

# The Burden of Urologic Diseases in a Tertiary Hospital in South-eastern Nigeria: A Three-Year Review

## Abstract

**Background:** Urological diseases are an integral part of the surgical burden of diseases. There are national, regional, and global variations. Characterisation of the burden of disease in this specialty is important for the registry and in allocation of the already scarce resource in this sub-region. **Objective:** This study was aimed at characterising the burden of urological diseases in our teaching hospital as a means towards addressing the gap between resources and urological needs. **Materials and Methods:** It was a retrospective study of new patients seen over 3 years from January 2019 to December 2021 at the urology clinics of Alex-Ekwueme Federal University Teaching Hospital Abakaliki. Data collected included sex, age, and diagnosis. Data analysis was done using SPSS version 26. **Results:** A total of 2893 patients were available for analysis, of which 2777 (96%) were male patients whereas 116 (4%) were female patients with a male-to-female ratio of 23.9:1. The mean age of the patients was  $58.11 \pm 16.76$  years. The common presentations were benign prostatic enlargement (BPE) 1515 (52.4%), cancer of the prostate (CAP) 349 (12.1%), urethral stricture disease 268 (9.3%), and urinary tract infection (UTI) 192 (6.6%). In men, the three most common diagnoses were prostate-related diseases 1864 (67.1%), urethral stricture disease 268 (9.70%), and UTI 170 (6.1%), whereas, in women, urolithiasis, urinary tract infection, and hydronephrosis accounted for 50 (43.1%), 22 (19%), and 20 (17.2%), respectively. **Conclusion:** BPE, CAP, and urethral stricture disease were the most common presentations in men whereas urolithiasis, UTI, and hydronephrosis were common in women. This knowledge can be used to channel hospital resources appropriately.

**Keywords:** Burden, clinic, disease, epidemiology, Nigeria, urology

## Introduction

Urological services are an important part of every specialist hospital care. The burden of urological diseases varies between regions and within regions.<sup>[1-4]</sup> These diseases impair the quality of life of the patients and are capital intensive to manage.<sup>[5]</sup> The global burden of surgical diseases ranges between 28% and 32%.<sup>[6]</sup> The increasing global life expectancy means that the burden of age-related urological diseases seen in this part of the world will also continue to increase.<sup>[7]</sup> Ideally, an estimated 20 specialist workers per 100,000 persons is essential for reasonable health outcome. Africa and South-East Asia lag behind in this index having about 0.7 specialist health care worker per 100,000 persons.<sup>[6,8]</sup>

Data on the prevalence of urological diseases in Sub-Saharan Africa are limited.<sup>[9]</sup> Factors peculiar to this region may affect

the pattern of presentation and subsequent care. These include lack of health insurance, long distance to health care facilities, patronage of alternative medicine, lack of motorable roads, illiteracy, poverty, and socio-cultural attitudes towards health care.<sup>[10-13]</sup> Poor funding and associated lack of electronic medical records in many health care facilities may also contribute.<sup>[14,15]</sup> Nonetheless, documentation of the available epidemiology of urological diseases in this region is important as it will serve as a guide towards addressing the gap between urological needs and available resources. This study was aimed at characterising the burden of urological diseases in our teaching hospital as a means towards addressing the gap between resources and urological needs.

## Patients and Methods

This was a cross-sectional study of all new urological out-patient consultations that

**Chike John Okeke,  
Emmanuel Ajibola  
Jeje<sup>1</sup>,  
Anselm Okwudili  
Obi<sup>2</sup>,  
Rufus Wale  
Ojewola<sup>1</sup>,  
Uchekukwu Ugonna  
Ogbobe<sup>2</sup>**

*Department of Urology, Epsom and St Heliers University Hospitals NHS Trust, London, UK, <sup>1</sup>Department of Surgery, College of Medicine of the University of Lagos, Lagos University Teaching Hospital, Lagos, <sup>2</sup>Department of Surgery, Ebonyi State University/Alex Ekwueme Federal Teaching Hospital, Abakaliki, Ebonyi State, Nigeria*

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### Address for correspondence:

*Dr. Chike John Okeke,  
Department of Urology, Epsom and St Heliers University Hospitals NHS Trust, Dorking Road, Epsom KT18 7EG, UK.  
E-mail: textchikeokeke@yahoo.com*

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were seen in Alex-Ekwueme Federal University Teaching Hospital, Abakaliki, over a three-year period from January 2019 to December 2021. The teaching hospital is 800-bedded hospital and is the only government-owned tertiary institution in the state. It receives referrals from neighbouring states of Enugu, Imo, Cross-River, and Benue States. Ethical approval was obtained from the hospital Ethical Committee (AE-FUTHA/REC/VOL3/2022/137).

