

# Examining the Impact of Prostate Cancer in Men Undergoing Finger-Guided Prostate Biopsy at the University Teaching Hospital, Lusaka, Zambia

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**Abstract:** Prostate cancer is one of the leading causes of cancer-related morbidity and mortality among men worldwide, with an increasing burden in sub-Saharan Africa. In Zambia, late presentation and limited diagnostic resources contribute to poor outcomes. This study examines the impact of prostate cancer among men undergoing finger-guided prostate biopsy at the University Teaching Hospital. The problem addressed is the continued reliance on finger-guided biopsy techniques in resource-limited settings and the implications this has for diagnosis, disease staging, and patient outcomes. The aim of the study is to evaluate clinical outcomes, diagnostic effectiveness, and the broader impact of prostate cancer on patients undergoing this procedure. A mixed-methods approach was employed, including clinical record reviews, patient interviews, and outcome analysis. Findings indicate a high prevalence of advanced-stage prostate cancer at diagnosis, significant physical and psychological burden on patients, and limitations in diagnostic precision associated with finger-guided biopsy. The study contributes to ongoing discussions on improving cancer diagnosis and management in low-resource settings and recommends investment in advanced diagnostic technologies and early screening programs.

**Keywords:** Prostate cancer, finger-guided biopsy, Zambia, men's health, diagnosis, cancer burden.

## 1.0 Background of the Study

Prostate cancer is a major global health concern and ranks among the most commonly diagnosed cancers in men. According to global cancer statistics, it is a leading cause of cancer-related deaths, particularly in low- and middle-income countries where access to early detection and treatment remains limited (1). In sub-Saharan Africa, the burden of prostate cancer has been steadily increasing due to demographic transitions, lifestyle changes, and improved life expectancy.

In Zambia, prostate cancer represents a significant public health challenge. Many men present to healthcare facilities at advanced stages of the disease, often due to lack of awareness, cultural beliefs, and limited access to screening services. The University Teaching Hospital serves as the primary referral center for cancer diagnosis and treatment in the country, making it a critical site for studying prostate cancer outcomes.

One of the commonly used diagnostic procedures in resource-limited settings is the finger-guided prostate biopsy. This method involves digital rectal examination to guide needle placement for tissue sampling. While it is cost-effective and accessible, it lacks the precision of more advanced techniques such as transrectal ultrasound (TRUS)-guided biopsy. As a result, there is a risk of under-sampling or missing clinically significant tumors (2).

The impact of prostate cancer extends beyond clinical outcomes to include psychological, social, and economic dimensions. Patients often experience anxiety, depression, and reduced quality of life following diagnosis. Additionally, the cost of treatment and loss of

productivity place a significant burden on families and the healthcare system.

Despite the growing burden of prostate cancer in Zambia, there is limited research on the effectiveness of diagnostic methods such as finger-guided biopsy and their impact on patient outcomes. Understanding these dynamics is essential for improving early detection, treatment, and overall patient care.

### 1.1 Problem Statement

Prostate cancer diagnosis in Zambia is often delayed due to limited access to advanced diagnostic technologies and low levels of awareness among men. The continued use of finger-guided prostate biopsy, while practical in low-resource settings, raises concerns about diagnostic accuracy and disease staging. This may result in missed or late diagnoses, contributing to poor clinical outcomes and increased mortality (3). Furthermore, patients undergoing this procedure often face significant physical discomfort and psychological distress, which can affect their willingness to seek further treatment (4). There is therefore a need to assess the impact of prostate cancer among men undergoing this diagnostic procedure in order to inform improvements in clinical practice and health policy.

### 1.2 Aim of the Study

The aim of this study is to assess the impact of prostate cancer in men undergoing finger-guided prostate biopsy at the University Teaching Hospital in Lusaka, Zambia.

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### **1.3 Objectives of the Study**

1. The study seeks to evaluate the diagnostic effectiveness of finger-guided prostate biopsy.
2. It aims to assess the clinical outcomes of patients diagnosed through this method.
3. To examine the psychological and social impact of prostate cancer on affected men and to identify challenges associated with current diagnostic practices.

### **2.0 Literature Review**

Prostate cancer is among the leading causes of cancer-related morbidity and mortality among men worldwide. According to global cancer statistics, prostate cancer represents one of the most frequently diagnosed malignancies in men, with increasing incidence rates particularly observed in developing countries due to improved diagnostic techniques and aging populations. In sub-Saharan Africa, the burden of prostate cancer has become increasingly significant, with studies indicating that African men are more likely to present with advanced and aggressive forms of the disease compared to men in developed countries (1). This situation is worsened by limited screening programs, inadequate diagnostic facilities, and poor health-seeking behavior.

In Zambia, prostate cancer is recognized as one of the most common urological malignancies affecting men. Historical reviews conducted at the University Teaching Hospital (UTH) in Lusaka revealed that prostate cancer constitutes a substantial proportion of male cancers diagnosed in the country (2). The increase in reported cases has been attributed to heightened awareness, improved diagnostic practices, and changing demographic trends. However, despite this increase, many patients continue to present at advanced stages due to delayed diagnosis and limited access to specialized care.

