Research Article

Five-year Prevalence of Gastrointestinal Diseases and Disorders in Akure South, Nigeria

Oghenetega O.B.³, Kuti T.J.¹, Owolabi F.M.² and Omayone T.P.¹

Departments of ¹Physiology and ²Biomedical Technology, School of Health and Health Technology, Federal University of Technology Akure, Akure, Nigeria.
³Reproductive Health Science, Pan African University Life and Earth Sciences (including Health and Agriculture), University of Ibadan, Ibadan, Nigeria

ABSTRACT

The burden of gastrointestinal diseases and disorders (GIDD) remains high in Nigeria and varies across regions. This study was therefore designed to examine the prevalence of gastrointestinal diseases and disorders over a period of 5-years from January 2014 to December 2018 in Akure South of Ondo state, Nigeria. Descriptive retrospective study was employed and the medical records of all patients diagnosed for GIDD in the two selected health facilities were reviewed within the study period. In total, 12,323 medical records of patients with GIDD were included in this study. The prevalence of GIDD were 44.9% in the year 2014 with the lowest prevalence of 6.7% occurring in the year 2018. Over the 5-years period, lower GIDD cases were 91% compared to upper GIDD that was 9%. Peptic ulcer had the highest prevalence (55%) of lower GIDD followed by gastroenteritis (30%). Hiatal hernia had the highest prevalence (84%) for upper GIDD followed by dyspepsia (11%) and Gastroesophageal reflux disease (5%). Over a 5-year period, the prevalence of gastrointestinal disease and disorders in Akure south in this study shows that lower GIDD is more prevalent in the study area with peptic ulcer as the most predominant GIDD among the study population.

Keywords: *Gastrointestinal disease, Peptic ulcer, Gastroesophageal reflux disease, Hernia, Gastroenteritis, Prevalence*
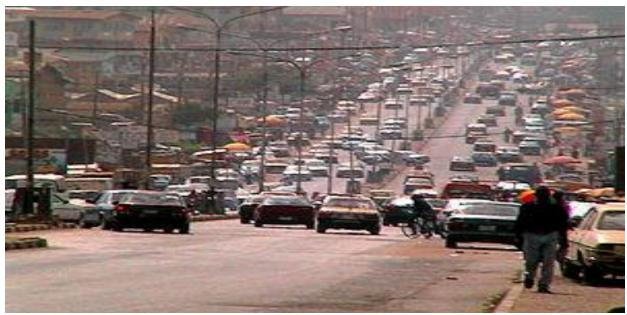
INTRODUCTION

Gastrointestinal disorders and diseases (GIDD) affect millions of people throughout the world causing significant morbidity and economic impact including health care costs and decreased quality of life (Landou *et al.*, 2008; Avramidou *et al.*, 2018). Gastrointestinal disorders can affect one or many organs in the gastrointestinal tract, as well as liver and pancreas. Common gastrointestinal disorders include: gastroesophageal reflux disease (GERD), peptic ulcer disease (PUD), gastritis, and irritable bowel syndrome (IBS), and inflammatory bowel disease (Resnick, 2014). During the last few decades, there have been changes in the incidence of many gastrointestinal diseases, such as gastric cancer, acid-peptic disease including peptic ulcer, and gastro oesophageal reflux disease (Goh *et al.*, 2009; Nwokediuko *et al.*, 2012). However, little of these changes in the incidences of gastrointestinal diseases have been documented in many developing countries like Nigeria.

In a very recent global study conducted in 33 countries, the authors found that more than 40% of people worldwide have gastrointestinal disorders with higher prevalence in developing countries (Sperber *et al.*, 2020). Several scholars have reported that the burden of gastrointestinal disorder in Africa remains high, predominantly in areas marked by poverty (Guerrant *et al.*, 2002; Boschi-Pinto *et al.*, 2008; Fletcher *et al.*, 2011). In Nigeria, a study from the northern region of the country reported that among persons admitted into the emergency unit of Ahmadu Bello University Teaching Hospital over a period of 4-years, as high as 20.5% had gastrointestinal diseases or disorders (Jamoh *et al.*, 2018) which may be higher in other region of the country. Several factors are associated with gastrointestinal disease and disorders such as genetic, nutritional, psychological, environmental, sociocultural and physiological factors (Paralta-Palmezano and Guerrero-Lozano, 2019). Hence, a good knowledge of the prevalence of gastrointestinal diseases and disorders in different regions of the country will deepen understanding of the role these factors played. This study is therefore aimed at assessing the prevalence of gastrointestinal disease and disorder in Akure South of Ondo state, Nigeria.