The inhabitants of the state are mostly peasant farmers and few populations of civil servants. Patients were either self-referred, referred from private hospitals, primary health care facilities in the state and from different departments in the hospital. The urology department runs two outpatient clinics in a week. Patients who presented with first visit with urological diseases were included in the study. The following patients were excluded: wrong referrals and emergency urological presentations.

The outpatient clinic and the medical records registers were used to collate the data. The data collated were transferred into a proforma. The data collected included age, sex, and diagnosis. This was analysed using IBM SPSS Statistics for Windows, Version 26.0 (IBM Corp., Armonk, New York). Continuous variables were summarised as means and standard deviation, whereas categorical variables were presented in frequencies and percentages.

## Results

A total of 3103 patients were seen during the period of study, 210 cases with incomplete data were excluded leaving a total of 2893 patients for analysis. A total of 2777 (96%) were male patients whereas 116 (4%) were female patients giving a male-to-female ratio of 23.9:1. The overall mean age of presentation was  $58.11 \pm 16.76$  years. The ages ranged from 8 to 110 years as shown in Figure 1. The mean age of presentation in male patients was  $58.9 \pm 16.35$  years with a range of 8–110 years whereas in female patients the mean age was  $39.0 \pm 14.81$  years with a range of 17–70 years. More than 74.5% of the patients were aged 50 years and above as shown in Figure 1.

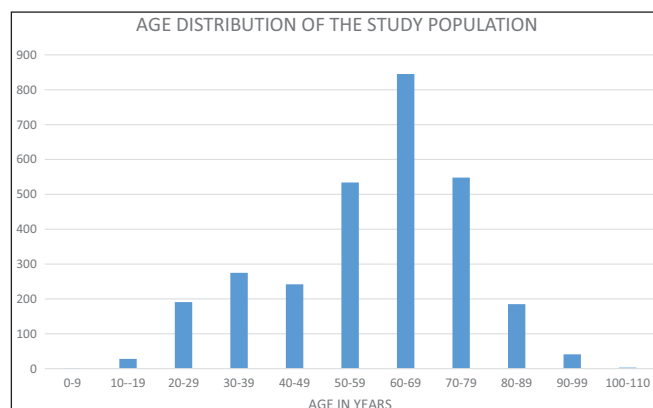


Figure 1: Bar chart showing the age distribution of the patients (N = 2893)

Overall, the most common diagnosis was benign prostatic enlargement (BPE) followed by cancer of the prostate and urethral stricture disease as shown in Table 1. In men, the three most common diagnoses were BPE 1515 (54.6%), CAP 349 (12.6%), and urethral stricture disease 268 (9.70%) as shown in Figure 2 whereas in female patients, urolithiasis, urinary tract infection, and hydronephrosis accounted for 50 (43.1%), 22 (19%), and 20 (17.2%), respectively, as shown in Figure 3.

## Discussion

Urological practice in South-East Nigeria as in other regions of the country is impacted by several loco-regional challenges.<sup>[13]</sup> In Nigeria, there are 130 urologists serving a population of 170 million people.<sup>[16]</sup> Ebonyi state with a population of about 2.9 million people has nine consultant urologists serving it; these figures are in keeping with the lower specialist density known for the region and also lower than the recommended specialist density of 20 per 100,000 persons.<sup>[6,8]</sup> This impacts on the quality of care offered to these patients. Another factor is the poor health-seeking behaviour of Nigerian patients. Most patients prefer to seek care from alternative medicine before seeking orthodox care.<sup>[13]</sup> They often end up presenting with urological complications.<sup>[17]</sup>

The overall mean age of 58.11 years in this study is higher than the mean age of patients reported by earlier authors in different regions of the country.<sup>[2,18,19]</sup> This can be explained by the abundance of age-related prostate diseases in this study. In this study, prostate-related diseases accounted for 64.5% of presentations, whereas the prevalence of same pathology in earlier studies ranged from 15% to 44%.<sup>[2,18,19]</sup>

