

# Drug Utilization Pattern among Elderly Outpatients in the University of Port Harcourt Teaching Hospital

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## ABSTRACT

The misuse of medications is a worldwide issue impacting healthcare, particularly among the elderly, who tend to have higher drug usage with age. This study examined drug utilization and prescription patterns in elderly outpatients at the University of Port Harcourt Teaching Hospital using World Health Organization (WHO) prescribing indicators to assess prescription appropriateness.

The study, conducted retrospectively from January 2019 to December 2019, reviewed prescriptions of the outpatients aged 60 and above. Data were collected from 600 patient folders, including demographics, drug details, and dosage, using a data form. The evaluation focused on inappropriate medication use based on WHO standards for medicine use.

The results showed that most patients 67.3% were aged 60 years-69 years, with hypertension and diabetes being the most common comorbidities. Each

prescription averaged 5.2 drugs. Antibiotics were prescribed in 19.8% of cases, injections in 25.7% and 65.3% of the drugs were generics. Cardiovascular 26.2% and endocrine 20.8% drugs were most frequently prescribed.

The study revealed significant shortcomings in prescribing practices at the outpatient clinic of the University of Port Harcourt Teaching Hospital. Findings indicated that elderly patients experienced polypharmacy and therapy duplication, suggesting inappropriate medication use. Furthermore, prescribing patterns including the use of injectable, antibiotics and generic drugs, did not fully align with WHO recommendations.

**Keywords:** Medication, Prescription, Utilization, Antibiotics, Drug Utilization Studies (DUS)

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## INTRODUCTION

Inappropriate use of drugs is a global problem affecting the healthcare system. This issue is particularly significant among the elderly, as the prevalence of drug use increases with increasing age. The elderly often suffers from various chronic diseases and degenerative conditions that require numerous drug therapies, leading to polypharmacy. Their need for multiple medications, combined with the pharmacodynamics and pharmacokinetic changes that occur with aging, makes them more susceptible to the dangers of drug-related adverse effects (Jyothsna CS, *et al.*, 2019). These adverse drug effects can potentially lead to serious complications or even death.

Optimising drug therapy for the elderly is therefore essential to curb complications, enhance overall quality of life and promote longevity. The subject of irrational prescription is important in pharmacotherapy for the elderly since they use more medications than younger populations and are at a high risk for developing adverse drug events. Nigeria is also experiencing a demographic transition characterized by an increase in the elderly population and this further justifies the need for this study. Although Nigeria currently has a relatively young population, the United Nations estimates that the proportion of elderly Nigerians will increase from 2.7% in 2010 to 3.8% by 2050. By that time, Nigeria is projected to be the third most populous nation on earth.

The fast-growing number of older adults during the last few decades has impacted significantly on the political, economic and social functions of societies in both industrialized and developing regions. According to the population division of the United Nations Department of Economic and Social Affairs (UNDESA): Population division, the proportion of older persons aged 60 years and above make up 12.3% of the global population and by 2050 that proportion will rise to almost 22%. Like any other country in Sub-Saharan African, Nigeria's elderly too is increasing rapidly

(Abanyam NL, 2013). In Nigeria, those aged 65 years and above the elderly make up 3.1% or 5.9 million of the total population of 191 million, which in crude numbers represents an increase of 600,000 during the 5-year period 2012-2017.

The rising numbers of the elderly in Nigeria are among others attributed to the crude mortality rate that is gradually decreasing (Adebowale SA, *et al.*, 2012).

According to the WHO, rational use of drugs demands that drugs must be used appropriately by the right patients, to meet their individual requirements, for an appropriate period of time and at the lowest cost to the patient and their community.

The five important criteria for rational drug use include accurate diagnosis, proper prescribing, correct dispensing, suitable packing and patient adherence (Alam K, *et al.*, 2006).

Drug Utilization Studies (DUS) have been explored over the years as an important tool for evaluating the rationality of the drug use process. DUS entails an ongoing review of physicians' prescribing, pharmacists' dispensing activities and patients' use of medications (Abraham F, *et al.*, 2015).

## LITERATURE REVIEW

The medication use process in nursing facilities is critical for managing illnesses and improving patient outcomes. However, studies highlight concerns with medication use, including excessive dosages and inappropriate prescriptions, particularly in elderly populations. This group, often defined as individuals aged 60 years and older, is more susceptible to adverse drug reactions due to polypharmacy and age-related physiological changes (Campanelli CM, 2012). Polypharmacy, defined as the use of four or more medications, poses significant risks, including drug interactions and hospitalizations, particularly in patients with chronic conditions like cardiovascular disease.

