A Two-Year Review of the Pattern and Outcome of Medical Admissions in A Secondary Health Facility in Nigeria

Authors

Rasaq O. Shittu[1], Musa A. Sanni[2], Louis O. Odeigah[3], Akanbi II A.A[4]
Abdullateef G. Sule[5], Okesina B.S[6], Salamat Isiaka-Lawal[7]

[1]MBBS, MPH,FWACP, Department of Family Medicine, Kwara State Specialist Hospital, Sobi, Ilorin, Kwara State, Nigeria
Email: *oorelopehospital@gmail.com Tel: +2348035062687*

[2]MBBS, FMC Path, Dept of Haematology, Kwara State Specialist Hospital, Sobi, Ilorin, Kwara State, Nigeria
Email: *maskareem2009@yahoo.com Tel: +2348056711158*

[3]MBBS, FWACP, Dept of Family Medicine, University of Ilorin Teaching Hospital, Kwara State Nigeria
Email: *lodeigah@yahoo.com Tel: +2348069048555*

[4]MBBS, FMC Path Dept of Microbiology, University of Ilorin Teaching Hospital, Kwara State Nigeria
Email: *aliu4567@unilorin.edu.ng Tel: +2348055955399*

[5]MB,BS, FWACP, Dept of Family Medicine, Ahmadu Bello University Teaching Hospital, Zaria, Nigeria
Email: gbensule@yahoo.com Tel: +2348065535088

[6]MBBS, FWACS, Dept. of Obstetrics & Gynecology, Kwara State Specialist Hospital, Sobi, Ilorin, Nigeria
Email: *dr.okeshinabs@yahoo.com Tel: +2348033792869*

[7]MBBS, FMCOG, FWACS. Dept. of Obstetrics & Gynecology, Kwara State Specialist Hospital, Sobi, Ilorin, Nigeria
Email: *ayosalamat@yahoo.com Tel:+2348039124662*

Corresponding Author
Dr. Shittu O. Rasaq
Consultant Family Physician,
Kwara State Specialist Hospital, Sobi, Ilorin.
And
The Chief Medical Director,
Oorelope Hospital (Consultant Specialist Clinics)
KM 8, Apata Yakuba, Ilorin, Kwara Sate.
Email: oorelopehospital@gmail.com
TEL: +23435062687

Abstract

Background*: The profile of morbidity and mortality are a reflection of the prevailing pattern of diseases and the responsiveness of the health care system. In developing country like Nigeria, limited resources require that health priorities be selected wisely; hence it is pertinent to evaluate the morbidity and mortality pattern for health planning and for improving the health care services. There are limited data on the causes of hospital admission and death among adults in Nigeria. Hence, the need to provide a comprehensive reviews of the pattern of morbidity, mortality and medical outcome in Nigeria.*

Methods: *This is a retrospective study of 933 patients admitted to the medical wards of Kwara State Specialist Hospital, Sobi, Ilorin from December 2012 to December 2014. Data were obtained from the admission and discharge/death register, patients' case records and the quarterly mortality reviews. The data was analyzed using the SPSS version 16.*

Results: *A total of 933 were admitted over the two years study period. Of these 601 (64.4%) were discharged, 131 (14.0%) referred, 108 (11.7%) died while 92 (9.9%) Discharged Against Medical Advice (DAMA). Infectious Diseases 236 (25.3%) constituted the highest morbidity and mortality. It also constituted the highest discharged against medical advice 30 (32.3%). Of the infectious diseases HIV/AIDS 105 (11.3%) predominate, followed by pulmonary tuberculosis 81 (8.7%). Cancer had the least morbidity 20 (2.1%) and mortality 3 (2.8%). Of the non-communicable diseases, neurological disorder accounted for 21.1% (197) with predominance of cerebrovascular accident 189 (20.3%). However, gastrointestinal 179 (19.2%), cardiovascular 97 (10.4%) and endocrine 52 (5.6%) were prevalent. Congestive cardiac failure 37 (4.0%) was the commonest causes of mortality in the cardiovascular group.*

Conclusion: *Infectious and neurological diseases are currently the leading causes of admission in Kwara State Specialist Hospital, Nigeria. Discharged against medical advice is significant.*

Key words*: Morbidity, Mortality, Outcomes, Medical Ward, Family Practice, Nigeria*

INTRODUCTION

Hospital admission mirrors common diseases in the society. It depicts the disease burden in the communities, where the institution is situated. Though, it may not be the true incidence of diseases, it serves as a reflection of the pattern and trend of diseases in the community[1]. Audits of patient's disease pattern and outcome are very crucial in health care planning and performance evaluation of a hospital in a bid to improving services. It forms part of data in the State Information Systems which can assist the country's health[2]. Although with some limitations, hospital data analysis assesses the quality of health-care delivery and provides approximate measures of mortality and morbidity[2,3].

