SCHOOL OF PUBLIC HEALTH

COLLEGE OF HEALTH SCIENCES

UNIVERSITY OF GHANA

ASSESSMENT OF KNOWLEDGE, BARRIERS, AND FACILITATORS TO SURGICAL MANAGEMENT OF BENIGN PROSTATIC HYPERPLASIA (BPH): A STUDY AT THE UROLOGY UNIT OF THE KORLE BU TEACHING HOSPITAL

BY

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THIS THESIS IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON IN PARTIAL FULFILLMENT OF REQUIREMENT FOR THE AWARD OF

MASTER OF PUBLIC HEALTH DEGREE

JANUARY 2022

DECLARATION

I, Eunice Adubea SARKODIE, declare that with the exclusion of references made to other people's work which I have accordingly acknowledged, this dissertation is the result of my research work executed under the supervision and has not in whole nor in part been presented to the University or elsewhere for another degree.

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(Supervisor)

DEDICATION

I dedicate this work to God, my family, and the staff and patients of the Urology Department of Korle Bu Teaching Hospital, Accra and specially to my mother Madam Grace Acheampong

ACKNOWLEDGEMENT

I am very grateful to Jehovah Overdo for the inspiration, strength, guidance, and, protection throughout this work.

I also want to extend my appreciation to my supervisor Dr. Albert Atabila for his timely and encouragement during this work. His first zoom meeting with us, encouraging and reassuring me that he will be there through each step of the way and that we will be able to do it gave me the hope that has seen me through.

I also want to appreciate my supporting family, you guys are just awesome and God bless each and every one of you.

I particularly want to also appreciate the entire staff of the School of Public Health especially the Department of BEOHS for the tutelage rendered me throughout my stay in the school.

I am indeed most grateful to the management of Korle Bu Teaching Hospital for the permission to conduct the study in the hospital with special mention to the head of Department of the Surgery and Urology, Professor J.E Mensah, thank you and God bless you abundantly.

Finally, I want, to extend my appreciation to the entire regular class of the 2020/2021 academic year.

ABSTRACT

Background: Benign prostatic hyperplasia (BPH) has numerous health implications and is a major health concern for aging men, however surgical intervention is considered the most effective and golden standard intervention among other options.

Aim. The main aim was to assess the facilitators and barriers to the surgical management of BPH among patients diagnosed with BPH. The specific objectives were to examine the knowledge, barriers, and factors facilitating the uptake of surgical intervention in the management of BPH among patients at Korle Bu Teaching Hospital.

Methodology The study used a quantitative approach and a cross-sectional design to answer the research questions. It was conducted among a sample of 390 male patients attending the urology clinic. It had a non-responsive rate of 7.5%. A simple random sampling technique was used to administer the questionnaire to the respondents. Likert options chosen by the respondents were summed and mean values calculated and used for further analysis. A logistic regression (univariate and multivariate) model was used to find factors (predictors) for the dependent variable.

Findings: About, 45.4% of the respondent had "high knowledge" on surgical intervention in the management of BPH. The result of multivariate logistic regression showed that age had an odds of 1.07 of not doing surgery with every unit age increase. For every unit increase in knowledge of their condition decreases the likelihood of rejecting surgery intervention as an option for BPH by the odds of 0.59 or decreased the likelihood of rejecting surgery intervention by 41.0%. Similarly, an increase in the age of diagnosis decreases the likelihood of rejecting surgery intervention as an option for BPH by the odds of 0.45 or decreases the likelihood of

rejecting surgery intervention by 55.0%. Wearing of catheter had odds of 5.3 of rejecting surgical intervention with a unit increase in catheter years. Barriers had odds of 22.0 of rejecting the surgical intervention of BPH with a unit increase in the number of barriers.

Conclusion.

Close to half of the respondents had "high knowledge" on surgical intervention in the management of BPH and more than half disagreed and/ or were uncertain to choose surgical intervention. Patient's age, age of diagnosis, years of wearing catheter, knowledge scores and, general barriers were significant factors in predicting uptake of surgery as BPH intervention.

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LIST OF ABBREVIATIONS

AUA-SI ---------- American Urological Association Symptom Index

BPH ---------- Benign Prostatic Hyperplasia

CINAHL ---------- Cumulative Index to Nursing and Allied Health Literature

DRE ---------- Digital Rectal Examination

HoLEP ---------- Holmium Laser Enucleation of the Prostate

KBTH ---------- Korle Bu Teaching Hospital

LMIC ---------- Low Middle Income Countries

LUTS ---------- Lower Urinary Tract Symptoms

OP ---------- Open Prostatectomy

OPD ---------- Out Patient Department

PSA ---------- Prostate Surface Antigen

PVP ---------- Photo Selective Vaporization

TURP ---------- Transurethral Resection of the Prostate

WHO ---------- World Health Organization

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the study

Benign prostatic hyperplasia (BPH) is defined as the proliferation of smooth muscle and epithelial cells within the prostatic transition zone (American Urological Association, 2010). Prevalence of BPH in the United States is as high as 70% among men within the age range 60-69 years and 80% for those above 69 years (Welliver et al., 2020). Estimates show that approximately 25% of men globally are likely to be diagnosed with BPH in the course of their lifetime (Lee, Chan, & Kai, 2017).

BPH has been linked with aging and identified as the most common cause of lower urinary tract symptoms among men aged 50 years and above (Speakman, Kirby, Doyle, & Ioannou, 2015; Eghan, 2016; Lee et al., 2017). BPH can lead to complications such as recurrent urinary tract infection, refractory urinary retention, bladder stones, or renal insufficiency as a result of obstructive uropathy infection (Kim, Larson, & Andriole, 2016). In addition, BPH can also cause decreased sexual functioning among men as established in a plethora of epidemiological studies (Vallancien, Emberton, Harving, & van Moorselaar, 2013; Roehrborn & Rukstalis, 2021). Estimates also show that nearly 50% of patients diagnosed with BPH will experience age-related sexual dysfunction as a result of BPH (Gu, Kadowitz, & Hellstrom, 2013).

Appropriate and effective management of BPH using surgical techniques may not only avert complications associated with BPH but also improve the quality of life for such patients which has been a major challenge for them as mentioned in some studies (Speakman et al., 2014; Dunphy, Laor, Te, Kaplan, & Chughtai, 2015). Prolonged catheterization has been associated with recurrent urinary tract infection, and discomfort because of the in-dwelling

catheter which serves as favorable medium for bacteria growth. (America Urological Association, 2014).

At present, surgical intervention remains one of the effective ways of managing moderate to severe BPH (America Urological Association, 2014). Despite of the new surgical interventions such as bipolar transurethral resection of the prostate (TURP), holmium laser enucleation of the prostate (HoLEP), Greenlight and thulium laser, and prostatic urethral lift (PUL) that have emerged in recent times, open prostatectomy (OP) and transurethral resection prostate (TRUS) continue to be the procedure embraced by most surgeons to date (Roehrborn & Rukstalis, 2021). Knowledge about the available surgical interventions in managing BPH is key to helping patients make informed decisions about their treatment options by weighing the cost and benefits (America Urological Association, 2014).

In most developed countries the prevalence of catheter uses among patients diagnosed with BPH is considerably low and ranges between 3% to 5.4% (Herter & Kazer, 2010; Prinjha & Chapple, 2013). Factors that contribute to low the prevalence of long-term catheter use in developed countries include good organizational structure in terms of the health care system, adequate infrastructure and, an adequate number of qualified human resources such as urologists and nurses (American Association of Urologist, 2015; Maeda et al., 2015).

On the contrary, the high incidence of most patients with BPH in Sub-Saharan Africa remaining on catheters beyond the ideal recommended period is a common phenomenon (Labib & Spasojevic, 2013). Inadequately skilled professionals coupled with socio-economic challenges such as inability to afford treatment costs and not having health insurance have been adduced as some reasons for patients' preference for catheters over surgical intervention (Labib & Spasojevic, 2013; American Association of Urologist, 2015; Ndomba et al., 2021). The import of these findings as discussed in the literature indicates that these barriers and

facilitators in the management of BPH using surgical interventions do not occur in isolation but as a result of multiple factors which may be the case in Ghana.

1.2 Problem statement

Records from the surgical department of Korle Bu Teaching Hospital (Surgical Biostatistics KBTH, 2020) indicated that BPH was ranked number one among the top ten surgical cases for three consecutive years; 2018, 2019, and 2020 surpassing breast cancer and hepatocellular cancer. In the year 2018, of the total out-patient-department (OPD) cases, 7105 males were diagnosed with BPH. This increased slightly from 7398 in the year 2019 to 7615 in the year 2020.