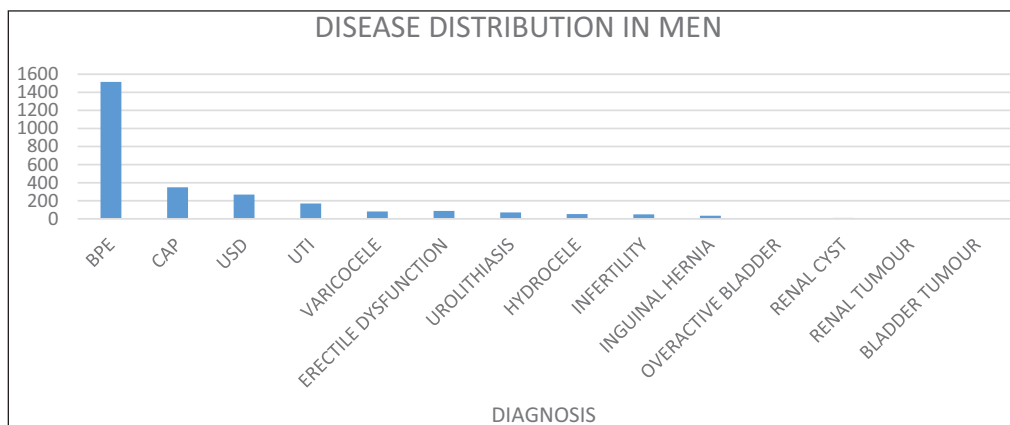
The male-to-female (M:F) ratio of 23.9:1 noted in this study corroborates the finding of male preponderance of earlier authors in Nigeria and Kenya.<sup>[1,18,19]</sup> However, this is higher than the figures reported by these authors.<sup>[1,18,19]</sup> Their M:F ratios ranged from 13:1 to 18:1. The reason for this difference could not be elucidated.<sup>[20]</sup> Anatomical differences may also explain this male preponderance, the prostate and the long male urethra which is prone to trauma. This was evident in this study as more than 70% of our study population presented with prostate-related diseases and urethral stricture, this inevitably would shift the dynamics of the male-female ratio.

Here, BPE was the most common presentation and accounted for 52.4% of presentations. Though BPE was the most commonly diagnosed disease in studies in Abuja, Kano, Sokoto, these studies reported lower incidence compared with our study with the quoted frequencies in these regions ranging from 15% to 44%.<sup>[2,18,19]</sup>

The incidence of bladder tumours has been noted to be higher in regions with a higher incidence of schistosomiasis.<sup>[20,21]</sup> Bladder tumours accounted for 0.3% of presentations in this study and was lower than the 11.8% reported by