Morbidity and mortality resulting from medical diseases are recognized major public health problems worldwide[4]. There is considerable mortality in sub-Saharan Africa dominated by infectious disease[5,6]. The emergence of Acquired Immune Deficiency Syndrome (AIDS) and Tuberculosis (TB) emphasize the dynamic nature of infectious diseases and the need for preparedness to curtail them[7]. The increasing burden of non-communicable disease threatens to overwhelm already stretched health services[8].

The pattern of morbidity and mortality are indicators of the magnitude of health problems. Knowledge of such indicators should be the bedrock for health planning and provision of the health care services[6]. In Africa, there is dearth of vital registration, capable of providing reliable national data on mortality. Accurate and reliable information on mortality is therefore limited and mortality data are based on information on hospital admissions and deaths[6,9-11].

In most developing countries, including Nigeria, the prevalence of Non-Communicable Diseases (NCD) have almost exceeded the prevalence of communicable diseases[12,13]. Diabetes now constitutes the highest morbidity and mortality of all chronic NCDs in Africa[13]. In Nigeria, it accounts for between 3.5% and 15% of medical admissions in most health facilities in the country. The implication of this trend in developing countries is ominous because of the poor state of health services and associated high prevalence of communicable diseases. These bring the 'double burden' of disease, as emphasized by the World Health Organization (WHO), to the fore[14]. The burden of Cardiovascular Diseases (CVD) globally is enormous, and the majority of those affected are in developing countries[15,16]. World Health Organization (WHO)[17] report made it known that CVD account for most non-communicable diseases (NCD) deaths and nearly 80% of these NCD deaths occurred in low and middle income countries. The common cause of cardiovascular deaths was heart failure[18]. The commonest cause of heart failure identified in the study was hypertension. This was similar to findings by Adedoyin et al[19] and Onwuchekwar et al[20-24]. Late referral or presentation and lack of fund as well as ignorance to access early cardiovascular care may account for high heart failure deaths. Previous study reported late referral as a contributing factor to heart failure[18]. Stroke is a common cause of morbidity and mortality worldwide[25]. The incidence and mortality for stroke is higher in blacks[26] and the prevalence is increasing in sub-Saharan Africa[27] due to increasing incidence of hypertension and poor management of cases[28]. Age, gender, race, ethnicity and hereditary have been identified as markers of risk for stroke. Although these factors cannot be modified, their presence helps identify those at greatest risk, enabling vigorous treatment of those risk factors that can be modified.

Discharge against medical advice (DAMA) occurs when a patient decides to leave the hospital against the opinion of the physician.[29] It is an adverse clinical event often resulting from a fundamental disagreement between the patient or an interested third party and the attending physician and/or the hospital environment. This culminates in the patient's withdrawal of their initial voluntary consent for hospitalization, and abrupt termination of in-patient medical care[30]. It may be carried out by the patients, or their relatives. DAMA is a problematic issue for health workers because it interrupts their interaction with the patient, leading to frustration[31]. It is associated with adverse health outcomes which increase healthcare costs[32].

Legal issues that may arise in the context of DAMA include the possibility of being sued for medical malpractice. Devitt et al described four cases of malpractice litigation following DAMA, and concluded that while the fact of DAMA may provide some protection, it does not grant full immunity from the law[33]. The need to properly assess, counsel and educate the patient and their relatives cannot be over-emphasized. The physician should ensure that all these steps are thoroughly documented and that the authentic signature of the patient or the designated surrogate

decision maker is appended on the discharge form in the presence of a witness.

The morbidity and mortality of patients form part of the objectives of the WHO in evaluating available health services. It is an integral part of managing health-care delivery system[34,35]. As crucial as this is to health care delivery, there is paucity of data on the subject matter. It is therefore pertinent to explore medical admission outcome in Kwara State Specialist Hospital, Ilorin, a secondary health institution in northern Nigeria.