The records further indicated that 2868, 3115, and 3689 had catheters in-situ in the years 2018, 2019, and 2020 respectively (Surgical Biostatistics KBTH, 2020). In each of these years, less than 3% of them opted for surgical intervention as an alternative treatment option despite the recurrent lower urinary tract infection associated with BPH and exacerbated by prolonged catheter use. What this means is that just a few of them preferred surgical intervention to other treatment options. These issues raise concerns not only about the knowledge level of patients regarding available surgical interventions but also about facilitators and barriers to this approach (surgical intervention) as ideal in managing BPH.

However, numerous studies on BPH focused on its epidemiology and treatment modalities (Lokeshwar et al., 2019), risk factors (Calogero et al., 2019; Yoo et al., 2019), the efficacy of drugs used in managing BPH (Yu et al., 2020). Not many studies have assessed the knowledge level of patients with BPH on surgical intervention as well as barriers and facilitators to available surgical interventions. There is a dearth of literature on this subject matter, hence the need to carry out this current study to address these aforementioned gaps.

1.3 Research questions

1. What do patients with BPH at KBTH know about their condition?
2. What are the barriers to surgical intervention in managing BPH among patients with BPH at KBTH?
3. What factors facilitate surgical intervention as a treatment option for patients with BPH at KBTH?

1.4 General objective

To assess the facilitators and barriers to the surgical management of benign prostatic hyperplasia among the patient diagnosed with BPH

1.4.1 Specific Objectives of the study

This study sought to:

1. Examine the knowledge level of patients with BPH at KBTH with regards to their condition.
2. Investigate the barriers to surgical intervention as treatment options among patients with BPH at KBTH.
3. Assess factors facilitating the uptake of surgical intervention in the management of BPH among patients at KBTH.

1.5 Justification for the study

The significant rise in the number of patients diagnosed with BPH coupled with it being number one among the top conditions at the surgical department for three consecutive years (2018, 2019, and 2020) in recent times at KBTH highlights a public health concern. In addition, despite of available surgical intervention in managing this condition at KBTH, only a few of them opt for this service. Majority of them who fall within the category of moderate

to severe BPH and are good candidates for surgical intervention hardly patronize this option for reasons best known to them.

Knowing their level of knowledge regarding treatment options as well as facilitators and barriers to surgical intervention as a treatment option may serve as a basis to inform stakeholders and policymakers to plan for the future. This may help them to implement measures that will promote surgical interventions as a treatment option for those who require such services. Also, findings from the study will add to the literature while serving as reference material for future studies.

1.6 Conceptual framework for the study

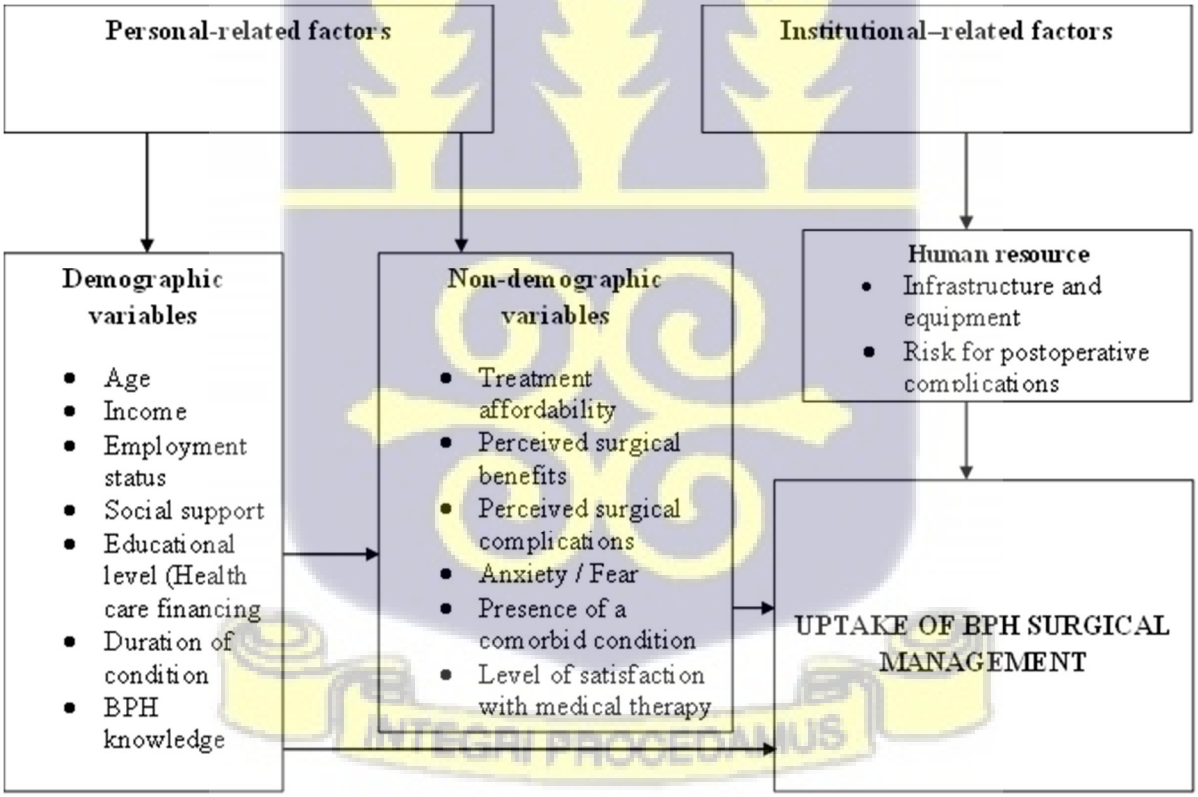


Figure 1. 1: Conceptual framework for the study

Source: Author (2021)

1.7 Narration of Conceptual Framework

As shown in figure 1.0, personal and institutional factors facilitate or impede the uptake of BPH surgical management. Personal factors with regards to demographic variables (age, income, educational level, BPH knowledge) may directly or indirectly uptake of BPH surgical management as shown in figure 2.1

Similarly, institutional factors (human resource, infrastructure/ equipment, risk for post-operative complications) can affect BPH surgical management. For instance, the availability of specialists (Urologists) coupled with functional equipment can promote uptake of BPH surgical management for patients who express their readiness for such surgical care and vice versa.

1.8 Delimitation of the study

The study is delimited to;

1. Patients with BPH seeking care at the Urological Department of Korle-Bu Teaching Hospital (KBTH).
2. Patients with severe BPH reporting at the Urological Department for review and are willing to participate in the study.

1.9 Limitation of the study

The relatively small sample size of approximately 355, used compared with the total number of patients with severe BPH was a limitation to the study. Besides, the findings of the study cannot be generalized to the total population of patients with BPH in the country because the study was conducted at KBTH. As, with every other survey, the fact that participants may not be very accurate in answering the questions was taken into consideration.

1.10 Definition of terms

Unmet need for surgery: Number of people who need surgical care but have not yet accessed care. And also those who have been surgically managed and have had post-surgical complications.

1.11 Organization of the study

The whole dissertation is organized into chapters. Chapter one dealt with the introduction of the study. It gives a brief background to the study, statement of the problem, objectives of the study, research questions, delimitation, limitations as well as the definition of terms for the study. A general review of the literature was done in Chapter Two. Chapter Three dealt with the research methodology. Areas covered under the methodology included the research approach, design, population, sampling and, sample size. Other areas that were discussed in this chapter include; instrumentation, data collection procedure, data analysis technique and, ethical considerations. Chapter Four focuses on the analysis and presentation of the data gathered from the field. Chapter Five centered on discussions and finally, Chapter Six focuses on the conclusions and recommendations of the study and implications for further studies.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter discusses the theoretical framework of the study on barriers and facilitators to the surgical management of BPH. Literature was reviewed from databases such as Cumulative Index to Nursing and Allied Health Literature (CINAHL), PubMed, Embase, Google scholar, and Scopus with a focus on articles published between the years 2011 to 2021. Keywords such as [("BPH barriers" OR "BPH impediments") AND ("surgery" OR "surgical management"); ("BPH facilitators" OR "BPH enablers") were highly employed to search for literature in the aforementioned databases.

