually Transmitted Infections, UTI-Urinary Tract Infection, RTA-Road Traffic Accident, IUFD-Intrauterine Fetal Death.

Table 3b: Breakdown of the causes of morbidity among the adolescents

Characteristic	Frequency (n=516)	Percentage (%)
Cardiometabolic disorder:		
Diabetes mellitus	5	0.97
hypertension	2	0.39
Angina Pectoris	2	0.39
Gastrointestinal Disorders:		
Dyspepsia	8	1.55
Hepatic coma	1	0.19
Neurological/psychiatric disorder:		
Migraine	3	0.58
Psychosis	2	0.39
Depression	2	0.39
Atopy	4	0.77
Drug reaction	3	0.58
Haemoglobinopathy	2	0.39

The breakdown of the causes of morbidity among the adolescents is shown on tables 3a and 3b. Among the infections, malaria was the highest cause of infectious morbidity, 130 (35.82%), and also constituted 25.19% of all the morbidities. This was followed by HIV infection, 62 (17.08%), which also constituted 12.01% of all the morbidities. Among the trauma, Road traffic accident, RTA, was the highest cause of trauma, 31(60.78%) and also constituted 6.01% of the

morbidities. Appendicitis was the highest cause of surgical pathologies, 15(62.5%) and also constituted 2.91% of all the morbidities. Dysmenorrhoea, 7(46.67%), was the highest cause of obstetric/gynaecological pathologies and also constituted 1.36% of all the morbidities while haemoglobinopathy,2(0.39%) remains the least cause of morbidity among the adolescents.

Table 4a: Analysis of gender and age distribution of morbidities among the adolescents

Characteristic	Frequency (n=516)				Percentage(%) Total n(%)
	Male(Years)		Females(Years)		
	10-14(%)	15-19(%)	10-14(%)	15-18(%)	
<b>Infections:</b>					
Malaria	46(8.91)	15(2.91)	39(7.56)	30(5.81)	130(25.19)
HIV/AIDs	7(1.36)	17(3.29)	11(2.13)	27(5.23)	62(12.01)
Typhoid Fever	10(1.94)	9(1.74)	6(1.16)	14(2.71)	39(7.56)

PID	-	-	8(1.55)	23(4.46)	31(6.01)
RTI'S	10(1.94)	6(1.16)	7(1.36)	6(1.16)	29(5.62)
Skin Infections	11(2.13)	5(0.97)	4(0.77)	8(1.55)	28(5.43)
Diarrhoea/ Gastroenteritis	6(1.16)	1(0.19)	6(1.16)	3(0.58)	16(3.10)
UTI	3(0.58)	2(0.39)	2(0.39)	2(0.39)	9(1.74)
Vulvovaginal Candidiasis	-	-	1(0.19)	5(0.97)	6(1.16)
Pulmonary Tuberculosis	2(0.39)	2(0.39)	2(0.39)	-	6(1.16)
Male STI's	-	4(0.77)	-	-	4(0.77)
Tetanus	-	1(0.19)	1(0.19)	1(0.19)	3(0.58)
<b>Trauma:</b>					
RTA	8(1.55)	13(2.52)	6(1.16)	4(0.77)	31(6.01)
Assault	1(0.19)	-	3(0.58)	5(0.77)	9(1.74)
Dog Bite	3(0.58)	1(0.19)	3(0.58)	-	7(1.36)
Burns	3(0.58)	-	1(0.19)	-	4(0.77)
<b>Surgical Pathologies:</b>					
Appendicitis	3(0.58)	2(0.39)	3(0.58)	7(1.36)	15(2.91)
Hernias	1(0.19)	4(0.77)	-	-	5(0.97)
Fibroadenoma	-	-	-	2(0.39)	2(0.39)
Malignancy	1(0.19)	-	1(0.19)	-	2(0.39)

Table 4b: Gender and age distribution analysis of morbidities among the adolescents

Characteristic	Frequency (n=516)				Percentage(%) Total n(%)
	Male(Years)		Females(Years)		
	10-14(%)	15-19(%)	10-14(%)	15-18(%)	
<b>Obstetric/ Gynaecological Disorders:</b>					
Dysmenorrhoea	-	-	3(0.58)	4(0.77)	7(1.36)
Incomplete Abortion	-	-	-	4(0.77)	4(0.77)
Retained Placenta	-	-	-	2(0.39)	2(0.39)
IUFD	-	-	-	2(0.39)	2(0.39)
Rape	-	-	10(1.94)	5(0.97)	15(2.91)
Asthma	5(0.97)	2(0.39)	4(0.77)	3(0.58)	14(2.71)
<b>Cardiometabolic Disorders:</b>					
Diabetes Melitus	-	3(0.58)	-	2(0.39)	5(0.97)
Hypertension	-	1(0.19)	-	1(0.19)	2(0.39)
Angina Pectoris	-	1(0.19)	-	1(0.19)	2(0.39)
<b>Gastrointestinal Disorders:</b>					
Dyspepsia	-	2(0.39)	3(0.58)	3(0.58)	8(1.55)
Hepatic Coma	-	1(0.19)	-	-	1(0.19)
<b>Neurological/ Psychiatric Disorders:</b>					
Migraine	-	-	1(0.19)	2(0.39)	3(0.58)
Psychosis	-	2(0.39)	-	-	2(0.39)
Depression	-	-	1(0.19)	1(0.19)	2(0.39)
Atopy	2(0.39)	2(0.39)	-	-	4(0.77)
Drug reaction	-	1(0.19)	2(0.39)	-	3(0.58)
Haemoglobinopathy	2(0.39)	-	-	-	2(0.39)

Table 4a and 4b show the analysis of gender and age distribution of morbidities among the adolescents. Most cases of infection, 119(23.06%), were found among older female adolescents (15-19 years) while most cases of

trauma, 15(2.91%) were found among younger male adolescents (10-14 years). Also, haemoglobinopathy, 2(0.39%), the least independent cause of morbidity in the review was found among younger male adolescents only.