METHODOLOGY

The study was retrospective analysis conducted on patients admitted to the medical wards of Kwara State Specialist Hospital, Sobi, Ilorin, Nigeria. This hospital is a secondary health center serving as a referral center for the state and neigbouring states. The hospital has a specially equipped chest clinic for Tuberculosis patients and a lentiviral clinic. By systemic classification, the diseases were coded. The hospital set of criteria for admission was noted. Hospital staff was categorized into Nurses, Medical Officers and Consultants who had an advanced medical training beyond the basic medical degree and were providing specialist care.

The case note records of all patients admitted from December 2012 to December 2014 were thoroughly reviewed. The case note of 27 patients could not be traced and were accordingly excluded from the study.

Ethics and research committee approval from the institution was obtained. Data obtained were analyzed using SPSS version 16 software and the results presented in the descriptive and tabular forms.

RESULTS

Table 1: Socio-Demographic Variables

Table 1 shows the socio-demographic variables of the respondents. The minimum age was 15 while the maximum was 100; the mean age was 50.2 ± 18.7. There were more males 477 (51.1%) than females 456 (48.9%). Majority were married 786 (84.3%), predominantly Muslims 829 (88.9%) and of Yoruba 917 (98.3%) extractions.

Variables	Frequency	(%)
Age Group		
<20	27	**2.9**
20-29	118	**12.6**
30-39	158	**16.9**
40-49	133	**14.3**
50-59	135	**14.5**
60-69	168	**18.0**
>=70	194	**20.8**
Total	**933**	**100.0%**
Sex		
Male	477	**51.1%**
Female	456	**48.9%**
Total	**933**	**100.0%**
Marital Status		
Single	113	**12.1%**

Married	786	**84.3%**
Widower	34	**3.6%**
Total	**933**	**100.0%**
Religion		
Christian	104	**11.1%**
Muslim	829	**88.9%**
Total	**933**	**100.0%**
Occupation		
Trader	321	**34.4%**
Student	140	**15.0%**
Self employed	138	**14.8%**
Non employed	263	**28.2%**
C/S	71	**7.6%**
Total	**933**	**100.0%**
Ethnicity		
Yoruba	917	**98.3%**
Igbo	12	**1.3%**
Hausa	4	**0.4%**
Total	**933**	**100.0%**

Figure 1: Pattern of Morbidity

Figure 1 shows the pattern of morbidity. Infectious Diseases 236 (25.3%) constituted the highest morbidity; followed by Neurological Disorder 197 (21.1%). Cancer had the least morbidity 20 (2.1%).
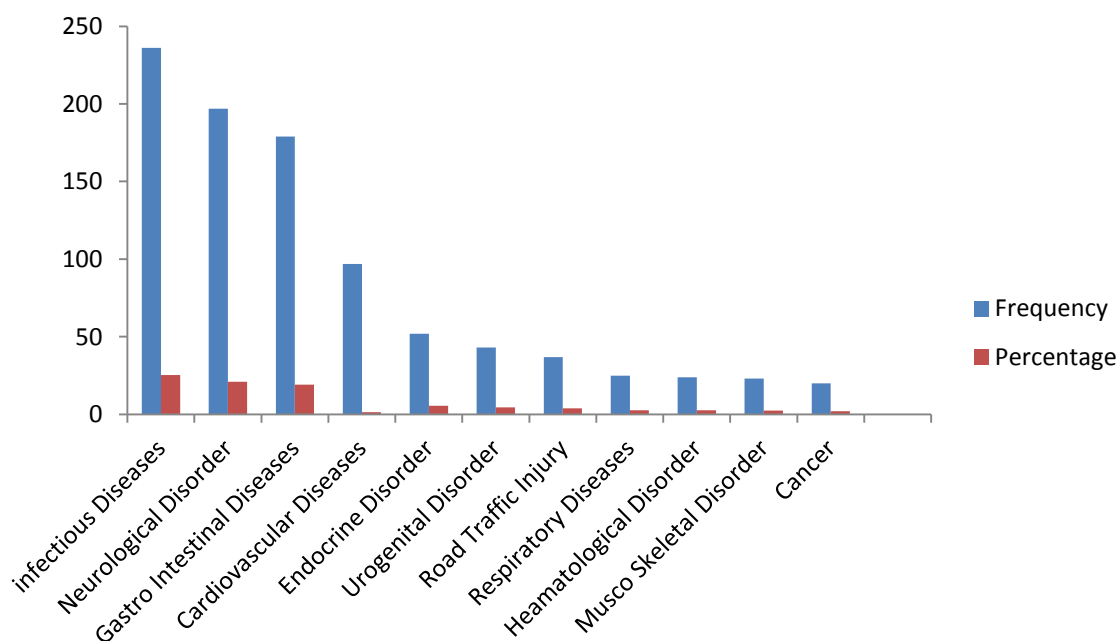
Table 2: Diseases Class and Socio-Demographic Factors