The discussions in this chapter revolve around the research objectives. The major themes emerging from these objectives are:

a. Knowledge of BPH among patients with the condition
b. Barriers to surgical management of BPH
c. Facilitators for surgical management of BPH

2.1 Knowledge of BPH among patients with the condition

The discussion under this section relates to research question 1 which is stated: What do patients with BPH at KBTH know about available treatment options in the management of BPH? The assumption is that patients with BPH are aware of available treatment options. Literature in this section will focus on the meaning of BPH; its causes and clinical manifestation, diagnostic investigations, its management, as well as what patients with BPH know about the condition.

2.2 Meaning of BPH

BPH also referred to as "prostate gland enlargement" is a common urologic (emergency) medical condition that affects men as they age; usually after age 55 (International Society of Urological Pathology [ISUP], 2019; Nickel et al., 2018). Histologically, BPH is defined as uncontrolled proliferation of connective tissue, smooth muscle, and glandular epithelium within the periurethral zone leading to a range of lower urinary tract symptoms (LUTS) as a result of an enlarged prostate. Estimates show that 50% of men aged 60 years and above experience BPH-related symptoms; increasing to 90% for men above 80 years (Columbia University of Urology, 2020).

2.3 Causes and clinical manifestation of BPH

The etiology of BPH is unknown but there are some risk factors that contribute to its occurrence among men. Apart from aging, several of multifaceted factors such as increasing prostate volume, obesity, diet, dyslipidemia, hormonal imbalance, hypertension, metabolic syndrome, alcohol, and smoking (Ajayi & Abraham, 2018).

Clinical manifestation of BPH may be classified under two major headings namely; urine obstruction-related symptoms and bladder changes-related symptoms (Johns Hopkins University, 2021). The former comprises a weak urine stream, urinary hesitancy, urinary dribbling whiles the latter includes nocturia, urinary urgency, frequent micturition, urinary retention, dysuria, haematuria, and urine incontinence (Johns Hopkins University, 2021; Urology Care Foundation, 2021; Barry et al., 2017). If unmanaged well, BPH could lead to a myriad of complications such as recurrent lower urinary tract infections, refractory urinary retention, bladder stones, or renal insufficiency (Roehrborn & Rukstalis, 2021; Kim, Larson, & Andriole, 2016) as well as erectile dysfunction which is common among 70% of men diagnosed of BPH (Park et al., 2013).

2.4 Diagnostic investigations

A variety of tests ranging from physical examinations to laboratory investigations can aid in the diagnosis of BPH. The most common and first-line diagnostic tests often requested by physicians are urinalysis, digital rectal examination (DRE), and prostate-specific antigen (PSA) as reported in a plethora of studies (Johnson et al., 2020). However, patients must be resourced with adequate information about the pros and cons to help them make informed decisions about PSA screening (American Cancer Society, 2021; USPSTF, 2018).

Beyond these diagnostic measures, the American Urological Association Symptom Index (AUA-SI) is acknowledged as a useful tool in assessing the severity of LUTS secondary to BPH (Barry et al., 2017) (Johnson et al., 2020) The AUA-SI assesses patients' urine problem on the dimensions of urine emptying, frequency, intermittency, urine urgency, urine stream, straining, and nocturia (American Urological Association [AUA], 2007). According to AUA (2020), preliminary assessment for a patient presenting with worrisome complaints of LUTS secondary to BPH should go beyond normal routines (medical history taking, physical examination, and urinalysis) of patient assessment to include AUA-SI.

2.5 Management of BPH

It is well documented in the literature that three major pathways namely; watchful waiting, medical therapy, and surgical interventions are employed in managing BPH. Treatment option for managing BPH is often driven by symptoms severity (mild, moderate, and severe) since these interventions are not mutually exclusive.

For mild BPH, watchful waiting is recommended as symptoms are not usually bothersome to patients. Patients are closely monitored over time whiles observing for any improvement in symptoms or deteriorating condition to inform the most appropriate clinical decision.

On the other hand, medical therapy is indicated for the treatment of a patient with moderate to severe symptomatic BPH. Patients with moderate to severe BPH more often than not appraise their symptoms as bothersome; hence are managed on medications. Most common drugs used in the medical management of BPH belong to the class of either Alpha-blockers, 5α-reductase inhibitors or a blend of both (D. Y. Pushkar et al., 2019).

Alpha-blockers relax (for example Tamsulosin and silodosin) the prostate muscles and are most appropriate for patients with minimal abnormal increase in prostate size (Van Asseldonk et al., 2015). Conversely, 5α-reductase inhibitors (for example finasteride and dutasteride) shrink the enlarged prostate and are recommended for patients who present with large symptomatic prostate (Van Asseldonk et al., 2015). Regardless of their mechanism of action, both groups of drugs improve urine flow to provide symptom relief (Johnson et al., 2020; Busetto et al., 2019). In recent times, clinicians have skewed their prescription towards the combined dose due to its added advantage of playing a dual role while minimizing adverse effects associated with any of the mono pharmacotherapies (Cindolo et al., 2014) and the risk for surgery (Roehrborn et al., 2011). Comparing treatment efficacy of combined therapy and monotherapy, both Singh et al. (2014) and Casabé et al. (2014) confirmed that the former improved IPSS and erectile function than the latter alone.

Also, for patients with moderate to severe BPH who do not respond to medical therapy and present with complications, surgical intervention is strongly recommended and considered the gold standard (AUA, 2013; Homma et al., 2011). Nonetheless, it is recommended that patients presenting with mild to moderate symptoms are educated on the advantages and disadvantages of BPH treatment options including watchful waiting (AUA, 2013).

Conversely, there has been a growing debate among researchers on the ideal time to initiate surgical intervention as a treatment option for BPH. In a recent study by Fogaing et al.

(2021), proponents for early surgical intervention argued on the premise that it is effective, cost-effective, and minimizes the risk of post-operative complications resulting from delayed surgery. Moreover, they claimed pharmacotherapy is not immune to side effects specially when some BPH medications have been linked to increased risk for dementia (Duan et al., 2018).

Relating to this view and in contrast to the traditional approach of medical therapy as the first treatment option in managing BPH, Bishr (2016) and Parsons et al., (2020, as cited in AUA, 2020) have argued that surgery should be prioritized over medical therapy especially when complications (examples includes renal insufficiency, refractory urinary retention, recurrent UTIs, recurrent bladder stones) secondary to BPH are present.

According to Forgaing et al. (2021) researchers disputing this claim contend that medical treatment could benefit some patients significantly; thus averting the possibility of surgery and its associated complications thereof. Parallel to this contention, a previous study on what constitutes ideal treatment from a patients perspective indicated a preference for medical therapy even if took more than six months to be relieved of symptoms provided it could minimize the possibility of surgery (Emberton et al., 2008).

2.6 BPH knowledge among patients with BPH

Many studies have reported that the set of symptoms that characterize BPH negatively affects patients' quality of life. Patients' knowledge level regarding their medical condition plays a fundamental role in their decision-making among them. The paradigm shift in healthcare that recognizes patients as partners in their care rather than mere recipients highlights the need for the patient to possess adequate information about their condition. Some studies on BPH have confirmed that when patients are resourced with adequate information about their condition, they become more committed to actions that promote their health and improve their quality of

life (Johnson et al., 2020); and this may be particularly so for patients who appraise their symptoms as bothersome.

BPH knowledge among patients diagnosed with the condition is underexplored. However, known studies on this subject matter described patients' level of knowledge regarding their condition as ranging from low to high (Shalini, 2016). Ertel et al. (2016) carried out a large-scale cross-sectional study to assess attitudes and beliefs among 1094 patients with BPH and 202 physicians across three selected continents; Latin America, Asia Pacific, and the Commonwealth of Independent States. The Majority (61%) of patients were knowledgeable about their condition as they identified weak urine stream, nocturia, and frequent micturition as some symptoms associated with BPH. Besides, they mentioned urinalysis (71%), PSA (57%), and DRE (56%) as some of the investigations that aid in diagnosing BPH.

While these aforementioned studies reveal patients with BPH are well informed about their condition, other research findings indicate the contrary (Abraham et al., 2016). Assessing BPH knowledge among patients and how it impacted their lives, Abraham et al. (2016) reported that less than half (46%) of a patient with BPH had average knowledge about their condition. Based on this finding Abraham et al. advocated that patients with BPH are resourced with adequate information about their condition to address knowledge gaps.

