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Original Research Article

Morbidity Pattern among Adult Patients in the General Out-Patient Clinic of an Urban Tertiary Hospital in North Central Nigeria

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ABSTRACT

Background: The general outpatient clinic of a tertiary institution provides primary care to patients whose disease profile could give an insight into the pattern of disease in that community. In developing countries, urbanization and adoption of western lifestyle have influenced changes in disease pattern. Data generated of such changing patterns are useful in planning and administering healthcare services.
Objectives: To illustrate the pattern of disease and highlight the commonest ones in the adult population of the General Out-patient Department clinic(GOPD) of Jos University Teaching Hospital (JUTH), Plateau State, Nigeria.
Methods: We carried out a cross sectional, descriptive survey on 519 systematically recruited adults presenting to the clinic. Their ailments were diagnosed by primary care physicians at clinical consultations and classified using the International Classification of Primary Care version 2 (ICPC-2). Epi info version 7 statistical software package was used to analyse data.
Results: A total of 1073 diagnoses were made; 70% of the patients had multiple diagnoses. The top 5 classes of morbidities were cardiovascular: 346 patients (66.7%), endocrine/metabolic: 249 patients (48%), Digestive: 87 patients (16.8%), Musculoskeletal: 70 patients (13.5 %) and Psychological: 59 (11.4%) patients. Social problems were the least encountered; 1patient (0.19%). The commonest disease entity was hypertension: 295 patients (56.8%).
Conclusion: There exists a predominance of non-communicable diseases among this group of adult patients. This finding is useful for planning and upgrading primary care training programs and services.

Key Words: Morbidity pattern, adults, general outpatient, International Classification of Primary Care.

INTRODUCTION

Infectious diseases have been known to be the primary challenge facing the health sector in developing countries within Africa, and they account for a high rate of mortality. [1] These infectious or communicable diseases are related to conditions of poverty, poor housing, inadequate nutrition, unsafe water, poor sanitation and hygiene as well as unsafe sex, all of which favour the acquisition and spread of infectious diseases. Non-communicable diseases (NCDs) are a group of health conditions whose main cause is not an acute infection, and they usually result in long-term health

consequences with the need for long-term, often life-long treatment and care. Many of the NCDs are preventable by reducing common risk factors linked with lifestyle such as unhealthy diets, physical inactivity, harmful alcohol and tobacco use. Due to recent changes in lifestyle among people in developing countries, it is predicted that these regions will have an increasing burden of non-communicable diseases (NCDs); particularly Diabetes Mellitus, obesity, cancer and cardiovascular diseases. [2-4] The incidence of infectious disease however still remains high and so the developing world is confronted with the double burden of communicable and non-communicable diseases. [5-7]

The city of Jos in Nigeria is a rapidly developing cosmopolitan city in North Central Nigeria. In recent years, just as in other parts of Nigeria and the rest of the developing world, [8,9] Jos has experienced an influx of fast food services, often patronized by an evolving middle class. With increased availability of labour saving gadgets and modes of transportation, there is a resultant decrease in energy expenditure leading to a more sedentary lifestyle. The city has also been plagued with recurrent crises increasing the likelihood of infectious diseases associated with homelessness and overcrowding. The effects of these socio-cultural changes on health could be immense.

The general outpatient clinic is the usual first point of entry to a hospital for non-emergency patients seeking care; patients of all ages and sexes presenting with a wide variety of clinical conditions are seen here. The pattern of illness in this department reflects the burden of disease in the community. Researchers studying disease pattern in primary care settings and in the community, have highlighted the value of such studies in providing information about the specificities of general practice as it varies from region to region and the various patterns of morbidities encountered. [10-12] To the best of our knowledge, no similar study has been conducted in adults in north central Nigeria.

This study aimed to assess the pattern of disease and to determine the most prevalent diseases seen in adults in a primary care setting, using the ICPC-2; an internationally recognised classification method for primary care developed and updated by World Organisation of Family Doctors International Classification Committee (WICC). [13,14] It was designed as an epidemiological tool and has been used by several authors in research. [10-12,15] The ICPC-2 considers that for each health encounter between a patient and primary care provider, there are3 important elements which include: reasons for encounter (RFE), diagnosis or health problems and process of care or interventions. This article focuses on the physicians' diagnosis of the patients' health problems at clinical consultations.