Table 2 shows the diseases class and the socio-demographic factors. There was male 477 (51.1%) preponderance. Infectious disease was common in the age group 30-39 67 (7.2%). Neurological 65 (7.0%), cardiovascular (3.3%) and urogenital 11 (1.2%) diseases mostly occurred above 70years. Morbidity was common among those with non-formal education 244 (26.2%) and traders 321 (34.4%)

Variables	Infectious	Endocrine	Neurology	Cardiovascular	Respiratory	Gastro Intestinal	Urogenital	Musco Skeletal	Road Traffic Injury	Cancer	Haematology	Total	Chi-square	p-value
Age Group														
<20	3	1	4	0	2	13	1	1	1	0	1	**27**	2.140	<0.001
20-29	34	1	11	1	1	48	8	3	2	4	5	**118**		
30-39	67	4	12	10	7	34	5	2	9	3	5	**158**		
40-49	47	6	23	8	1	23	6	4	7	3	5	**133**		
50-59	30	13	33	17	4	15	7	3	5	5	3	**135**		
60-69	28	15	49	30	4	22	5	6	7	1	1	**168**		
>=70	27	12	65	31	6	24	11	4	6	4	4	**194**		
Total	**236**	**52**	**197**	**97**	**25**	**179**	**43**	**23**	**37**	**20**	**24**	**933**		
Sex														
Male	106	18	89	55	14	114	30	16	16	3	16	**477**	47.648	<0.001
Female	130	34	108	42	11	65	13	7	21	17	8	**456**		
Total	**236**	**52**	**197**	**97**	**25**	**179**	**43**	**23**	**37**	**20**	**24**	**933**		
Marital Status														
Single	23	1	14	0	3	49	7	4	**3**	3	6	**113**	85.463	<0.001
Married	206	50	171	92	22	127	36	19	32	14	17	**786**		
Widower	7	1	12	5	0	3	0	0	2	3	1	**34**		
Total	**236**	**52**	**197**	**97**	**25**	**179**	**43**	**23**	**37**	**20**	**24**	**933**		
Religion														
Christian	34	6	24	**4**	1	16	3	4	3	4	5	**104**	15.617	0.111
Muslim	202	46	173	93	24	163	40	19	34	16	19	**829**		
Total	**236**	**52**	**197**	**97**	**25**	**179**	**43**	**23**	**37**	**20**	**24**	**933**		
Education														
Non formal	115	27	94	47	11	105	19	10	21	15	11	**244**	20.055	0.915
Primary	58	13	51	18	7	33	10	5	8	3	6	**212**		
Secondary	62	12	52	32	7	40	14	8	8	2	7	**475**		
Tertiary	1	0	0	0	0	1	0	0	0	0	0	**2**		
Total	**236**	**52**	**197**	**97**	**25**	**179**	**43**	**23**	**37**	**20**	**24**	**933**		
Occupation														
Trader	83	17	85	34	8	46	13	5	13	8	9	**321**	67.447	0.004
Student	34	5	22	6	6	47	7	3	5	1	4	**140**		
Self employed	37	5	31	10	2	29	7	4	7	3	3	**138**		
Non-employed	70	21	42	33	6	48	12	8	11	4	8	**263**		
C/S	12	4	17	14	3	9	4	3	1	4	0	**71**		
Total	**236**	**52**	**197**	**97**	**25**	**179**	**43**	**23**	**37**	**20**	**24**	**933**		
Ethnicity														
Yoruba	230	52	193	96	24	176	43	23	36	20	24	**917**	9.574	0.975
Igbo	4	0	3	0	1	3	0	0	1	0	0	**12**		
Hausa	2	0	1	1	0	0	0	0	0	0	0	**4**		
Total	**236**	**52**	**197**	**97**	**25**	**179**	**43**	**23**	**37**	**20**	**24**	**933**		