A similar study among 3,010 men aged above 50 years across three European countries (France, United Kingdom, and Germany) revealed that most respondents lacked knowledge about BPH despite their age-related risk for BPH (European Association of Urology [EAU], 2019). Less than a quarter of respondents (17%) recognized that symptoms associated with enlarged prostate were a deviation from the normal aging process.

2.8 Barriers and facilitators to surgical management of BPH

The issues raised in this section pertain to research question 2 and 3 which examines the barriers and facilitators to the uptake of surgical interventions in the management of BPH. The assumption is that some factors facilitate and also impede the uptake of surgical intervention in the management of BPH.

Estimates show that over 4.6 billion people worldwide lack access to surgical care including BPH (Mullapudi et al., 2019). In developing countries, this situation is worse and accounts for over 95% of unmet needs for surgery compared to developed countries like Australia with an unmet need below 5% (Alkire et al., 2015). Numerous factors account for the wide gap between the unmets needs for surgery and those who can access surgical care. These factors are discussed concurrently and broadly categorized under two major headings namely; patient-related factors and health facility-related factors to appreciate how they promote or hinder the uptake of surgery as a BPH management option. Also, surgical treatment options used in the management of BPH are discussed to highlight the range of BPH surgical techniques in addition to the advantages and disadvantages associated with it.

2.8.1 TURP and new surgical techniques used in BPH management

With a range of treatment options for the management of BPH, surgical intervention remains the gold standard for managing moderate to severe BPH (AUA, 2013). Historically, transurethral resection of the prostate (TURP) had been and continues to be the gold standard in the surgical management of BPH (AUA, 2020; Young et al., 2018). Within the past decade, a myriad of novel minimally invasive surgical interventions that meet the unique needs and preferences of patients have emerged. These include; bipolar TURP, holmium laser enucleation of the prostate (HoLEP), greenlight photoselective vaporization (PVP), and prostatic urethral lift (PUL).

Quite many studies have compared the effectiveness and treatment outcome between TURP and modern surgical techniques. Findings from most of these comparative studies showed no statistically significant differences in treatment effectiveness and outcomes between TURP and; HoLEP (Bai et al., 2019; (Pushkar et al., 2019; Barboza et al., 2015), greenlight PVP (Cimino et al., 2017), and PUL (Świniarski et al., 2012). Similarly, Hassan et al. (2020) noted that there were no differences in the risk of complications between TURP and HoLEP.

Despite the similarities in effectiveness and treatment outcome (based on AUA-SI) between TURP and current surgical interventions as mentioned earlier on, the latter seems to have some competitive advantage over the former; but only in the short term. For instance, empirical evidence from clinical studies revealed that apart from less blood loss (Bruyère et al., 2011) associated with greenlight PVP, recovery was also fast (Cimino et al., 2017) compared to TURP. The implication is that patients will have to spend fewer days on admission; thus making it cost-effective.

Highlighting the economic benefit associated with greenlight PVP, (Liatsikos et al., 2012) compared the average cost of greenlight PVP with TURP taking into consideration consumables for the surgery, and length of admission as well as of management of complications that may arise following the therapy. Results from the study revealed that the cost of greenlight PVP was less than TURP; specifically $2,371 and $2,935 respectively. Additionally, a systematic and meta-analysis study that evaluated the outcome of PUL found no change in the sexual functioning post the surgical procedure after a year of follow-up (Perera et al., 2015). Both Chung and Woo (2016) and Perera et al. (2015) confirmed this finding in their studies and maintained that PUL preserves the sexual functions apart from providing LUTS relief associated. To assess the efficacy of new surgical interventions on BPH management, Huang et al. (2019) carried out a systematic review and meta-analysis of randomized controlled trials. Results from their study showed enucleation surgical

interventions (eg. HoLEP) was associated with better post-operative outcomes compared with TURP.

Like conventional surgical management (TURP), current BPH surgical techniques that have emerged within the past decade are not immune to challenges. A systematic and meta-analysis study reported that the recurrence of BPH following PVP was high compared to TURP (Huang et al., 2019). Compared with TURP, another study showed a high risk of short-term transient incontinence post enucleation (Liu et al., 2014).

Despite the aforementioned advantages associated with these new innovative techniques in BPH management, TURP is still endorsed as the ideal method (AUA, 2020). Compared with medical therapy and emerging surgical trends in BPH management, TURP has better long-term outcomes when evaluated on the dimensions of maximal flow rate (Qmax), symptoms relief (based on AUS-SI score), and patients' quality of life. A current systematic review and meta-analysis study concluded that TURP has a low failure rate compared with other innovative techniques such as greenlight PVP and HoLEP (Salciccia et al., 2021). According to Salciccia et al. failure rates of TURP, greenlight PVP and HoLEP were 3%, 7.1%, and 11.8% respectively; an indication that TURP has a high success rate compared to the others.

2.8.2 Patient-related factors

Patient-related factors relate to factors from patients' end that either facilitate or prevent them from accessing BPH surgical care. These factors are multifaceted and include:

a. Financial constraint / Affordability: Whiles surgical management of BPH seems to be cost-effective compared to medical management, upfront payment for surgical BPH management remains a major challenge for most patients; particularly those in LMIC. The

burden of funding surgical care among patients is well documented in the literature and has been cited as one of the major factors that either limit or promote access to surgical treatment.

In developed and developing countries, patients inability to pay for surgical services contributes significantly to unmet needs for surgery. Studies in Europe (Burga et al., 2014), Asia (Suryathi et al., 2019), America (Batlle et al., 2014), and more particularly sub-Saharan Africa (Fadamiro & Ajite, 2017; Bunkley et al., 2020) indicate that majority of the patient for lack of funds fail to access needed surgical services critical to improving their health; and this may be the case for a patient with BPH. For instance, comparing medical therapy with surgical management (TURP) across four European countries (Germany, Spain, France, and Italy) over some time, medical therapy was found to be more cost-effective (Davis et al., 2019). The average cost of PVP and TURP is estimated to be $2371 and $2935 respectively taking into consideration the cost of equipment, consumables, anesthesia, drugs, inpatient hospitalization, and complication management within one year postoperatively (Liatsikos et al., 2012).

A previous study assessed obstacles to surgical care in Cameroon using a retrospective research design by reviewing patient's medical records; specifically diagnosis, post-op complications, as well as the cost of surgical care. Among the most prevalent cancerous conditions including prostate cancer, treatment cost was an averagely of $USD 250 which was to be paid outright. Whiles 40% of patients booked for surgery reported and underwent surgery as planned, 60% did not honor the scheduled appointment; citing the cost implications as one of the main reasons (Ilbawi et al., 2015). Another study that investigated indications and reasons for prolonged in-dwelling catheter use among patients with BPH in Tanzania found that patients inability to afford the cost of surgical management limited their access to surgery as a treatment option (Ndomba et al. 2021).

b. Satisfaction with medical therapy: Clinical efficacy of drugs used in the medical management of BPH is well documented in the literature. Drug therapy as an approach to medical management of BPH provides symptoms relief slows the progression of the disease course and improves the quality of life for patients' with BPH (Busetto et al., 2019). Additionally, remarkable evidence from clinical studies has confirmed that combined drug therapy improves a patient's condition to a greater extent compared to monotherapy medical management (Roehrborn et al., 2014).

For instance, in some studies, despite patients acknowledging satisfaction with medication as a treatment option, they expressed concern about surgical intervention for which reason they were prepared to wait; anticipating that symptoms will subside with time (Ertel et al., 2016).

c. Knowledge about disease condition: Patients' knowledge regrading their health conditions plays a key role in their health-seeking behavior, and this may be so for patients with BPH. When patients are knowledgeable about their condition they are more likely to utilize services that promote their health and quality of life. A cross-sectional study that assessed barriers to surgical care in a Pakistani tertiary hospital confirmed among other findings that knowledge deficit about illness, complications as well as available treatment options served as a barrier to accessing surgical care among patients (Samad et al., 2013). Johnson et al. (2020) carried out a cross-sectional study among patients with BPH to assess the impact of patient education on quality of life, knowledge, and medication compliance. Similar to the findings from previous studies (Ertel et al., 2016), Johnson et al. found that patient education improved adherence to prescribed medication; thus having a ripple effect patients' quality of life.

d. Presence of comorbid condition: Biological changes occurring as a result of aging predispose adults above 65 years to a range of medical conditions that adversely affects their

health. visual impairment, musculoskeletal pain, chronic obstructive pulmonary disease, cardiovascular diseases diabetes, mood disorders (depression), dementia as well as BPH are some of the most prevalent conditions occurring among these population groups (Oliveros et al., 2020; Li et al., 2019; WHO, 2018). The association between aging and cardiovascular diseases such as hypertension, ischaemic heart disease, and stroke as well as BPH is well established in the literature (WHO, 2021; Ostchega et al., 2020; Cannarella et al., 2021).