**Table 1: The distribution of the cases during the period of study**

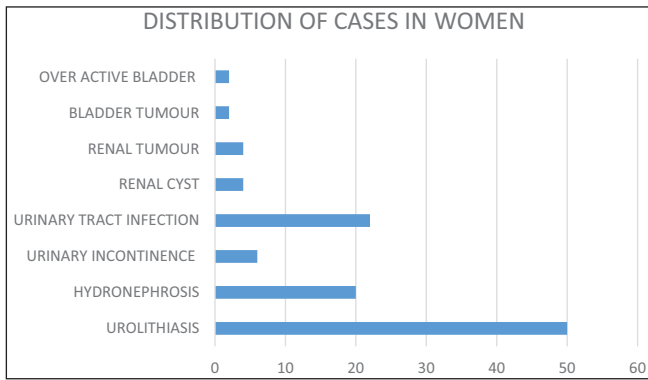
Diagnosis	Number (n)	Frequency (%)	Mean age (years) ± SD
Benign prostatic enlargement	1515	52.4	64.25 ± 10.83
Cancer of the prostate	349	12.1	69.48 ± 11.21
Urethral stricture disease	268	9.3	42.55 ± 16.74
Urolithiasis	121	4.2	42.55 ± 16.74
Varicocele	81	2.8	33.57 ± 10.30
Urinary tract infection	192	6.6	53.55 ± 18.04
Erectile dysfunction	87	3.0	42.23 ± 12.51
Hydrocele	53	1.8	46.91 ± 18.24
Infertility	49	1.7	41.88 ± 8.52
Inguinal hernia	35	1.2	52.40 ± 17.58
Overactive bladder	10	0.3	60.2 ± 27.46
Hydronephrosis	31	1.1	34.26 ± 9.83
Renal cyst	14	0.5	56.57 ± 19.50
Neurogenic bladder	12	0.4	37.58 ± 14.47
Bladder tumour	10	0.3	54.50 ± 6.85
Renal tumour	11	0.4	43.45 ± 13.80
Epididymal cyst	8	0.3	35.88 ± 15.56
Peyronie disease	2	0.07	52.5 ± 3.54
Adrenal tumour	1	0.03	40
Urinary incontinence	6	0.2	56.0 ± 7.68
Scabies	1	0.03	25
Intermittent testicular torsion	7	0.2	25.43 ± 8.52
Paraphimosis	1	0.03	21.0
Testicular tumour	4	0.1	37.0 ± 14.81
Ectopic kidney	2	0.07	35.5 ± 4.95
Gunshot wound post	1	0.03	32.0
Urethral prolapse	1	0.03	23.0
Ureteral stricture	1	0.03	64.0
Haematospermia	2	0.07	28 ± 4.24
Undescended testes	8	0.3	23 ± 7.43
Posterior urethral valve	7	0.2	20.29 ± 2.81
Chronic urinary retention	3	0.1	56.3 ± 14.84
Total	2893	100	



**Figure 2: Bar chart showing the distribution of the cases in men (N = 2777)**

Mungadi *et al.*<sup>[19]</sup> in Sokoto North-western Nigeria. The reason for this difference can be attributed to the prevalence of schistosomiasis between these regions of the country.<sup>[22,23]</sup> Whereas the prevalence of schistosomiasis in Ebonyi is 8%, the prevalence of this infection is 60.8% in Sokoto.<sup>[22,23]</sup>

Urolithiasis accounted for about 4% of all cases seen in the urological outpatient department during the period of study. In northern Nigeria, this pathology was noted to have a high prevalence and accounts for 10%–40% of all urological diseases seen.<sup>[18,24]</sup> Urinary stones have been



**Figure 3:** Bar chart showing the distribution of the cases in women (N = 116)

demonstrable to be common in regions with high ambient temperatures. Purported mechanisms include dehydration due to sweating from this high ambient temperature.<sup>[25]</sup>

In Northern Nigeria, the mean daily temperature ranges from 35 to 40 degrees whereas in Ebonyi state, the mean daily temperature ranges between 27 and 30 degrees.<sup>[19,26,27]</sup> This pathology was also noted to be the most common presentation in female patients in this study, accounting for 50 (43.1%) cases. This was also the most common finding in this female patients in a study at Abuja, Nigeria by Aisuodionoe-Shadrach where this accounted for 68.5% of presentations in female patients.<sup>[2]</sup> The reason for this gender predilection in this pathology could not be elucidated.

Urethral stricture disease accounted for 9% of presentations. This is similar to the findings of earlier authors where this pathology constituted between 8.9% and 9.9%.<sup>[18,19]</sup> The mean age of 46.65 years of patients with urethral stricture was similar to the mean age of 43 years reported by Tijani *et al.* in Lagos.<sup>[28]</sup> This young age could be explained by the changing pattern of urethral stricture, where trauma accounted for a significant aetiology in recent studies.<sup>[28,29]</sup>

Infrequent urologic diagnoses in this study were ectopic kidneys, urinary incontinence and Peyronie's disease. These cases were also reported to be rare by Aisuodionoe-Shadrach *et al* in Abuja, Nigeria.<sup>[2]</sup>

The limitations of this study were the retrospective nature of the study and poor record keeping. We recommend a prospective multicentre study and equipping health care facilities with electronic medical services.

## Conclusion

In men, the most common presentations were BPE, cancer of the prostate, and urethral stricture disease, whereas in women, urolithiasis, urinary tract infections and hydronephrosis were common. This should inform the allocation of resources (drugs and surgical consumables) to urology departments in teaching hospitals in South-East Nigeria.

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## Conflicts of interest

There are no conflicts of interest.

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