Table 3: Diseases Class, Specific Diagnosis, % of Specific Diseases and % of Total Admission

Table 3 shows the diseases class, specific diagnosis, % of specific diseases and % of total admission. It shows infectious diseases 236 (25.3%) as the leading cause of mortality closely followed by neurological 197 (22.2%), while cancer 20 (2.1%) was the least. The commonest infectious diseases was HIV/AIDS 105 (11.3%) followed by Pulmonary Tuberculosis 81 (8.7%). Of the non-communicable diseases, Cerebrovascular accident 189 (21.3%) was the highest followed by Hypertensive Heart Disease 58 (6.2%).'

DISEASES CLASS	SPECIFIC DIAGNOSIS	FREQUENCY	% OF SPECIFIC DISEASES	% OF TOTAL ADMISSION (N=933)
INFECTIOUS	Pulmonary Tuberculosis	81	34.3	8.7
	Pot's disease	3	1.3	0.3
	HIV + Pulmonary Tuberculosis	47	19.9	5.0
	HIV	105	44.5	11.3
Total		**236**	**100.0**	**25.3**
ENDOCRINE	Hyper Osmolar Non-Ketotic (HONK)	21	40.4	2.3
	Diabetes Ketoacidosis(DKA)	17	32.7	1.8
	Diabetic foot	9	17.3	1.0
	Hypoglycaemia	5	9.6	0.5
Total		**52**	**100.0**	**5.6**
NEUROLOGY	Cerebrovascular Accident (CVA)	189	95.9	20.3
	Meningitis	3	1.5	0.3
	Tetanus	2	1.1	0.2
	Encephalitis	3	1.5	0.3
Total		**197**	**100.0**	**21.1**
CARDIOVASCULAR	Congesive Cardiac Failure (CCF)	37	38.1	4.0
	Hypertensive Heart Disease (HHD)	58	59.8	6.2
	Myocardial Infection (MI)	2	2.1	0.2
Total		**97**	**100.0**	**10.4**
RESPIRATORY	COPD	6	24	0.6
	Bronchial Asthma	9	36	1.0
	Chronic Bronchitis	2	8	0.2
	Lober pneumonia	8	32	0.9
Total		**25**	**100.0**	**2.7**
GASTROINTESTINAL	Cholecystitis	15	8.4	1.6
	Hepatitis	32	17.9	3.4
	Liver Cirrhosis	3	1.7	0.3
	Primary Liver Cell Calcinoma	9	5	1.0
	Acute Pancratitis	3	1.7	0.3
	Typhoid Septisimia	46	25.7	4.9
	Gastro Entiritis	20	11.2	2.1
	Abdominal TB	2	1.1	0.2
	Tropical Spleenomegally Syndrome	1	0.5	0.1
	Exacerbated Peptic Ulcer Disease	48	26.8	5.1
Total		**179**	**100.0**	**19.0**
UROGENITAL	Chronic Renal Failure	9	20.9	1.0
	Pyelonephritis	12	27.9	1.4
	Urinary Tract Infection	5	11.6	0.5
	Epididimo Orchitis	3	7	0.3
	Nephrotics Syndrome	2	4.7	0.2
	Acute Glomerulo Nephritis	4	9.3	0.4
	Genital Warts	7	16.3	0.8
	Priapism	1	2.3	0.1
Total		**43**	**100.0**	**4.7**
MUSCULO SKELETAL	Low back ache	7	30.4	0.8
	Lumbar spondylosis	2	8.7	0.2
	Cellulitis	3	13.1	0.3
	Osteo Arthritis	11	47.8	1.2
Total		**23**	**100.0**	**2.5**
ROAD TRAFFIC INJURY	RTI	37	100.0	4.0
Total		**37**	**100.0**	**4.0**
CANCER	Breast Cancer (N stage)	7	35	0.8
	CA Prostrate	3	15	0.3
	Lung cancer	2	10	0.2
	Kaposis Sarcoma	2	10	0.2
	Malignant leg ulcer	6	30	0.6
Total		**20**	**100.0**	**2.1**
HAEMATOLOGICAL	Sickle Cell disease	13	54.2	1.4
	Severe Anaemia	11	45.8	1.2
Total		**24**	**100.0**	**2.6**