Considering that age is a risk factor for BPH and cardiovascular diseases, it is likely patients with BPH may have a comorbid cardiovascular condition. According to WHO (2021), cardiovascular diseases accounted for 31% of all global death in the year 2015; two-thirds of which occurred in developing countries. This negative trend may limit patients with BPH to benefit fully from surgical management of their condition. Relating to this, Ndomba et al. (2021) claimed that the majority of older patients with BPH who had earlier on been booked for surgery had their appointments canceled due to other underlining medical conditions.

e. Anxiety and fear: It has been reported that regardless of disease severity, the majority of patients feel reluctant to uptake surgical treatment to remedy their condition for fear of surgery outcome. With the advancement in technology that has paved way for the introduction of new BPH surgical treatment modalities; many patients with BPH despite rating their symptoms as bothersome fail to seek surgical intervention (Ertel et al., 2016), a situation that may be attributable to fear.

Several factors contribute to the fear and anxiety associated with surgery among patients in need of it. This ranges from a fear of anticipated complications to fear of death. Consequently, patients may fail to honor the surgical appointments, postpone surgery, or fail to show up for review. In a cross-sectional study that assessed barriers to surgical care in the Northern part of Ghana, Gyedu et al. (2016) claimed that some women feared the anesthetic

effects of the surgery. A study in Canada that assessed cancellation rate in urological surgical care found that the cancellation of surgical appointments compounded the burden of psychological distress patients experienced as a result of the scheduled surgery (Leslie et al., 2013). The import of this finding indicates that patients before the cancellation of the surgery did experience some the anxiety.

f. Social support system: Social support is defined as conscious or unconscious behaviors that communicate to a person in crisis or otherwise that he or she is appreciated and will be cared for (Barnes & Duck, 1994). Considering that the risk of having BPH correlates with increasing age as mentioned extensively in the literature (Zhang et al., 2019), the role of social support in helping patients with BPH manage their condition cannot be underestimated. Social support services serve as a buffer in helping people cope with chronic health-related issues that are likely to trigger stress (Arifin et al., 2020); and this may be so for patients with BPH.

2.8.3 Health facility related factors

Health facility-related factors are hospital dynamics either impede or promote uptake of BPH surgical management. These factors include but are not limited to:

a. Human resource: Human resource is critical to the provision of critical healthcare including the surgical management of BPH. Health care human resource challenge more particularly surgeons is a pervasive problem facing many middle-and-low income countries (Dworkin et al., 2020; Ntirenganya et al., 2019). The number of skilled professionals trained to offer specialist care is woefully inadequate to address the wide unmet needs for surgical care, and BPH is no exclusion to this.

For instance, surgical specialists per 100 000 population ranges from 17 to 35 and 0.1 to 7 among developed countries and developing countries respectively (Mazumdar, 2015). A recent report by the World Economic Forum (2021), also highlighted the serious deficit in pediatric surgeons in South Sudan which had none, and Sierra Leone which had only one surgeon to meet the surgical needs of 41% of its populace below 15 years. Urologist to patient ratio in Zambia (World Economic Forum, 2021) and Nigeria (European Association of Urology, 2016) is estimated to be 1: 1, 500 000 and 1: 1, 307692 respectively.

The lack of adequate urologists in most healthcare facilities in sub-Saharan Africa is often evident in the challenges patients go through as they endeavor to seek surgical care for BPH. Commenting on this subject matter, Labib and Spasojevic (2013) noted that patients had no option but to endure endless discomfort associated with long term catheterization for at least four months before being attended to by a surgeon. In Rwanda, Ntirenganya et al. (2019) reported that patients booked for surgery had to wait a minimum of three months to receive care due to a multiplicity of factors including scarce surgeons. Parallel to these findings, another study established among other findings that long waiting times due to inadequate specialists deterred patients from accessing BPH surgical care; thus remaining on a catheter for prolonged periods (Ndomba et al. (2021). Although both studies were carried out in different health facilities, their outcomes were not different.

In contrast to these findings, a study in Canada revealed that the average time to receive surgical care the following postponement of the procedure was an averagely a month. Nonetheless, 69% of patients rescheduled receive care in less than 14 days (Leslie et al., 2013).

b. Infrastructure and Equipment: Another worth mentioning factor that can serve as both a facilitator and barrier to surgical care relates to infrastructure and availability of functioning

equipment. Infrastructure refers to how well the hospital is structured in terms of ward layout, constant power, and oxygen supply as well as adequate theatre operating rooms to accommodate the increasing demands for surgical care. Equipment, on the other hand, relates to adequate functioning diagnostic devices (eg. X-ray, CT scans, etc), suctioning machines, and patient monitors, not to mention a few.

Availability or absence of basic infrastructure as well as equipment affects the delivery of surgical services to a greater extent. Research has shown that availability or functioning diagnostic equipment (Ntirenganya et al., 2019; AUA, 2015), limited space, low bed capacity proper medical record-keeping systems (Ndomba et al., 2021) are some of the structural factors that affect the uptake and delivery of surgical care services including BPH.

Whiles both infrastructure and equipment are known to facilitate the provision of surgical care, studies show that healthcare facilities are challenged in terms of these resources. Although this is not unique to sub-Saharan Africa, empirical evidence from most studies points to the fact that health facilities in sub-Saharan Africa are the most resourced constraint (Ndomba et al., 2021; Ntirenganya et al., 2019). Relating to this phenomenon Nwanna-Nzewunwa et al. (2016) claimed that both male and female wards to accommodate post-operative patients had exceeded their bed capacities; thus leading to overbooking of 83% and 60% for males and females wards respectively.

A nationwide study in Uganda assessed the capacity of healthcare facilities to render surgical care and revealed serious gaps among all facilities assessed (Albut et al., 2018). Additionally, basic equipment for surgical care such as sterile gloves, nasogastric tubes, and Foley catheters was always lacking in of all facilities. Almost (98.3%) all facilities also lacked a computerized tomography (CT) scan. Operating rooms were found to be inadequate; 0.2 per 100,000 population (Albut et al., 2018).

c. Risk for postoperative complications: The advantages of surgical management of BPH over its medical management in terms of long-term symptoms relief (Cimino et al., 2017), efficacy, and cost-effectiveness are well established in the literature. Conversely, the surgical management of BPH using both traditional (TURP) and current surgical treatment modalities are not immune to challenges. A systematic review study found that TURP and greenlight PVP was the most effective BPH surgical management in terms of symptoms relief but also associated with post-ejaculatory dysfunction (Ciminio et al., 2017). On the contrary, a current study found no change in sexual function following surgical BPH management (Soans et al., 2021).

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This section entails the entire research methodology with a focus on the research design, study site, population, sample, and sampling technique. Other areas of concern include instrumentation, data collection technique, data analysis as well as ethical consideration.

3.1 Research design

This is a quantitative study utilizing a cross-sectional research design to obtain "snapshot" information about the phenomenon under investigation. The study design, the association between variables was examined (Chikaodili et al., 2020), hence making it appropriate for this study.

3.2 Study site

This study was carried out at KBTH precisely at the urological unit under the department of surgery of the hospital. The Urological department of KBTH had 15 doctors; eight were either consultants or senior specialists and the remaining seven were senior residents providing specialist care to patients with BPH. Additionally, the unit had 40 nurses and other allied health staff that collaborate with doctors to provide either medical or surgical care such as open prostatectomy and TRUP to patients with BPH.

3.3 Population

The target population for the study encompassed patients diagnosed with BPH seeking care at the urology department in the surgical department of KBTH; a majority of whom are in their late early 60s.

3.4 Sample size

The required sample size for the study was calculated using Yamane's (1967) simplified formula for calculation of sample sizes.

$$n = \frac{N}{1 + N(e)^2}$$

Where **n** is the sample size,

N is the population size, and

e is the precision level

With an average patient population of 3,224 a year and an adopted alpha level (e) of 0.05, the sample size was calculated as follows;

$$n = \frac{3224}{1 + 3224\ (0.05)^2}$$

$$n = \frac{3224}{9.06}$$

$$n = 355$$

Therefore, a total sample of 355. A 10% allowance will be added to cater for a non-and incomplete responses. Hence the sample size results in 390. Patients were selected to represent the target population for the study.