MATERIALS AND METHODS

This was a hospital based descriptive, cross-sectional study carried out in the General Out-patient clinic of Jos University Teaching Hospital (JUTH). The study period was from February to May 2015, a period of transition from the harmattan to rainy season; the two major seasons. A total of 519 patients of both sexes, aged 18 years and above, presenting for care during the study period, who had at least one previous documented visit for their current ailment/ailments and consented to participate in the study were enrolled using a systematic sampling technique. On every working day during the study period, every fifth patient that met the inclusion criteria and had not been previously enrolled was recruited. A minimum of 5 patients were recruited per day. Each recruited patient had a clinical consultation with a qualified Family physician trained in the research protocol,

in the privacy of a quiet consulting room. At the clinical consultation, each patient was interviewed by using a pretested serially coded questionnaire to obtain sociodemographic data, followed by documentation of the patients' current diagnosis/diagnoses made by the doctor based on clinical records, history, clinical examinations and relevant investigation. All data obtained was crosschecked at the end of each day and entered into a computer using ICPC-2 codes.

Data Analysis

Data was analysed using Epi info version 7 statistical software package (CDC, Atlanta, GA). Means and standard deviations were used to express quantitative data while qualitative data were expressed as frequencies and percentages. The Chi-squared test was used to compare proportions. A 95% confidence level was used and a p value of less than or equal to 0.05 was considered statistically significant.

Ethical Clearance

Ethical clearance for the study was obtained from the Jos University Teaching Hospital Ethical Review Committee and written informed consent was obtained from the study participants prior to their enrolment.

RESULTS

I. Sociodemographic characteristics

The population was predominantly female with 380 (73.2%) females and 139 (26.8%) males, F:M ratio of approximately 3:1. The age range was between 18 – 85 years, with a mean age of 44 + 15.2 years. Most of them were urban dwellers (87.5%). Only a small proportion (14.5%) had never been married. Of those who had been married, 22% were either separated, divorced or widowed. While 171 (32.9 %) had no formal education, 135(26%) had tertiary education. Two hundred and fourteen of them (41.2%) were financially dependent and 156 (30.1%) earned less than the minimum wage. See Table I.

Table I: **Sociodemographic profile of study population**

Variables	Frequency n= 519	Percentage (%)
Age (years)		
18– 29	92	17.7
30 – 39	124	23.9
40 – 49	105	20.2
50 – 59	110	21.2
> 60	88	17.0
Religion		
Christianity	221	42.6
Islam	298	57.4
Sex		
Male	139	26.8
Female	380	73.2
Marital status		
Never married	75	14.5
Married	344	66.3
Separated	4	0.8
Divorced	7	1.3
Widowed	89	17.1
Domicile		
Urban	454	87.5
Rural	65	12.5
Educational level		
None	171	33.0
Primary	107	20.6
Secondary	106	20.4
Tertiary	135	26.0
Income status		
Dependent	214	41.2
<minimum wage	156	30.1
> minimum wage	149	28.7

II. Morbidity pattern

The morbidity profile of the 519 adults studied cut across all the 17 chapters of the ICPC-2 classification. Three hundred and sixty-eight (70%) of the patients had more than one morbidity diagnosed, with a range of 2-5 morbidities per person. The highest number of morbidities were recorded in the Cardiovascular chapter K (66.7%), followed by the Endocrine/Metabolic chapter T (48%), and then the Digestive chapter D (16.8%). Social problems Z had the lowest number (0.19%). Statistically significant differences in gender distribution were observed in the Digestive, Cardiovascular, Neurological and Endocrine/metabolic chapters. See Table II. Hypertension K86 ranked highest among the top 10 diagnoses in the study population, with 295 patients (56.8 %). Obesity T92 with 166 patients (31.9%) was the second highest, followed by diabetes mellitus T90 with 69 patients

(13.3%) and then malaria A73 with 42 patients (8.1%). See Table III.

Table II:Gender distribution of diagnosed morbidities classified by ICPC chapters