Figure 2: Pattern and Mode of Discharge of the Respondents

Figure 2 shows the pattern and mode of discharge of the respondents. Nine hundred and ninety nine patients were admitted to the medical wards of the hospital. Six hundred and one (64.4%) discharged, 131 (14%) referred, 108 (11.6%) died, while 93 (10%) discharged against medical advice.
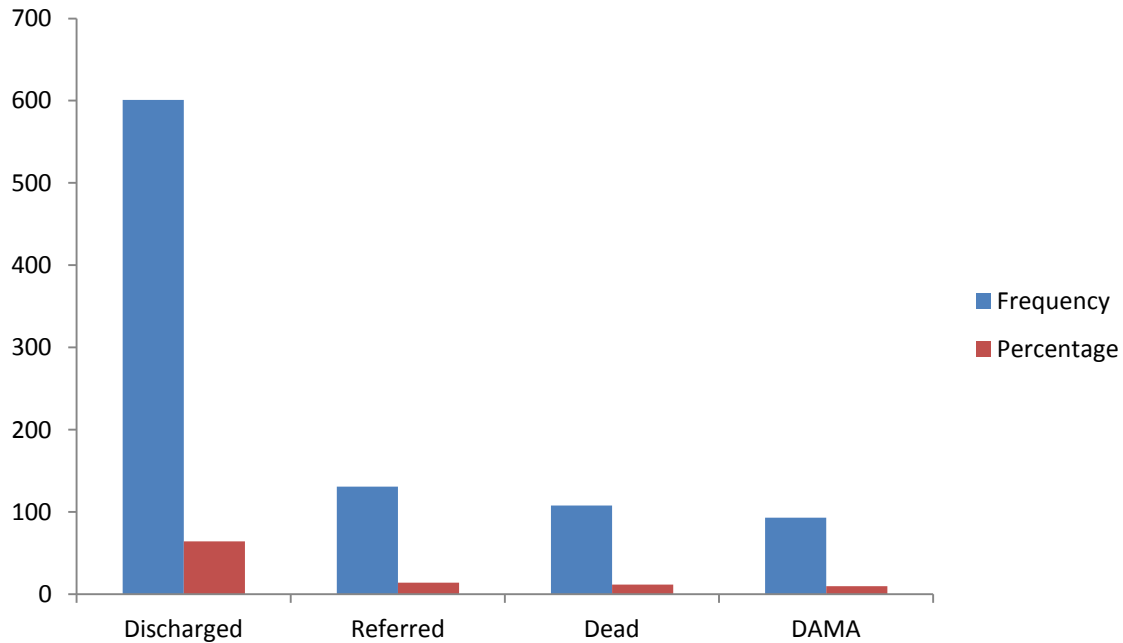
Table 4: Association between Socio-demographic factors and Pattern of Discharge

Table 4 shows the association between socio-demographic factors and pattern of discharge. The highest mortality 32 (29.6%) was recorded with patients above 70years. Age group 40-49 recorded the highest discharged against medical advice 26 (28%). Discharged against medical advice was highest among those with non-formal education 43 (4.6%). Infectious diseases constituted the highest mortality 50 (46.3%) and the highest discharged against medical advice 30 (32.3%). This was statistically significant (<0.001).