3.5 Sampling technique

A simple random sampling technique was adopted for this study. A list of patients extracted from the patient's bookings list was obtained. Computer-generated random numbers were assigned to these names and then the names were chosen at random. Data collection took 16 clinical days (clinic runs twice a week), therefore a minimum of 25 respondents was selected each clinical days make up to the total sample size

3.6 Instrument for data collection

A structured questionnaire was used to gather data from the respondents through a survey. This choice of instrument is based on the idea that respondents feel at ease completing questions at the speed they want to go (Cohen et al., 2011). The research ensured that the wordings of the questions are clear, unambiguous, and structured logically into sections and subsections to enhance reliability as recommended by Somekh and Lewin, (2005).

The questionnaire contained 38 items structured into four sections: section A, section B, section C, and section D. Section A comprised 14 questions that sought to gather information on patients' demographic data such as age, employment status, monthly income, health care expenditure, means of healthcare financing, etc. Section B comprised of 9 items that focused on patients' knowledge regarding BPH, and section C and D focuses on barriers (8 items) and facilitators (7 items) to BPH surgical management respectively. Sections B and C items were structured on a five-point Likert scale ranging from "strongly disagree" to "strongly agree".

3.7 Validity of the instrument

The instrument was subjected to both face validity and content validity to ensure that the measure reflects the content of the concept in question (Cohen et al., 2011). To establish content validity, the instrument was made available to my supervisor as well as an

experienced urologist and a nurse at the urology department to assess its technicality and basics for easy understanding.

3.8 Reliability of the instrument

To establish the reliability of the questionnaire instrument, a pilot test was conducted among 15 respondents at Accra Regional Hospital formerly Ridge Hospital. Data from the pilot test was coded and input into the SPSS to check for the reliability coefficient using Cronbach alpha techniques.

3.9 Data analysis

The Statistical Package for Social Sciences (SPSS V 22.0) was used to analyze the data by employing descriptive and inferential statistics. The data were presented as means and standard deviations for continuous variables symmetrically distributed but as median and interquartile ranges for skewed continuous variables relationship.

The questionnaire was mostly closed questions and the other parts were dichotomous and five Likert scale questionnaire. The dichotomous scale questionnaire assessed their knowledge and the Likert scale assessed their barriers and facilitators to surgical BPH interventions. The Likert options chosen by the respondents were summed and mean values were calculated and used for further analysis. The independent variables are respondents' demographics e.g., age, marital status, economic status, etc., respondents' knowledge, income, age of onset of BPH, etc. Whereas the dependent or response variable is the urge to surgery as BPH management intervention. A logistic regression (univariate and multivariate) model was used to find factors (predictors) for the dependent variable.

3.10 Ethical considerations

Guidelines and Code of Ethics for Human research were observed in line with the Declaration of Helsinki-Ethical Principles for Medical Research involving Human Subjects

(64th WMA General Assembly, Fortaleza, Brazil October 2013). Ethical approval was obtained from the Institutional Review Board of KBTH. In addition, informed consent (Appendix I) was obtained from each participant before the administration of the questionnaire. The privacy of the participants was respected, and data collected from them was stored on a password-protected computer.

The management of the Urology department of Korle Bu Teaching Hospital and the nurse in charge of the ward and the outpatients department was notified in advance and approval was obtained before the commencement of the study.

3.12 Informed consent

Participation in the study was voluntary and subjects were informed to withdraw from the study at any time they wished. Informed consent was administered to participants. The content was explained in a clear language understood by participants. A person who consents to participate in the study signs or thumbprint on the consent form.

3.13 Risk or benefit/compensation

No known risk was associated with participating in the study and as such, no compensation was given to the participants. Though participants may not benefit directly from the study, the result of the study will help management plan and execute an effective system to manage BPH patients.

3.14 Confidentiality

Participants were assured of confidentiality. Names of participants was not captured on the questionnaires. Their information was protected and was used purposely for this study. Nowhere was the identity of participants exposed to a third party or in the study report.

CHAPTER FOUR

4.0 RESULTS

4.1 Introduction

The analysis and results of the field data are presented in this chapter. The analysis is based on the research questions and objectives that guide the study, this, therefore, leads to achieving the main purpose of the study.

4.2 Demographic Data/Characteristics of Respondents

The table below (Table 1) presents the summary of the demographic characteristics of the respondents. The study respondents were all males in respect of the topic being studied. Three hundred and ninety (390) respondents were questioned with a response rate of 92.5%. Three hundred and sixty-one (361) finally participated in the study. The mean age, as well as the standard deviation (SD), of respondents, was 68.8 (±9.8) years with the minimum age and maximum age of the respondents being 50 years and 95 years respectively. Less than half, thus 17.1% were 40 years and below while the majority of the respondents were 41year and above. A few of them had or were living in their own house.

More than half and thus 244(67.6%) of the respondents were not working thus either retired or unemployed. The majority of them were Christians 46% followed by Muslims 36.8%. The majority of them had their highest education as basic school levers they formed 31.0%, however, a few forming 22.7% had their highest education as tertiary levers. Only 8.6% (31) had an income of more than GHC 1500 a month

Table 4. 1: Demographic Data/Characteristics of Respondents

Variables		Frequency	Percent (%)	Cum. Percent (%)
Mean Age	68.8 (±9.8)	361		
Employment status		2	0.6	0.6
	Employed	115	31.9	32.4
	Pensioner	152	42.1	74.5
	Unemployed	92	25.5	100.0
	Total	361	100.0	
Religion	Atheist	7	1.9	1.9
	Christian	166	46.0	47.9
	Muslim	140	38.8	86.7
	Traditionalist	48	13.3	100.0
	Total	361	100.0	
What kind of home do you live in?	Family house	125	34.6	34.6
	Own house	91	25.2	59.8
	Rented compound	68	18.8	78.7
	Rented self-	77	21.3	100.0
	Total	361	100.0	
Highest Educational Level	Basic education	112	31.0	31.0
	No formal	59	16.3	47.4
	Senior high school	108	29.9	77.3
	Tertiary	82	22.7	100.0
	Total	361	100.0	
The average income per month	No response	58	16.1	16.1
	1500 +	31	8.6	24.7
	301-600	83	23.0	47.6
	601-900	118	32.7	80.3
	901-1200	71	19.7	100.0
	Total	361	100.0	

Source: Field Data 2021

4.3 Disease Condition Characteristics of Respondents

A majority (91.4%) of the respondents had the BPH condition for more than 4 years and above. Many of them (52.1%), specifically had the condition between 4-6 years. A majority (56.0%) of the respondents had been on catheter usage for 4-6 years. A lot of them (87.0%) had not undergone surgery before.

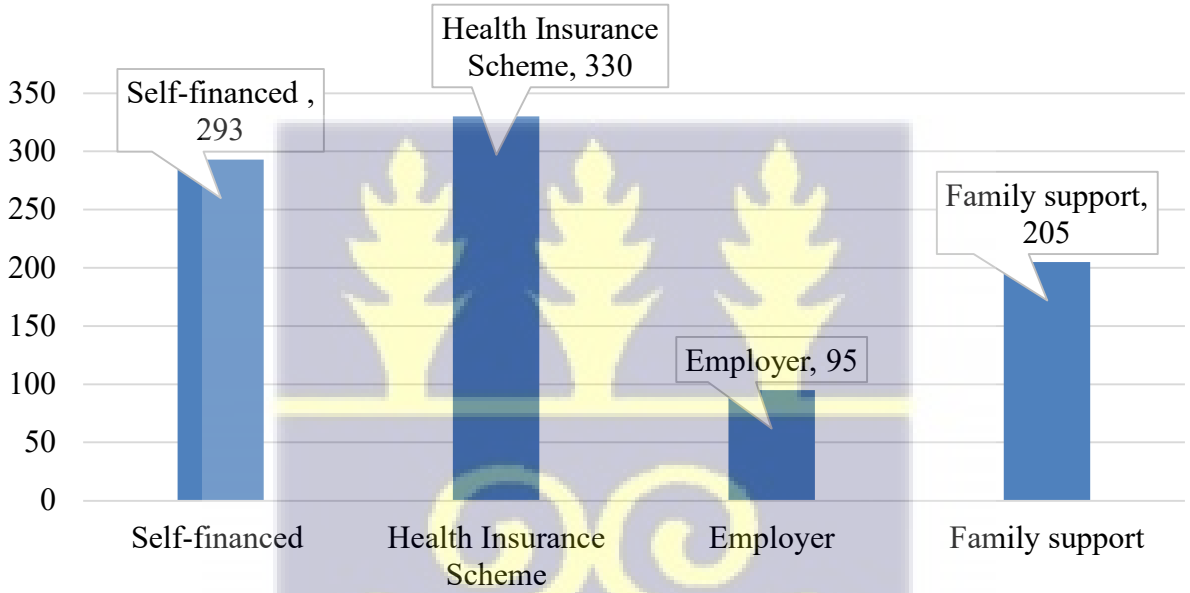
Table 4.2: Disease Condition Characteristics of Respondents