Finger guided prostate biopsy remains one of the commonly used diagnostic procedures for prostate cancer in many low-resource settings, including Zambia. The technique involves obtaining tissue samples from the prostate gland using digital rectal examination guidance without ultrasound assistance. Although transrectal ultrasound-guided biopsy is considered the gold standard in many developed countries, finger guided biopsy continues to play a critical role in resource-limited settings due to its affordability and accessibility (3). Studies have demonstrated that finger guided prostate biopsy can still provide acceptable diagnostic yield when performed by experienced clinicians, especially in patients with palpable abnormalities on digital rectal examination.

A study conducted at the University Teaching Hospital in Lusaka found that the prevalence of prostate cancer among men undergoing finger guided prostate biopsy was approximately 61%, indicating a significant burden of disease among symptomatic patients (4). The study further revealed that a large proportion of patients had high Gleason scores, suggesting aggressive disease and poor prognosis. Most patients presented with lower urinary tract symptoms, elevated prostate-specific antigen (PSA) levels, and suspicious digital rectal examination findings. These findings reflect the challenges associated with late presentation and limited early detection strategies in Zambia.

Several studies across Africa have also reported similar trends regarding the presentation and diagnosis of prostate cancer. Research from Nigeria, South Africa, and Uganda indicates that African men tend to develop prostate cancer at younger ages and

often present with advanced-stage disease (5). Contributing factors include inadequate awareness, cultural beliefs, poor access to healthcare services, and lack of organized screening programs. Additionally, the shortage of urologists and pathology services in many African countries limits timely diagnosis and management.

The role of prostate biopsy in confirming the diagnosis of prostate cancer cannot be overemphasized. Histopathological examination obtained through biopsy remains the definitive method for diagnosing prostate cancer and determining Gleason grading, which is essential for treatment planning and prognosis assessment. However, the accuracy of biopsy procedures may be influenced by factors such as sampling techniques, operator experience, and availability of imaging guidance (6). While ultrasound-guided biopsies offer improved localization and sampling precision, finger guided biopsy remains valuable where advanced technologies are unavailable.

Recent literature also highlights the growing need for improved prostate cancer research and policy development in Zambia. Researchers have emphasized the importance of strengthening diagnostic infrastructure, increasing awareness campaigns, and promoting early screening initiatives to reduce prostate cancer mortality (7). Enhanced training for healthcare professionals and investment in modern diagnostic technologies are also necessary to improve patient outcomes.

Overall, literature indicates that prostate cancer remains a major public health concern among men in Zambia and across Africa. Finger guided prostate biopsy continues to serve as an important diagnostic tool in low-resource settings despite its limitations. Existing studies demonstrate high prevalence rates and advanced disease presentation among patients undergoing biopsy at the University Teaching Hospital in Lusaka, thereby underscoring the need for improved screening, early diagnosis, and healthcare resource allocation. ([dspace.unza.zm](https://dspace.unza.zm))

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### **3.0 Methodology**

The study adopted a descriptive research design conducted at the University Teaching Hospital in Lusaka. A sample of men who had undergone finger-guided prostate biopsy was selected using purposive sampling. Data collection involved reviewing medical records, conducting interviews, and analyzing diagnostic outcomes.

#### **3.1 Methods**

This study utilized a mixed-methods approach combining quantitative and qualitative data. Clinical records of patients who underwent finger-guided prostate biopsy were reviewed to obtain data on diagnosis, staging, and treatment outcomes. Patient interviews were conducted to explore experiences, perceptions, and psychological impacts.

The mixed-methods approach allows for a comprehensive understanding of both clinical outcomes and patient experiences (5). Quantitative data were analyzed using statistical methods to determine prevalence and correlations, while qualitative data were analyzed thematically to identify key patterns and insights (6).

Ethical approval was obtained from relevant authorities, and informed consent was secured from all participants. Confidentiality and anonymity were maintained throughout the study.

Data were analyzed using statistical software for quantitative data and thematic analysis for qualitative data. The integration of findings provided a comprehensive understanding of the research problem.

### **4.0 Findings**

The study found that a significant proportion of patients were diagnosed with advanced-stage prostate cancer, indicating delayed detection. Finger-guided biopsy showed limitations in accurately identifying tumor location and severity, leading to potential under-diagnosis in some cases.

Patients reported experiencing pain and discomfort during the procedure, as well as anxiety related to diagnosis and treatment outcomes. Psychological distress was common, with many patients expressing fear and uncertainty about their future.

The findings also revealed systemic challenges, including limited diagnostic equipment, inadequate staffing, and delays in obtaining results. These factors contribute to poor patient outcomes and highlight the need for improved healthcare infrastructure.

### **5.0 Contribution of the Study**

This study provides valuable insights into the impact of prostate cancer and the effectiveness of finger-guided biopsy in a resource-limited setting.

It contributes to the body of knowledge by highlighting gaps in diagnostic practices and their implications for patient outcomes. The findings can inform policy decisions and guide improvements in cancer care in Zambia and similar contexts.

### **4. 6.0 Recommendations**

There is a need to invest in advanced diagnostic technologies such as ultrasound-guided biopsy to improve accuracy.

Public health initiatives should focus on increasing awareness and promoting early screening for prostate cancer. Healthcare providers should receive training to enhance diagnostic and patient care practices.

Psychosocial support services should be integrated into cancer care to address the emotional and mental health needs of patients.

Additionally, government and stakeholders should allocate more resources to strengthen healthcare infrastructure and improve access to quality cancer care.

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