Variables	Pattern of Discharge				Total	Chi-square	p-value
	* DAMA	Dead	Discharged	Referred			
Age Group							
<20	0	2	21	4	**27**	**40.822**	**0.002**
20-29	8	8	90	12	**118**		
30-39	14	19	96	29	**158**		
40-49	26	16	72	19	**133**		
50-59	8	18	93	16	**135**		
60-69	22	13	109	24	**168**		
>=70	15	32	120	27	**194**		
Total	**93**	**108**	**601**	**131**	**933**		
Sex							
Male	53	61	283	80	**477**	**11.623**	**0.009**
Female	40	47	318	51	**456**		
Total	**93**	**108**	**601**	**131**	**933**		
Marital Status							
Single	6	8	85	14	**113**	**8.908**	**0.179**
Married	85	95	495	111	**786**		
Widower	2	5	21	6	**34**		
Total	**93**	**108**	**601**	**131**	**933**		
Religion							
Christian	13	21	57	13	**104**	**10.136**	**0.017**
Muslim	80	87	544	118	**829**		
Total	**93**	**108**	**601**	**131**	**933**		
Education Level							
Non-formal	43	56	311	65	**475**	**5.495**	**0.789**
Primary	26	20	139	27	**212**		
Secondary	24	32	149	39	**244**		
Tertiary	0	0	2	0	**2**		
Total	**93**	**108**	**601**	**131**	**933**		
Occupation							
Trader	33	28	210	50	**321**	**12.066**	**0.440**
Student	11	15	96	18	**140**		
Self Employed	18	20	81	19	**138**		
Non Employed	27	32	171	33	**263**		
C/S	4	13	43	11	**71**		
Total	**93**	**108**	**601**	**131**	**933**		
Ethnicity							
Yoruba	91	106	590	130	**917**	**4.050**	**0.670**
Igbo	1	2	9	0	**12**		
Hausa	1	0	2	1	**4**		
Total	**93**	**108**	**601**	**131**	**933**		
Diseases Class							
Infectious Diseases	30	50	89	67	**236**	**1.479**	**<0.001**
Endocrine Disorder	4	5	41	2	**52**		
Neurological	24	24	122	27	**197**		
Cardiovascular	12	10	68	7	**97**		
Respiratory	1	1	21	2	**25**		
Gastro Intestinal	9	11	146	13	**179**		
Urogenital System	1	1	35	6	**43**		
Musculo Skeletal	5	1	14	3	**23**		
Road Traffic Injury	2	1	34	0	**37**		
Cancer	2	3	14	1	**20**		
Haematological	3	1	17	3	**24**		
Total	**93**	**108**	**601**	**131**	**933**		

*DAMA: Discharged Against Medical Advice

DISCUSSION

In the present study, 108 deaths were recorded out of 933 admitted to the medical wards showing a crude mortality rate of 11.6%. This was higher compared to a similar study in Port Harcourt, Nigeria[36] with a crude mortality rate of 2% and other local studies which reported mortality rates of 6.8% in Port Harcourt, Nigeria[20], 4.7% in Freetown, Sierra Leone[37], and 5.2% in Benin, Nigeria[38] but comparable to the study in Federal Medical Centre Ido-Ekiti, Nigeria with crude mortality rate of 10.3%[39]. It is however lower than overall mortality obtained in University of Calabar Teaching Hospital, Nigeria where Ugare and co-workers[40] reported the mortality rate of 21.4%. The wide differences in mortality rates among the different studies could be attributed to late presentation, advance and complicated cases, social factors, poverty level, limited facilities and personnel factors[41]. Financial constraint was also an important issue that could influence outcome of hospitalization in resource scarce nation like Nigeria[42-44]. There exists in many developing nations poor social service[45,32].

The significant proportion of the deaths occurred with infectious diseases. This was similar to other hospital-based studies in South Africa, where infectious diseases dominated the medical admissions[46,47]. It points out the burden of infectious diseases at this center. This is not unexpected in a developing country where the control of infection is difficult due to poor sanitation, overcrowding and poor water supply among others. This is in agreement with two previous studies by Ogun et al[44] and Mandong et al[45], which showed infections as the leading causes of death in Nigeria. HIV related illnesses contributed the most to the burden of infectious disease suggesting that late presentation, due to limited access to HIV testing facilities, continues to be a significant problem on the continent[45]. Stigma and discrimination remain high and continue to be a barrier for accessing services related to HIV/AIDS[48].

In our study, stroke was observed to be the most frequent neurologic admission accounting for 189 (20.3%). This is in conformity with previous studies that observed stroke to be the most common neurologic emergency[49]. Like Adekale and co-workers[50] studies, cerebrovascular accident was the commonest neurological lesions followed by cerebrospinal meningitis. Stroke was found to be commoner in those over 60years. Age is the single most important risk factor for stroke. For each successive 10 years after age 55, the stroke rate more than doubles in both men and women[51,52]. Ages have been observed to be strongly associated with stroke. Stroke was also observed in the present study to be more frequent in females than males. This is not in concord with earlier studies that found stroke to be commoner in males than females[50,53-54]. Onwuekwa et al[20] observed a male preponderance among CT confirmed stroke cases, with a male to female ratio of 2.55:35. Walker et al in Tanzania, observed that stroke incidence was markedly increased for males than females in Hai rural area[55].