Variables		Frequency	Percent (%)	Cum. Percent (%)
How long have you been diagnosed with BPH?	1-3 years	31	8.6	8.6
	4-6 years	187	52.1	60.7
	7-9 years	106	29.5	90.3
	more than 9 years	35	9.7	100.0
	Total	361		
How long have you been on urinary catheter?	1-3 years	112	31.0	31.0
	4-6 years	202	56.0	87.0
	7-9 years	35	9.7	96.7
	more than 9 years	12	3.3	100.0
	Total	361	100.0	
Have you undergone surgery?	No	314	87.0	87.0
	Yes	47	13.0	100.0
	Total	361	100.0	
The average amount spent on each review for catheter change and Drugs	901-1200	47	13.0	13.0
	101-200	238	65.9	78.9
	201-300	74	20.5	99.4
	301- 400	2	0.6	100.0
	Total	361	100.0	
12. Have you ever considered undergoing surgery for BPH management?	No response	9	2.5	2.5
	No	183	50.7	53.2
	Yes	169	46.8	100.0
	Total	361	100.0	
13. Average amount spent in		314	87.0	87.0
	Less than GHC 50	47	13.0	100.0
	Total	361	100.0	

4.3 Hospital Financing of Respondents

When it came to how they financed treatment, some were self-financing, some had support from employers, family, and some used insurance. Those who did self-financing were a lot

Figure 4. 1: Financing BPH care



4.4.0 Knowledge of Respondents on BPH

The knowledge of respondents on BPH was almost proportional. Thus, almost half of them mentioned that aging is not a risk factor for BPH, men more than 60year aren't likely to experience BPH-related symptoms. Only a few (19.7%) said false to the question BPH can cause urine discomfort.

Table 4.3: Knowledge of Respondents on BPH

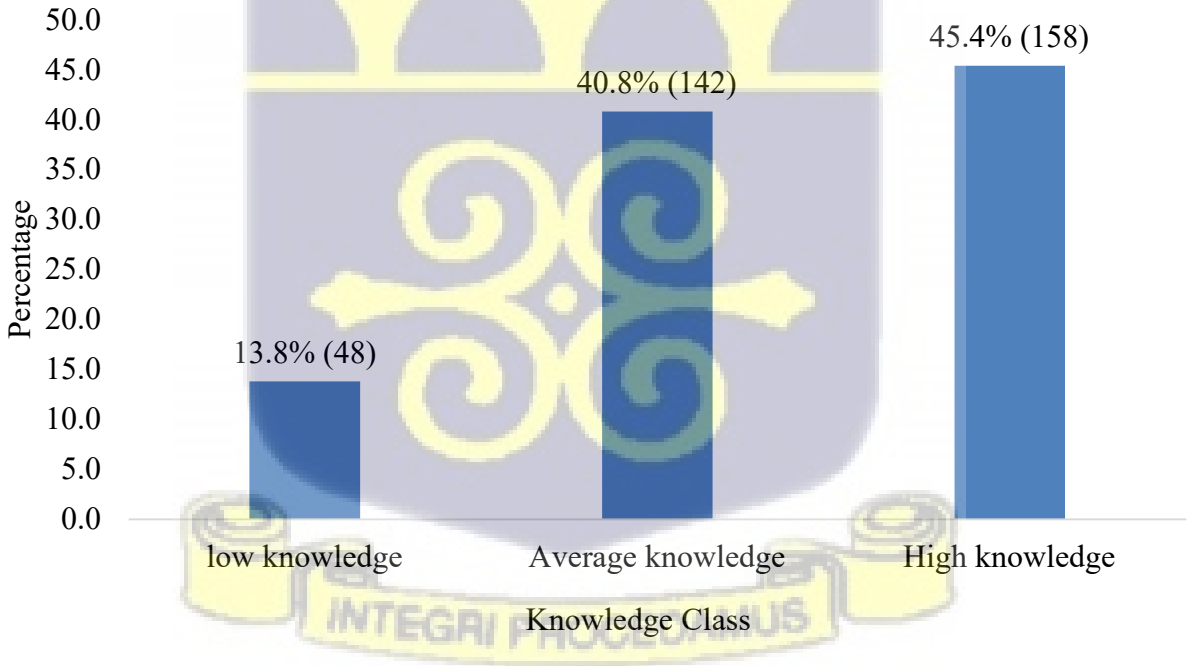
Variables		Frequency	Percent	Cum.
Aging is a risk factor for BPH	False	170	47.1	47.1
	True	191	52.9	100.0
Men more than 60 years likely to experience BPH-related	False	195	54.5	54.5
	True	163	45.5	100.0
	Total	358	100.0	
A unhealthy lifestyle can contribute to	False	185	51.7	51.7
	True	173	48.3	100.0
	Total	358	100.0	
BPH can cause urine discomfort	False	71	19.7	19.7
	True	289	80.3	100.0
	Total	360	100.0	
Ineffective management of BPH can lead to urinary complications	False	36	10.1	10.1
	True	322	89.9	100.0
	Total	358	100.0	
Poor management of BPH can cause Dysfunction	False	55	15.4	15.4
	True	303	84.6	100.0
	Total	358	100.0	
Medications can be used in the of BPH	False	85	23.6	23.6
	True	275	76.4	100.0
	Total	360	100.0	
BPH surgical management is the most effective treatment for BPH	False	172	47.9	47.9
	True	187	52.1	100.0

4.4.1 Knowledge Class of Respondents on BPH management

Figure 4.2 below shows the classification of the scores on respondents' knowledge of BPH management. Total scores were 8 marks. Low knowledge class was from 1-3 marks whiles average knowledge were marks from 4-5 and High knowledge were 6 marks and above. A greater proportion 45.4% representing 158 out of the 348 of the respondents had high knowledge. Those who had relatively low knowledge were 13.8% representing 48 respondents out of the total respondents (348).

Overall, the majority of the respondents scored above average forming or constituting 86.2% thus 300 respondents out of the total.

Figure 4.2: Knowledge Class of Respondents on BPH management



4.5 Barriers to BPH management intervention.

Generally, about to the means, most of the responses were skewed toward Disagree than compared with Agree/Strongly Agree. The higher the mean (>3) the weightier the barriers. The majority (49.3%) rarely have not been informed about BPH surgical management options, thus they are usually informed about BPH surgical management options. Many (48.5%) too were certain about the outcome of this intervention. Only a few (36.5%) were scared BPH management can affect their sexual function.

Table 4.4: Barriers to BPH management intervention.

Questions	Scale	Freq.	Percent	Cum Per	Means
I have not been informed about BPH surgical management as a treatment option	Strongly disagree	47	13.0	13.0	2.85
	Disagree	131	36.3	49.3	
	Uncertain	57	15.8	65.1	
	Agree	82	22.7	87.8	
	Strongly Agree	44	12.2	100.0	
	Total	361	100.0		
I am uncertain about the outcome of BPH surgical intervention	Strongly Disagree	53	14.7	14.7	2.85
	Disagree	122	33.8	48.5	
	Uncertain	55	15.2	63.7	
	Agree	88	24.4	88.1	
	Strongly Agree	43	11.9	100.0	
	Total	361	100.0		
I am scared that surgical management of BPH can lead to complications.	Strongly Disagree	52	14.4	14.4	2.85
	Disagree	123	34.1	48.5	
	Uncertain	54	15.0	63.4	
	Agree	90	24.9	88.4	
	Strongly Agree	42	11.6	100.0	
	Total	361	100.0		
I am scared surgical management of BPH can affect my sexual functioning	Strongly Disagree	51	14.1	14.1	2.91
	Disagree	119	33.0	47.1	
	Uncertain	54	15.0	62.0	
	Agree	87	24.1	86.1	
	Strongly Agree	50	13.9	100.0	

Source: Field Data 2021

Few of them (38.6%) mentioned that they agree or strongly agree cannot afford BPH surgical management. They (33.8%) mentioned that taking medication serves the same purpose as surgical management. Similarly, 39.1% hospital-related challenges were a barrier from them getting surgical care.

