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Assessment of Presentations and Medication Management of Health Conditions at the Emergency Department of a Tertiary Hospital in Bayelsa State, Nigeria

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ABSTRACT

Dearth of information on presentations and treatment of health conditions at various Accident and Emergency Departments (AEDs) in Bayelsa State necessitated this study. It assessed pattern of presentation of health conditions and their medication management at the AED of Federal Medical Centre at Yenagoa, Bayelsa State. Case notes of 423 patients who presented at the AED of the health facility from January 01 to June 30, 2018 were purposively assessed retrospectively. Pertinent information which included patients' socio-demographics, main and concurrent health conditions presented, duration of stay at the AED, and medication prescribed were collected and analyzed using descriptive statistics. They were expressed in simple percentages, while average values were presented in mean ± standard deviation. Of all case notes assessed, 225 (53.2%) were for males; 256 (60.5%), 119 (28.2%), and 48 (11.3%) were for young adults, children, and the elderlies, respectively. Average patient's age was 26.03 ± 19.37 years, and each presented with an average of 1.69 ± 0.94 health conditions per encounter. Meanwhile, almost all of the patients (97.2%) were discharged or referred within a day of presentation at the AED. Average of 3.16 ± 1.92 drugs were prescribed per encounter for the health conditions managed, of which 100 (23.3%), 97 (22.6%), and 88 (20.5%) patients were treated for injuries, infections, and gastrointestinal disorders, respectively among others. In all, analgesics (30.7%), antimalarials (23.9%), and antibiotics (22.8%) were the most encountered of all drugs prescribed. More males than females were seen within the study period and most were young adults. Each presented with average of 2 health conditions and were discharged/referred within a day with each receiving at least 3 drugs per encounter. Injuries were the most treated conditions and analgesics were the most prescribed drugs.

Keywords: Accident and Emergency, Emergency Treatment, Health Conditions, Medical Emergencies

INTRODUCTION

An Accident and Emergency Department (AED) has been described as "the room or department in a hospital where people who have severe injuries or sudden illness are taken for emergency treatment." It has been variously referred to as – Accident and Emergency Unit, Emergency Room, Emergency Department, and Casualty Department in different climes (Collins, 2019). This department typically operates 24 hours a day to provide healthcare services for patients with acute illness and serious injuries. It is usually staffed by physicians, nurses, and other appropriately trained ancillary personnel. Importantly, the attached pharmacy is staffed by pharmacists and adjunct staff who work round the clock to provide pharmaceutical services to the patients who present with health conditions requiring urgent attention (Fernandez *et al*., 2015).

The AED has been noted as the major route whereby patients are admitted to the wards in Nigerian hospitals and elsewhere (Ogunmola and Olamoyegun, 2014). This however is generally dependent on the nature of the health condition(s) of each patient who presents at the health facility because not all conditions would eventually require admission into the ward. Further to the foregoing, a study conducted in Canada identified two more factors that are commonly considered in determining whether a patient would be admitted into the ward or discharged from the AED following initial treatment. These include, inference from patient assessment and crowding at the AED (Calder *et al*., 2012).

Interestingly, just as it is the case for conventional therapy, drug prescribing forms an important aspect of patient care at the AED. Thus, several studies have reported varying patterns of drug utilization among patients who presented at the emergency departments of different health facilities studied (Fernandez *et al*., 2015). To a larger extent, the foregoing is often informed by the directives of the in-house protocols for patient care at the given AED, and these are routinely reviewed as required. Other factors considered are recommendations of the Drug and Therapeutic Committee of the hospital as well as the National Guidelines on management of patients requiring treatment at AED (Management Sciences for Health and World Health Organization, 2007).

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There is dearth of information regarding pattern of presentation of health conditions and their medication management at the various AEDs of the major health facilities in Bayelsa state. Hence, this study was aimed at assessing presentations and medication management of health conditions encountered at the emergency department of the Federal Medical Centre, which is located in Yenagoa, the Capital of Bayelsa State in the Niger Delta region, south-south, Nigeria.

MATERIALS AND METHODS

Setting

This study was conducted at the Accident and Emergency Department (AED) of a Federal Medical Centre (FMC) which is located at Ovom in Yenagoa Local Government Area of Bayelsa State, South-South Nigeria. The Medical Centre is a tertiary health facility and it is made up of the Headquarters and an Annex both of which are collectively equipped with 334 functional bed spaces. This health facility caters for the healthcare needs of residents of Bayelsa State and its environs. The AED has 20 beds and has a large patient-turnover per month.