The patterns observed in the present study with regard to cardiovascular diseases was similar to

those reported in Nigeria[56]. Hyperglycaemic emergencies accounted for about 4.1% of the hospital admission followed by diabetes foot 1%. A similar pattern was also reported in Ilorin and Port Harcourt[57,58]. In south-western Nigeria, diabetic patients were more likely to be admitted for chronic complications, like diabetic foot syndrome and hypertension rather than for acute complications[59]. This is at variance to what had been reported in most developed countries where they only accounted for 4 to 6% of causes of deaths in diabetic patients. Most common causes of diabetic deaths in our environment are acute, but preventable, hence a reflection of the poor attention patients receive both at the household/ community levels and at institutional levels[58].

Discharge constituted the largest proportion of outcome of patients admitted into the medical ward. In the present study, the outcome following admission was impressive in terms of the number of patients that were successfully treated and discharged. Referrals were patients sent to other institutions. The pulmonary tuberculosis patients were referred to the chest clinic of the hospital. While HIV/AIDS patients were referred to the lentiviral clinic of the same hospital. Patients also request for referral because of proximity to a caregiver and financial constraint.

DAMA is a worldwide problem with a wide range of prevalence. In this study, the overall DAMA rate of 10%, is very high compared to 0.002% at University of Nigeria Teaching Hospital, Enugu[60], and other study by Duno et al[61] which reported 0.34%. It also differs markedly from the range reported elsewhere in Africa (1.2%−12%)[62,63]

Europe (0.4%−1.4%)[64], Asia (2%)[65], Australia (1.5%)[66], Spanish (0.34%)[67] and USA (1%-2%)[61] among general hospital admissions.

These studies are similar since they comprised general medical admissions excluding psychiatric and Accident and Emergency patients, with higher prevalence of DAMA[68,61]. By contrast, Alebiosu and Raimi[69] in a 2-year study of DAMA in a teaching hospital in southwestern Nigeria, reported a DAMA rate of 2.8%, apparently due to the inclusion of accident and emergency patients, who accounted for 45.2% of all DAMA, in their study.

Financial constraints, poor response to treatment, and dissatisfaction with the hospital environment accounted for majority of DAMA patients. The prevailing harsh economic environment in Nigeria, and the infantile age of the National Health Insurance Scheme, with its expected impact on individuals' healthcare financing largely being awaited, partly explains this[70,71]. Consequently, individuals' limited financial resources still remains a major barrier to delivery of quality healthcare in Nigeria. This is in accordance with the established roles of limited financial resources and lack of health insurance in pre-staging the requests for DAMA[72,73]. Poor response to treatment, as judged by the patient or their relations, often leads to DAMA. This is often due to ineffective communication between the attending physician and the patient with regards to the natural history of disease, its prognosis, potential complications, and outcomes of available treatment options[61]. Dissatisfaction with the hospital environment has been variously

attributed to patients' emotional dispositions, psychosocial factors like anger and fear[74], psychiatric disease[75,76], and substance abuse disorder[73]. Unfortunately, in the present study we could not evaluate the contributions of these factors to patients' levels of dissatisfaction with the hospital environment.

The medical team should keep communication with the patient and relatives open to promote a cordial relationship. They need to know that in some cases, it may be ethical not to admit patients, and rather opt for palliative care on a community- or home-based level. Other countries also have measures in place to reduce hospital admissions[77,78]. At the policy-making level, hospitals should be encouraged to develop guidelines that will determine admission criteria for patients generally, and particularly for those with medical conditions with poor prognosis.

LIMITATIONS

The limitations of the present study are those inherent to retrospective studies, such as incomplete data, lack of some essential information, deficient medical record keeping, and underreporting of cases. There is the further limitation of possible diagnostic errors. Moreover, the failure of the study to use standard ICD coding systems limits our capacity to compare studies. Stroke was classified as a neurological disorder in this study while other studies classified it as a cardiovascular disorder in accordance with the ICD coding system. Similarly, diarrhea was listed as a digestive system illness while other studies classified it as an infectious and parasitic disease.

CONCLUSION

Infectious diseases accounted for the highest causes of morbidity and mortality in this study. Periodic review of hospital deaths in Nigeria could help to know the changing pattern of morbidity and mortality in our environment.

RECOMMENDATIONS

More attention needs to be focused on the control of infectious diseases, preventive health medical care and improvement in the living condition of the citizens of this country. There is need for provision of adequate medication and standard laboratory services in our hospitals.

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