ICPC chapters / Code	Female n=380	Male n=139	Total n=519	P value
	Frequency (%)	Frequency (%)	Frequency (%)	
General and unspecified A	40 (10.5)	14 (10.1)	54 (10.4)	0.8807
Blood, Blood forming organs and immune mechanisms B	5 (1.3)	4 (2.9)	9 (1.7)	0.2263
Digestive D	53 (13.9)	34 (24.5)	87 (16.8)	**0.0045**
Eye F	12 (3.2)	8 (5.8)	20 (3.9)	0.1738
Ear H	2 (0.53)	1(0.7)	3 (0.6)	0.7948
Cardiovascular K	268 (70.5)	78 (56.1)	346 (66.7)	**0.0021***
Musculoskeletal L	55 (14.5)	15 (10.8)	70 (13.5)	0.2757
Neurological N	13 (3.4)	11 (7.9)	24 (4.6)	**0.0378***
Psychological P	38 (10)	21 (15.1)	59 (11.4)	0.1052
Respiratory R	18 (4.7)	7 (5.0)	25 (4.8)	0.8886
Skin S	13 (3.4)	6 (4.3)	19 (3.7)	0.6312
Endocrine/Metabolic and Nutritional T	207 (54.5)	42 (30.2)	249 (48.0)	**0***
Urological U	23 (6.1)	9 (6.5)	32 (6.2)	0.8571
Pregnancy, Childbearing, Family planning W **	20 (5.3)	-	20 (3.9)	-
Female Genital X**	41 (10.8)	-	41(7.9)	-
Male Genital Y***	-	14 (10.1)	14 (2.7)	-
Social Problems Z	1 (0.3)	0	1 (0.19)	0.5418
Total number of diagnosed morbidities by ICPC-2 =			1073	

Multiple morbidities occurred in some patients
*Statistically significant
** Females only
*** Males only

Table III: Top 10 diagnoses in study population

Diagnosis ICPC code	Frequency (%)
Hypertension (uncomplicated) K86	295 (56.8)
ObesityT92	166 (31.9)
Diabetes mellitus T90	69 (13.3)
Malaria A73	42 (8.1)
Back syndrome (with radiating pain) L86	38 (7.3)
Peptic Ulcer D86	35 (6.7)
Somatization disorder P75	29 (5.8)
Cystitis/urinary infection U71	16 (3.1)
Pelvic inflammatory disease X74	14 (2.7)
Infertility/Subfertility W15**	11 (2.1)

(Multiple morbidities occurred in some patients)
** Females only.

DISCUSSION

Five hundred and nineteen adult patients (73.2% females and 26.8% males) seeking care in the general outpatient clinic of a tertiary hospital, who were selected by systematic sampling, and whose morbidity profile was expected to be a representation of the morbidity profile of their community were enrolled in this study. The predominance of female participants is consistent with findings in other similar studies and the likely reasons for this may be that women are more anxious about their health and more available than men to go through the long waiting times at the health settings. [11] A majority of the study population was urban dwellers, and more than half of them either had no formal education (33.0%) or had only primary education (20.6%), which may be the reason why a high proportion of them were dependent or earning less than the minimum wage. See Table 1.

The results showed that the 5 commonest classes of morbidity by ICPC-2 chapters were Cardiovascular, Endocrine/Metabolic, Digestive, Musculoskeletal and Psychological. The class with the list frequency was Social problems. The interpretation of this result is that non-communicable diseases occurred frequently among the study population. This was not surprising because majorities of this study population were urban dwellers, and epidemiological studies have shown that the risk and prevalence of non-communicable diseases is higher among adults in urban settings. [16] The finding of predominance in non-communicable diseases is comparable to results of a study carried out in Tunisia, where 3 of the 5 commonest ICPC-2 classes were Digestive, Musculoskeletal, and Cardiovascular, with Social problems as the least frequent. [11] The Tunisian

population was also predominantly female, but it was much larger and seasonal variations in morbidity pattern were taken into consideration. In addition, children aged less than one year were included in the Tunisian study thus explaining why Respiratory and Skin classes were among the top 5; these conditions being commoner in children. In Botswana and Ibadan, Nigeria studies in elderly populations showed Digestive, Eye, Neurological and Musculoskeletal to be among the top 5 with Cardiovascular and General body symptoms being the 5th class in each group respectively. [17,18] Both elderly populations were also predominantly female but, their population sizes smaller than this current study. The differences in the top 5 commonest classes in our study and this elderly group can be explained by the fact that in the elderly, eye, neurological, musculoskeletal and cardiovascular symptoms are quite common. Researchers in Lagos, Nigeria also surveying a predominantly female population involving children and adults, found the top 5 ICPC-2 classes were General unspecified, Pregnancy/ childbearing and family planning, Respiratory, Digestive, and Musculoskeletal with Social problems as the least frequent. [19] Variances between their results and ours may be attributed to the fact that their study setting comprised of private facilities while ours was set in a public facility. Differences in morbidity pattern based on these factors have been described in the literature. [20] Our results also varied from results obtained in Abeokuta, Nigeria where researcher surveyed gainfully employed patients and their family members in a National Health Insurance Scheme clinic unlike our patients who consisted mainly of dependent people (41.2%) and people who earned less than the minimum wage (30.1%). [21]