Study Design

The study involved a retrospective assessment of all documented 1,357 case notes belonging to patients who presented at the AED of the study centre from January 01 to June 30, 2018 following ethical approval (FMCY/REC/ECC/2018/OCT/122). Of these, 423 (31.2%) with complete relevant prescription items appropriate for the study were purposively retained for further evaluation. The value gotten from sample size calculated using Krejcie and Morgan formula at 95 % confidence level and 5 % margin of error (Research Advisor, 2006) was used as a guide while allowing for overage. For this study, case notes with pertinent patient's socio-demographics, main (and concurrent) health conditions, duration of stay at the AED, and requisite information on medications prescribed were considered as containing complete relevant prescription items useful for the study. A data collection form was pretested with 10 case notes and was modified as appropriate after which it was subsequently employed for the gathering of relevant data required for the study. Health conditions encountered were categorized into main and concurrent diseases (inclusive of symptoms and/or complaints) as appropriate. Main health conditions were considered as those conditions which primarily brought the patient to the AED, while concurrent conditions were taken as those seen in the patient while been attended to for the management of the main disorder(s).

Main outcome measures included gender and age of patients who presented at the AED within the study period. Also examined were the pattern of presentation of health conditions, duration of stay at the AED as well as drug prescribing for the patients.

Data analysis

Data collected were fed into the Statistical Package for Social Sciences (SPSS) version 23 and GraphPad Instat version 3.10 for windows (San Diego California USA) software and were analyzed as appropriate. They were presented using descriptive statistics and expressed in simple percentages, while average values were presented in mean ± standard deviation.

RESULTS

Among the 423 patients whose case notes were assessed within the study period, 225 (53.2%) were males while 198 (46.8%) were females and their average age was 26.03 ± 19.37 years. Majority were in the age range of 12 – 49 years (60.5%), followed by children aged, ≤ 11 years old (28.2%). Elderly patients of age ≥ 50 years (11.3%) were the least seen. Most of the patients were either still in school (31.9%) or working for themselves (30.7%), (Table 1).

Virtually all of the patients (97.2%) studied spent a day at the AED for treatment, and most presented with one (54.4%) and two (25.8%) health conditions in all. On the average, each of them presented with average of 1.69 ± 0.94 conditions per encounter. Meanwhile, 91 (21.5%), 77 (18.2%), and another 77 (18.2%) of the lot were prescribed a total of 3, 5, and more than 5 medications, respectively among others at 3.16 ± 1.92 drugs per encounter (Table 2).

A total of 429 health conditions were treated as the main diseases, symptoms, or complaints encountered within the study period. Of these, injuries, infections, gastrointestinal disorders, and bodily complaints were treated in 100 (23.3%), 97 (22.6%), 88 (20.5%), and 85 (19.8%) of the patients, respectively among other conditions. More specifically, domestic accidents (34.0%) and road traffic accidents (32.0%) were the major injuries treated, while typhoid fever (55.7%) and malaria (41.2%) accounted for most cases of infections encountered. For the gastrointestinal disorders, abdominal pain, diarrhoea, and peptic ulcer disease were treated in 42 (47.7%), 30 (34.1%), and 13 (14.8%) patients, respectively

among other related conditions. Meanwhile, general body weakness (43.5%) and general body pain (37.7%) were the most managed bodily complaints. Other specific conditions treated were as presented below (Table 3).

Concurrent health conditions encountered among the patients were majorly fever, vomiting, and cough, and they were seen in 85 (29.9%), 60 (21.1%), and 29 (10.2%) patients, respectively among others. Others were headache (9.9%), catarrh (6.0%), tachypnea (4.6%) *et cetera* (Table 4). In all, analgesics (30.7%), antimalarials (23.9%), and antibiotics (22.8%) were the most prescribed drugs for the patients seen within the study period. Other medications encountered were as presented in Table 5.