Figure 1:
Showing the study Area. (Gabriel and Fasakin 2017)

MATERIALS AND METHODS

Study Area: The study was conducted in Akure south, a Local Government Area in Ondo State, Nigeria as shown in Plate 1. Akure is located about 7 ° 25 'north of the equator and 5 ° 19' east of the Meridian. It is situated approximately 700 km southwest of Abuja and 311 km north of Lagos. Residential districts are of varying density, with over 200 people per hectare in some areas such as Arakale, Ayedun Quarters, Ijoka, and Oja-Oba, whereas areas such as Ijapo Estate, Alagbaka Estate, Avenue and Idofin have only 60-100 people per hectare (Dorcas, 2016). It houses the University of Medical Sciences Teaching Hospital (UNIMEDTH) and the Federal University of Technology Akure (FUTA) Health Care Centre that were used in this study

Study design: Descriptive retrospective study was undertaken to determine the prevalence of gastrointestinal disorders and disease in Akure South local government area of Ondo state over a period of 5-years from January 2014 to December 2018 using two health facilities; University of Medical Sciences Teaching Hospital (Formerly State Specialist Hospital) and Federal University of Technology Akure (FUTA) Health Centre.

Study population: The population of this study included all patients diagnosed for gastrointestinal disorders and disease (GIDD) in the two selected health facilities within the study period. Patient who had other diseases or disorders aside gastrointestinal disorders and disease were excluded from the study. Data was extracted from patients' medical records included variables such age, sex, and the gastrointestinal disorders and disease diagnosed.

Statistical Analysis: Data was entered, cleaned and analysed using the Statistical Package for Social Sciences version 20.0 (SPSS. V.20.0, incorporated, Chicago, Illinois, USA). Descriptive statistics like frequencies and percentage were used to describe the participants' characteristics. Categorical data were compared using Pearson's chi-square test, and P value of less than 0.05 was considered statistically significant.

Ethical Consideration: Ethical approval to conduct the study was obtained from Ethical Committee of the University of Medical Science Teaching Hospital. Patients consent was not obtained, as this study involved the retrospective analysis of review of medical records. All data collected were anonymized, so no patient identifiable data were used.
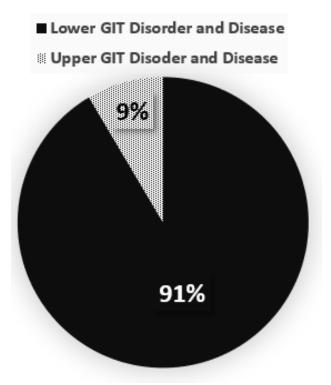
RESULTS

Sociodemographic Characteristics of Study Population: In total, 12,323 medical records of patients with GIDD were included in this study. The sociodemographic characteristics as shown in Table 1 indicate that more than half (58.4%) of the study population were female while 41.6% were male. The age range of 20-39 years had the highest (45.2%) incidence of gastrointestinal disorder and disease (GIDD), while the age range of greater or equal to 60 years had the lowest (7.5%) incidence in this study. Moreover, majority (98.2%) of the participants attended UNIMEDTH for Gastrointestinal disorder and disease, with just 220 (1.8%) attending FUTA Health Centre. The prevalence of gastrointestinal disorder and disease were 44.9% in the year 2014 with the lowest prevalence of 6.7% occurring in the year 2018.