**TABLE 5: Causes of admission among the adolescents**

Characteristics	Frequency (n=125)	Percentage (%)
Complicated malaria	31	24.80
Road Traffic Accident	19	15.20
HIV Complications	14	11.20
Appendicitis	13	10.40
Acute PID	12	9.60
Typhoid Fever	11	8.80
Respiratory Tract Infection	9	7.20
Hernias	5	4.00
Tetanus	3	2.40
Burns	3	2.40
Assault	3	2.40
Dog bite	1	0.80
Malignancy	1	0.80

Table 5 shows the causes of admission among the adolescents seen in the facility during the period of the study. There were 125 cases of admission, giving admission rate of 24.22%. Complicated malaria

constituted the single highest cause of admission, 31(24.80%), while rabies (dog bite) and malignancies combined constituted the least causes of admission, 2(1.60%), among the adolescents.

**TABLE 6: Outcome of admitted cases among the adolescents**

Characteristics	Frequency (n=125)	Percentage (%)
Treated and discharged	112	89.60
Referred	7	5.60
Mortality*	4	3.2
Left Against Medical Advice (LAMA)	2	1.6

\* Mortality due to Rabies, HIV complication, severe extensive burns and tetanus

Table 6 shows outcome of admitted cases among the adolescents in the facility during the period under review. Greater percentage of the cases, 112 (89.60%) were successfully treated and discharged while 2(1.6%) left the facility against medical advice (LAMA).

**IV. DISCUSSION**

The study has shown a unique age pattern of presentation among adolescents seen at Mercy Hospital, Abak, South-South Nigeria, such that older adolescents (15-19 years) had higher percentage of presentation (52.90%) compared with younger adolescents (10-14years) with lower attendance (47.10%). This is

similar to findings by Sivagurunathan, etal [14], in India and Al-Eissa [15] in Saudi Arabia but in disagreement with findings from other local and international studies [11,16-19]. This higher percentage of older adolescents in the study could be explained on the basis of the fact that most of the adolescents in the study were females, some of who were battling with pubertal changes with the attendant health challenges. On gender differentiation, it was found out that the male to female ratio was higher in the female direction. This is similar to findings by Anjun, etal [20], but in disagreement with other studies [5,11,12,16]. The gender deviation observed here could be due to the background of the study which was mostly a sub-urban area with predominant female adolescent population.

The profile of morbidity presented in the facility during the period under review showed that greater percentage of the morbidities was due to infections, constituting almost three quarter of all the cases and two thirds of all admitted cases. This is similar to findings from most morbidity studies among adolescents in least developed countries of the world [1,2,5,11,15,21], a reflection of poor socio-economic conditions, ignorance, lack of access to adequate information on health education and other health preventive measures.

The outcome and characteristics of admitted cases in which almost ninety percentage were treated and discharged, less than ten percentage were referred to higher levels of care with small percentages of mortality and LAMA, are similar to finding from several other studies on morbidity profile and characteristics among adolescents [1,3,5,6,10]. Moreover, that chronic morbidities (treatable/curable) of HIV/AIDS, cardiometabolic disorders, pulmonary tuberculosis, malignancy, bronchial asthma, dyspepsia, migraine, atopy, drug reaction and haemoglobinopathy constituted lower percentage of morbidity profile compared to higher percentage of acute illnesses, is similar to other studies on morbidity pattern among adolescents [3,5,6,22-24].

Finally, most of the morbidities presented by adolescents in this study are consequences of poverty, ignorance, illiteracy and poor access to preventive measures which is a commonplace in most settings in Sub-Saharan Africa. Goals one, two, three, four and five of the UNDP Sustainable Development Goals (UNDP – SDG's) emphasis poverty eradication, hunger intolerance, provision of good health and well-being, provision of quality education and clean water and sanitation [25]. Implementation of the above goals of SDG's in developing countries, will improve the health of the adolescent population and the general populace thereby guaranteeing a future healthy adult population.

The study is limited by the non-inclusion of ocular morbidities. This is due to the fact that Mercy Hospital has a tertiary eye care facility, Mercy Eye Centre, where all ocular morbidities are evaluated and treated. A further study on ocular morbidities among adolescents seen in Mercy Eye Centre is recommended.

## V. CONCLUSION

Most of the morbidities seen among adolescents at Mercy Hospital, Abak, were caused by infections and other preventable morbidities. This is a reflection of poverty, ignorance, illiteracy, lack of information on health education and access to preventive health care among adolescent population. This calls for improved socioeconomic conditions of the populace including

those of adolescents, enhanced information on health education and provision of ready access to preventive healthcare among adolescents, which will optimize their health with resultant future healthy adult population.

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## CONFLICT OF INTEREST

We declare that we have no conflict of interest in the study.

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