Table 1: Patients Socio-demographics

Patients characteristics	N (%)
Gender (n = 423)	
Male	225 (53.2)
Female	198 (46.8)
Age (years), (n = 423)	
≤ 11	119 (28.2)
12 – 49	256 (60.5)
≥ 50	48 (11.3)
Occupation (n = 423)	
Students	135 (31.9)
Self-employed	130 (30.7)
Civil servants	93 (22.0)
Retired	46 (10.9)
Unemployed	10 (2.4)
Farmers	9 (2.1)

n, total number of patients; N, number of observations; Mean ± SD; SD, standard deviation; Average age (years) of patients, 26.03 ± 19.37

Table 2: Number of days spent at the AED, number of health conditions presented with, and number of drugs prescribed per patient encountered

Number of days spent at AED (n = 423)	N (%)
1 day	411 (97.2)
2 days	6 (1.4)
3 days	4 (1.0)
4 days	1 (0.2)
5 days	1 (0.2)
Number of health condition diagnosed per patient (n = 423)	
0 health condition	1 (0.2)
1 health condition	230 (54.4)
2 health conditions	109 (25.8)
3 health conditions	68 (16.1)
4 health conditions	14 (3.3)
5 health conditions	1 (0.2)
Total number of drugs prescribed per encounter (n = 423)	
0 drug	16 (3.8)
1 drug	22 (5.2)
2 drugs	65 (15.4)
3 drugs	91 (21.5)
4 drugs	75 (17.7)
5 drugs	77 (18.2)
> 5 drugs	77 (18.2)

Average number of days spent at the AED, 1.02 ± 0.15; Average number of diseases treated per encounter, 1.69 ± 0.94; Average number of drugs prescribed per encounter, 3.16 ± 1.92.

Table 3: Pattern of main diseases, symptoms and complaints presentations

Diseases/Symptoms/Complaints	N (%)
Presentations (n = 429)	
Injuries	100 (23.3)
Infections	97 (22.6)
Gastrointestinal disorders	88 (20.5)
Bodily complaints	85 (19.8)
Respiratory disorders	31 (7.2)
Cardiovascular disorders	12 (2.8)
Central nervous system disorders	7 (1.6)
Metabolic disorders	2 (0.5)
Eye disorders	2 (0.5)
Others	5 (1.2)
Injuries (n = 100)	
Domestic accident	*34 (34.0)*
Road traffic accident	*32 (32.0)*
Injury from assault	*8 (8.0)*
Gunshot injury	*7 (7.0)*
Snake/dog bite	*7 (7.0)*
Burns	*5 (5.0)*
Trauma	*4 (4.0)*
Injury from rape	*2 (2.0)*
Injury from electric shock	*1 (1.0)*
Infections (n = 97)	
Typhoid fever	*54 (55.7)*
Malaria	*40 (41.2)*
Vaginal bleeding	*3 (3.1)*
Gastrointestinal disorder (n = 88)	
Abdominal pain	*42 (47.7)*
Diarrhoea	*30 (34.1)*
Peptic ulcer disease	*13 (14.8)*
Anal protrusion	*1 (1.1)*
Constipation	*2 (2.3)*
Bodily complaint (n = 85)	
General body weakness	*37 (43.5)*
General body pain	*32 (37.7)*
Body swelling	*11 (12.9)*
Inability to walk	*5 (5.9)*
Respiratory disorder (n = 31)	
Chronic cough	*20 (64.5)*
Asthma	*11 (35.5)*
Cardiovascular disorder (n = 12)	
Hypertension	*7 (58.3)*
Transient ischaemic attack	*5 (41.7)*
Central nervous system disorder (n = 7)	
Convulsion	*7 (100.0)*
Metabolic disorder (n = 2)	
Unexplained weight loss	*2 (100.0)*
Eye disorder (n = 2)	
Blurred vision	*2 (100.0)*
Others (n = 5)	
Tooth ache	*3 (60.0)*
Nose bleeding	*1 (20.0)*
Amenorrhoea	*1 (20.0)*

Table 4: Pattern of presentation of concurrent diseases, symptoms, and complaints among the patients

Concurrent presentation (n = 284)	N (%)
Fever	85 (29.9)
Vomiting	60 (21.1)
Cough	29 (10.2)
Headache	28 (9.9)
Catarrh	17 (6.0)
Tachypnea	13 (4.6)
Dizziness	10 (3.5)
Pruritus	10 (3.5)
Weight loss	7 (2.5)
Skin rash	5 (1.8)
Irrational speech	4 (1.4)
Bitter taste in the mouth	4 (1.4)
Painful urination	3 (1.1)
Sore throat	2 (0.7)
Neck stiffness	1 (0.3)
Difficulty lying down	1 (0.3)
Others	5 (1.8)