Prevalence of lower and upper gastrointestinal disorder and disease: Gastrointestinal disorder and disease were classified into lower and upper gastrointestinal disorder and disease. Interestingly, majority (91%) of the gastrointestinal disorder and disease were of the lower gastrointestinal disorders and diseases as shown in Figure 2. More than half (55%) of the records reviewed of lower GIDD reported were

diagnosed of Peptic ulcer, and 30% had gastroenteritis as shown in Figure 3a. In addition, Figure 3b showed that majority (84%) of the cases reviewed of upper GIDD had Hernia, 11% had Dyspepsia and 5% had Gastroesophageal reflux disease (GERD).

Table 1:
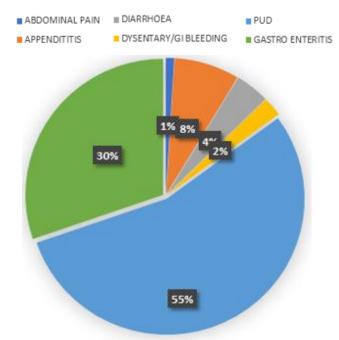Sociodemographic Characteristics of Study Population

Variable		Frequency	Percentage
Sex	Male	5126	41.6
	Female	7197	58.4
Age	< 10 years	1961	15.9
	10-19 years	1340	10.9
	20-39 years	5565	45.2
	40-59 year	2538	20.6
	≥ 60 years	919	7.5
Hospital	State Specialist Hospital	12103	98.2
	FUTA Heath Centre	220	1.8
Year of Hospital Visit	Year 2014	5539	44.9
	Year 2015	1931	15.8
	Year 2016	2713	22.0
	Year 2017	1297	10.5
	Year 2018	823	6.7

Figure 1:
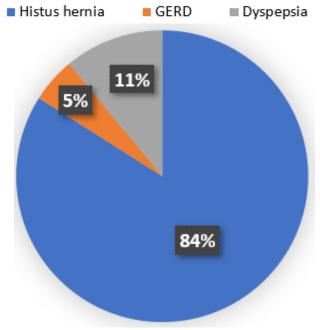Prevalence of Gastrointestinal disorder and disease in Akure South, n= 12,323

Prevalence of lower and upper gastrointestinal disorder and disease: Gastrointestinal disorder and disease were classified into lower and upper gastrointestinal disorder and disease. Interestingly, majority (91%) of the gastrointestinal disorder and disease were of the lower gastrointestinal

disorders and diseases as shown in Figure 1. More than half (55%) of the records reviewed of lower GIDD reported were diagnosed of Peptic ulcer, and 30% had gastroenteritis as shown in Figure 2a. In addition, Figure 2b showed that majority (84%) of the cases reviewed of upper GIDD had Hernia, 11% had Dyspepsia and 5% had Gastroesophageal reflux disease (GERD).

Figure 2a:
Prevalence of Lower Gastrointestinal Disorder and Diseases, n =11,275
*PUD – Peptic Ulcer Disease, GI – Gastrointestinal

Figure 2b:
Prevalence of Upper Gastrointestinal Disorder and Diseases, n=1048
*GERD - Gastroesophageal reflux disease

Table 2: Relationship between GIDD and Independent variables in Akure South

Variable		GIDD		P-value
		Lower	Upper	
Sex	Male	4419 (39.2%)	707 (67.5)	< 0.001
	Female	6856 (60.8%)	341 (32.5)	
Age	< 10 years	1693 (15.0%)	268 (25.6)	< 0.001
	10-19 years	1261 (11.2%)	79 (7.5)	
	20-39 years	5214 (46.2%)	351 (33.5)	
	40-59 year	2308 (20.5%)	230 (21.9)	
	≥ 60 years	799 (7.1%)	120 (11.5)	
Year of Health facility visit	2014	5444 (48.3)	95 (9.1)	< 0.001
	2015	1873 (16.6)	78 (7.4)	
	2016	2582 (22.9)	131 (12.5)	
	2017	1201 (10.7)	96 (9.2)	
	2018	175 (1.6)	648 (61.8)	

GIDD – Gastrointestinal disorder and disease; FUTA – Federal University of Technology, Akure; n = 12,323