The elderly population, especially in developing countries, faces

challenges in managing drug therapy effectively. Factors such as inadequate healthcare infrastructure and the breakdown of traditional support systems exacerbate these issues. Additionally, adverse drug reactions are more prevalent in this age group, making drug monitoring and appropriate prescribing critical. Implementing Drug Use Evaluation (DUE) and medication management systems, along with adherence to guidelines like the WHO's core prescribing indicators, is essential for optimizing medication use and improving patient outcomes (Tangiisuran B, *et al.*, 2009).

## RESULTS AND DISCUSSION

The study highlights concern regarding inappropriate pharmacotherapy among elderly patients at an outpatient clinic, focusing on issues such as polypharmacy, generic drug prescriptions, and medication affordability. The average number of medicines prescribed per encounter was 5.2, which is significantly higher than the WHO-recommended range of 1.6 to 1.8. This finding indicates a high prevalence of polypharmacy, where elderly patients, often with multimorbidities, receive multiple medications. Polypharmacy increases the risk of Adverse Drug Reactions (ADRs), which can be life-threatening. While the rational use of multiple medications is sometimes justified in complex clinical cases, caution is required to avoid over prescription (Avery AJ, *et al.*, 2013).

The study also found that only 65.3% of drugs were prescribed by their generic names, which is below the WHO's recommendation of 100%. Although this figure is better than some local studies, it still reflects a need for improvement. Prescribing by trade names rather than generic names can lead to higher costs and reduced accessibility for patients. Using generic names can prevent confusion, especially among elderly patients and improve affordability, reducing the likelihood of patients foregoing treatment due to cost.

Additionally, the study showed that 88.5% of the drugs prescribed were listed in the Essential Medicines List (EML), close to WHO recommendations but still below the ideal 100%. The use of drugs from the EML is important for promoting cost-effective treatment and ensuring better healthcare outcomes. Comparisons with other studies in Nigeria and internationally reveal varying levels of adherence to this recommendation, with results ranging from as low as 21.31% to higher values similar to those found in this study. Selecting medications from the EML is important for controlling healthcare costs and ensuring effective treatment.

Furthermore, the study revealed that 25.7% of prescriptions were in the form of injections, which aligns with WHO guidelines of 20%-26.8%. However, this percentage is higher than figures reported in some local Nigerian studies. Most injections administered in this study were for patients on insulin therapy, which is justified given that insulin requires parenteral administration. The use of injections should be carefully monitored to prevent unnecessary administration, as overuse can increase healthcare costs and associated risks (Atif M, *et al.*, 2016).

The percentage of encounters where antibiotics were prescribed was 19.8%, falling within the acceptable WHO range of 13.4%-24.1%. This figure is comparable to other studies; however, one Nigerian study reported a higher rate of 35.3%. Inappropriate antibiotic use remains a significant concern globally, due to its contribution to antibiotic resistance. Continuous efforts are needed to ensure antibiotics are used appropriately to minimize this risk.

On an average, elderly patients spent N28, 345.00 on medicines per outpatient visit, which may represent a significant financial burden consid-

ering that many Nigerians living below the poverty line. This cost is approximately equivalent to the minimum monthly wage in Nigeria, posing a challenge for many patients, especially those without insurance coverage. The financial strain may lead to incomplete treatment, worsening health conditions and frequent emergency visits, ultimately resulting in poor health outcomes or even death. This situation highlights the need for a more robust healthcare system in Nigeria, particularly for the elderly population, who often face economic and health vulnerabilities.

## CONCLUSION

The study identified poor medication practices among the elderly, primarily attributed to inappropriate prescribing. Most WHO/INRUD indicators deviated from established standards, with the average number of drugs prescribed per encounter significantly exceeding the WHO recommendation. Additionally, the percentages of medicines prescribed by generic names and those selected from the EML were below the WHO's 100% recommendation. However, the use of antibiotics and injections was within acceptable limits. Irrational medicine use poses significant health and economic risks for the elderly population. Addressing this issue requires physicians' compliance with strategies and policies at improving prescribing practices, which will ensure better care and reduce healthcare costs.

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