Table 5: Drugs prescribed for the patients

Drug prescribed (n = 1336)	N (%)
Analgesics	410 (30.7)
Antimalarials	320 (23.9)
Antibiotics	305 (22.8)
Tetanus toxoid	61 (4.6)
Antacids	60 (4.5)
Antitussives	45 (3.4)
Antidiabetics	35 (2.6)
Antihypertensive	32 (2.4)
Antidepressant	25 (1.9)
Antispasmodics	17 (1.3)
Anti-emetics	15 (1.1)
Corticosteroids	11 (0.8)

DISCUSSION

More males than females presented at the AED of the study centre for treatment of various forms of health conditions within the study period, and majority were young adults and children. Virtually all of these patients spent a day at the emergency department before they were discharged or transferred to the wards for further evaluations and treatments. Each of the patients presented with an average of 2 conditions and were treated with average of 3 drugs per encounter. Main groups of health conditions treated were injuries, infections, gastrointestinal disorders, and bodily complaints, among others. Several drugs were prescribed for the subjects of which analgesics,

antimalarials, and antibiotics were the most encountered.

The greater proportion of males observed in this study is similar to a finding by Milani *et al.* (2017). Meanwhile, a similar study conducted in the United Kingdom related that differences in pattern of visits to AED among the male and female patients vary across different age groups with more males than females attending AED at age 0 to 14 years, and at age 35 years and above, respectively. On the other hand, more females within the age range of 15 – 34 years were found to be more likely to attend AED in comparison to their male counterparts (Baker, 2017).

Most of the patients encountered were either discharged or transferred to the wards for further evaluation within a day of presentation at the A & E. This finding is similar to reports by several studies elsewhere (Al Balushi *et al*., 2014; Baker, 2017) and this is welcoming given that it has been noted that prolonged stay in the emergency department is associated with crowding which in turn may lead to increase cost of care and unfavourable outcomes for the patients being catered for (Driesen *et al*., 2018).

Several of the patients were treated for various forms of injuries resulting mostly from domestic accidents and road traffic accidents which is similar to a report by Myers *et al*. (2017) in Kenya. Also significantly encountered were cases of infectious diseases such as typhoid fever and malaria, being the most commonly encountered microbial diseases which is similar to previous reports (Ganiyu *et al*., 2014; Khan *et al*., 2010). In addition, other health conditions featured prominently among the patients seen at the AED and this is a testament to the fact that a myriad of cases are often presented at any given emergency department (Afuwape *et al*., 2007; Al Balushi *et al*., 2014).

For the purpose of therapy, a variety of drugs were prescribed mostly at 3 drugs per prescription vetted. Of all, analgesics were the most encountered indicating the need for the management of pain accompanying most of the reported health conditions. In addition, antimalarial drugs and requisite antibiotics were also widely prescribed for patients who presented with cases of malaria and typhoid fever, respectively. However, it was observed that these medications were often ordered for the concerned patients empirically based on the presented signs and symptoms. This was against the need to confirm the actual causative agents for the infections being treated as required (Leekha *et al*., 2011). A probable reason for the foregoing is the need for timely initiation of required therapies for the patients being treated given the urgency of their conditions.

An important limitation to this study is the fact that only 423 case notes with complete information relevant to the study were assessed out of the 1357 documented ones belonging to all patients who presented at the study centre within the study period. Also, only one study center was used. Hence, the findings may not be generalized to all patients presenting to the AED studied as well as to what obtains at the AEDs of other referral health facilities in Bayelsa State, Nigeria.

CONCLUSION

This study revealed that more males were seen at the AED of the study center within the study period. Majority were young adults and children and most were either discharged or referred to the wards within a day of presentation. Each of the patients presented with an average of 2 health conditions and each received average of 3 drugs per prescription. Injuries, infections, and gastrointestinal disorders were the most encountered main health conditions while analgesics, antibiotics, and antimalarial drugs were the most prescribed drugs.

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CONFLICT OF INTEREST

No conflict of interest.

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AUTHORS' CONTRIBUTIONS

This study was conceived and designed by KAG. Data collection was done by ADD. Data analysis was done by KAG and ADD. The manuscript was written by KAG. Both authors read and approved the manuscript for publication.

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