Relationship between GIDD and some independent variables: The relationship between GIDD and selected factors in Akure South using Chi-square analysis as presented in Table 2 showed that more than half (60.8%) of the female and 67.5% of the male population in this study had lower and upper GIDD respectively. The age range of 20 – 39 years had both the highest recorded cases of lower GIDD 5214 (46.2%), and upper GIDD 351 (33.5%). In addition, the year 2014 recorded the highest cases of lower GIDD while the year 2018 recorded the highest cases of upper GIDD in this study. Finally, Table 2 also presented the inferential statistics showing the association between GIDD and selected relevant variables. The result revealed that Sex (p<0.001), Age (p<0.001), and year of Health facility visit (p<0.001) respectively had a significant relationship with GIDD.

DISCUSSION

The study showed that more than half (58.4%) of the study population were female while (41.6%) were male. This is reflective of the fact that many functional gastrointestinal disorders and other chronic visceral pain disorders such as irritable bowel syndrome are more prevalent in women than in men (Mayer *et al.,* 2008). There are some menstrual cycle related variations in women which eventually leads to some of the lower gastrointestinal disorders such as abdominal pain and the likes (Heitkemper *et al.,* 2009). The age range of 20-39 years had the highest (45.2%) prevalence of gastrointestinal disorder and disease (GIDD), while the age range of greater or equal to 60 years had the lowest (7.5%) prevalence in this study. This can be as a result of the location of the primary health care FUTA which is located within the University premises dominated mostly by students between the age of 20-39 years. Also, the tertiary heath care (UNIMEDTH) is also located within the town which is easily accessible to all. Furthermore, majority of Akure south residence are mostly civil servants who are in their middle age and are working class indigenes (Gabriel and Fasakin, 2017). Elderly people population in Akure south is low compared to the middle age population because most elderly people prefer to settle down in their home town or villages unlike Akure south which is mainly a working town (Gabriel and Fasakin, 2017).

Interestingly, majority (91.5%) of the GIDD were of the lower GIDD which is in line with a previous study conducted in Zaria (Jamoh *et al*., 2018). More than half (55%) of the lower GIDD cases reviewed were diagnosed of Peptic ulcer which may be due to excessive intake of alcohol and cigarettes smoking. This is consistent with studies conducted in another south-west state of Nigeria (Ugochwku *et al.,* 2013) and in Israel among adolescents (Landou *et al*., 2008). Peptic ulcer disease (PUD) may be more prevalent in this study compared to a study in the north-east region of the country because of the non-alcohol intake in the region on account of the Islamic religion (Nuhu *et al.,* 2009). The abuse of alcohol, cigarette and infection of H pylori which is common among young males could be the possible cause for the age group of 20-39 in this study who has the highest prevalence of gastrointestinal diseases (Gisbert *et al*., 2004; Ugochukwu *et al*., 2013). Surprisingly, hiatal hernia which was previously referred as a rare disease in Africa (Bassey *et al*., 1977; Sagal, 2001) had the highest prevalence among the upper GIDD cases reviewed from medical record in this study. This is consistent with endoscopy-based studies that reported increasing prevalence of histal hernia in Nigeria (Ajayi *et al*., 2013; Ismaila *et al*., 2017). This may be possible due the changes in dietary intake, sedentary lifestyle and increasing obesity among the Nigeria population ((Nwokediuko *et al*., 2012). Although the prevalence of lower GIDD was more than upper GIDD, there was a twist in year 2018 where the prevalence of upper GIDD became more. This is an indication of rise in upper GIDD and calls for more research into this area.

The limitation of the study may include its retrospective nature and that patients whose records were examined might not have been a fair reflection of the general population in the study area because economic factors may determine patients' health-seeking actions (Nwokediuko *et al*., 2012).

In conclusion, over a 5-year period, the prevalence of gastrointestinal disease and disorders in Akure south showed that lower GIDD is more prevalent in the study area with peptic ulcer as the most predominant GIDD among the study

population. However, there is a consistent rise in upper GIDD over the years. It is therefore recommended that more epidemiological studies out to find out more on the different causative agents (socioeconomic, nutritional, environmental and physiological) involved in GIDD causation should be encouraged

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