Social problems were found to be the least frequently occurring morbidities in this study (0.19%) and other studies. [11, 15, 20] For a population such as this where 41.2% were dependent, 30.1% earned less than the minimum wage, and 19.2% were either separated, divorced or widowed, it would be expected that social problems relating to poverty/finance, unemployment, relationships, loss/death would have been encountered, but this was not the case. Traditionally, patients do not consider such social problems to be health problems that need to be revealed to healthcare providers so they do not present them as complaints; or on the other hand they may somatise the problems leading to misdiagnosis when the care provider does not look beyond what is presented to unmask the true problem. [11, 22] Incidentally, somatisation disorders which belong to the Psychological chapter (P) were found to be among the top 10 diagnoses in this study, and the Psychological chapter was also among the top 5 disease classes. Some researchers have reported that the reason for the low rates of social problems usually observed in primary care settings is because social matters are rarely considered. [23]

In this study, when ICPC-2 chapters were distributed by gender, there were statistically significant differences in some disease chapters. In the Digestive, Cardiovascular and Endocrine/Metabolic chapters, a significantly larger percentage of women were affected than men while in the Neurological chapter, men were more significantly affected than women. Other similar studies that compared gender distribution of ICPC-2 classified disease did not use tests of statistical significance to evaluate their results, making it difficult to compare with our results in this aspect. [11,17,18]

Table III shows the top ten most frequent diseases, and hypertension was the highest as in other morbidity studies. [11,15,17] This was followed by obesity, diabetes mellitus, thereby making the top 3 ranking morbidities to be of non-

communicable origin which is related to lifestyle and therefore subject to modification by lifestyle adjustments. The commonest infectious disease on the top 10 list was malaria, and this was the same observation in a similar study in another part of Nigeria. [17] Malaria is still a problem in Nigeria, and several measures have been put in place for its control [24] Patients are also able to purchase antimalarial treatment over the counter without necessarily having to attend a health facility. This may cause a reduction in the number of cases of malaria seen in the hospital.

With the current scourge of human immunodeficiency virus (HIV) infection and tuberculosis (TB), these two infectious diseases did not appear on the top 10 list as would have been expected and the reason for this being that the hospital has separate special clinics established to cater for each of these infectious diseases, so infected patients usually receive care at those clinics rather than at the GOPD; this was also reported by investigators in a hospital setting in South Africa. [15] With the many voluntary counselling and testing centres available in the community, newly diagnosed patients especially those with HIV/TB co-infection have direct access to the special clinics without first having to present in the GOPD for a referral. Such patients would still present to the GOPD if they have other ailments including NCDs which are not given much attention in the special clinics.

The second commonest disease caused by infection was cystitis/urinary infections. Similar studies have not recorded urinary tract infection among the top 10; however it was recorded among the top 25 in a South African survey. [15] Urinary tract infections have previously been reported to be common in some Nigerian populations especially women who were sexually active or pregnant. [25,26]

Pelvic inflammatory disease was another of the top 10 diagnoses (third commonest infectious disease), and as a known predisposing factor for female infertility, [27] it was not surprising to find that female infertility also featured among the top 10.

Though the patients' lifestyles were not specifically evaluated in this study, the fact that the setting of the study was in an urban environment and most of the patients were urban dwellers suggest that urbanization has contributed to the results obtained in this study, thus these findings may be attributed to changing lifestyles and adoption of the western culture. Urbanization can also be said to be responsible for the pattern of infectious disease observed in this study as it contributes to the existence of special clinics/programs to tackle and control infectious diseases such as malaria, TB, HIV, and other sexually transmitted infections (STI). The very low observation of social problems is likely due to social problems often not being given enough consideration. Cases of injury and other emergencies are not attended to in the GOPD so none was recorded in this study.

CONCLUSION

This study demonstrates that the disease profile of this adult population is dominated by NCDs, and it can be inferred that this is due to urbanisation and changing lifestyle. In addition, there is a seemingly low rate of social problems but when the sociodemographic profile of the study population is critically appraised, there is a possibility that cases of social problems may have existed but could have been missed. Further research with special attention focused on social problems would throw more light on the subject.

Compared to some of the other similar studies, this study had a small population and short duration. Non-inclusion of new patients may have resulted in some cases being missed.

Larger studies, over longer periods to show changes in disease pattern over time and seasons are needed. Such studies should also include data on patients' lifestyles.

As the usual first point of contact, primary care providers need to be knowledgeable and skilled to recognise and handle the wide scope of diseases they encounter. Studies like this provide a much needed insight into disease patterns that form the basis for designing training programs to equip primary caregivers with the necessary knowledge and skills to meet the needs of their patients through preventive and treatment measures as well as contribute useful information for planning and improvement in the health care system.

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