Table 4.5: Barriers to BPH management intervention.

Questions	Scale	Frequency	Percent	Cum Per	Means
I cannot afford the cost of BPH surgical management	Strongly Disagree	64	17.7	17.7	2.96
	Disagree	111	30.7	48.5	
	Uncertain	50	13.9	62.3	
	Agree	47	13.0	75.3	
	Strongly Agree	89	24.7	100.0	
	Total	361	100.0		
I am unable to get surgical care at my request because of hospital-related challenges	Strongly Disagree	59	16.3	16.3	2.95
	Disagree	116	32.1	48.5	
	Uncertain	45	12.5	60.9	
	Agree	66	18.3	79.2	
	Strongly Agree	75	20.8	100.0	
	Total	361	100.0		
Taking medications for BPH management serves the same purpose as surgical management	Strongly Disagree	74	20.5	20.5	2.77
	Rarely	110	30.5	51.0	
	Uncertain	55	15.2	66.2	
	Agree	70	19.4	85.6	
	Strongly Agree	52	14.4	100.0	
	Total	361	100.0		
I have another medical condition	System	361			

Source: Field Data 2021

4.6 Motivation to undergo BPH management intervention

Generally, their responses were more skewed to agreeing than disagreeing. Many (57.8%) has the motivation to undergo BPH surgical management because it would avoid BPH of avoiding complications. Relatively, the majority 42.2% will want to undergo the treatment if they had the means to do so as compared to those who will not. Many agree on that surgical treatment will relieve them from bothersome symptoms.

Table 4.6: Motivation to undergo BPH management intervention.

Questions	Scale	Freq.	Per (%)	Cum. Per (%)	Means
I will undergo surgery as a treatment option if I can afford it.	Strongly Disagree	54	16.8	16.8	3.01
	Disagree	67	20.8	37.6	
	Undecided	65	20.2	57.8	
	Agree	94	29.2	87.0	
	Strongly Agree	42	13.0	100.0	
	Total	322	100.0		
I want to avoid BPH complications	Strongly Disagree	23	6.9	6.9	3.20
	Disagree	76	22.9	29.8	
	Undecided	84	25.3	55.1	
	Agree	108	32.5	87.7	
	Strongly Agree	41	12.3	100.0	
	Total	332	100.0		
Surgical management of BPH will relieve me of bothersome symptoms	Strongly Disagree	35	10.6	10.6	3.16
	Disagree	64	19.3	29.9	
	Undecided	83	25.1	55.0	
	Agree	112	33.8	88.8	
	Strongly Agree	37	11.2	100.0	
	Total	331	100.0		
I will undergo surgery for BPH if the family is willing to support	Strongly Disagree	46	14.2	14.2	3.07
	Disagree	72	22.2	36.4	
	Undecided	68	21.0	57.4	
	Agree	88	27.2	84.6	
	Strongly Agree	50	15.4	100.0	
	Total	324	100.0		

Source: Field Data 2021

4.7 Motivation to undergo BPH management intervention

The majority (49.5%) take the motivation from the fact that BPH symptoms are bothersome. With respect to the mean figure (3.1), there were approximately equal responses across to doing surgery after education on the advantages and disadvantages. 56.9% disagreed and/ or were undecided to choose surgical intervention even if the urology department was ready for the procedure.

Table 4.7: Motivation to undergo BPH management intervention

Questions	Scale	Freq.	Percent	Cum Per	Means
I consider my BPH symptoms as bothersome	Strongly	26	7.9	7.9	3.32
	Disagree	55	16.7	24.6	
	Undecided	85	25.8	50.5	
	Agree	113	34.3	84.8	
	Strongly	50	15.2	100.0	
	Total	329	100.0		
I am ready for surgical management for BPH once educated on the advantages and disadvantages	Strongly	59	18.2	18.2	3.10
	Disagree	66	20.3	38.5	
	Undecided	61	18.8	57.2	
	Agree	63	19.4	76.6	
	Strongly	76	23.4	100.0	
	Total	325	100.0		
I am prepared for BPH surgical intervention provided the urological unit is ready for the procedure	Strongly	66	20.6	20.6	3.10
	Disagree	55	17.2	37.8	
	Undecided	61	19.1	56.9	
	Agree	56	17.5	74.4	
	Strongly	82	25.6	100.0	
	Total	320	100.0		

Source: Field Data 2021

4.8 Motivation and barriers scores to surgical BPH

Table 4.8 below presents the summary of the scored weights of the motivations and barriers that hinder respondents to undertake surgical intervention in the management of BPH. The mean motivation was above average (3.12) however the standard deviation was quite large (1.22) almost half of the mean value (3.12) signifying observation values far apart. The barriers had a mean of 2.88 with a relatively small standard deviation signifying observational values close around the mean.

The score of barriers to BPH surgical intervention and the motivations to Surgical BPH management were approximately normally distributed

Table 4.8: Score of motivation and Barriers for surgical BPH

Variables	Barriers (n=361)	Motivation (n=349)
Mean	2.88	3.12
Median	3.00	3.00
Std. Deviation	1.06	1.22
Skewness	0.01	-0.08
Std. Error of Skewness	0.13	0.13
Range	4.00	4.00
Minimum	1.00	1.00
Maximum	5.00	5.00

4.9 Univariate predictors for surgical intervention in the management of BPH

As shown in Table 4.9, significant predictors were found between the respondent's age (p=0.00), age of the first diagnosis (p=0.00), duration of diagnosis (p=0.00), years of wearing catheter (p=0.00), knowledge scores (p=0.00), education (p=0.00) and barriers to surgical intervention in BPH management (p=0.00). Motivation had no significant effect on surgical intervention.

Table 4.9: Univariate predictors for surgical intervention in the management of BPH

Predictors	**Surgical Intervention**			
	OR	**95%CL**	**Wald(df)**	**P-value**
Age	1.11	1.09-1.15	54.4(1)	0.00
Age of diagnosis	1.11	1.07-1.14	41.3(1)	0.00
Duration of Diagnosis	1.55	1.35-1.77	42.1(1)	0.002
Years on Catheter	2.55	2.03-3.195	65.2(1)	0.000
Knowledge Score	1.51	1.14-2.00	8.2(1)	0.004
Education			30.0(3)	0.00
Tertiary	0.057	0.02-0.17	25.0(1)	0.00
Senior High	0.056	0.02-0.16	26.5(1)	0.00
Basic	0.102	0.03-0.30	16.7(1)	0.00
No Education	1			
Means of paying				
Self & support	3.37	1.80-6.28	14.5(1)	0.00
External without self	1			
Barriers	20.7	10.8-39.8	83.1(1)	0.00
Motivation	0.13	0.11-0.54	2.32(1)	0.92

Confidence Interval =CL, Degrees of Freedom =df, Odds Ratio= OR, Significance= P-value

4.10 Multivariate predictors for surgical intervention in the management of BPH

Predictors with a p-value lesser than 0.25 in the Table 4.9 were included in purposeful multivariate analysis using the logistic regression method as shown in Table 4.10 below. The dependent variable was "I am ready to undertake surgical intervention" (with reference made to I will do) since there was more likelihood of "not doing surgery" than "I will do". Overall, the model was significant (X^2 =283.56 p<0.00) when compared to the null model and explains 81.2% (Nagelkerke R^2) of the variation in the dependent (see appendix).Age had odds of 1.07 of not doing surgery with every unit age increase. For every unit increase in knowledge of their condition decreases the likelihood of rejecting surgery intervention as an option for BPH by the odds of 0.59 or decreases the likelihood of rejecting surgery intervention by 41.0%. Similarly, an increase in the age of diagnosis decreases the likelihood of rejecting surgery intervention as an option for BPH by the odds of 0.45 or decreases the likelihood of rejecting surgery intervention by 55.0%.

Wearing of catheter has odds of 5.3 of rejecting BPH surgical intervention with every unit increase in catheter wearing years.

Barriers has an odds of 22.0 of rejecting surgical intervention of BPH with unit increase in number of barriers.

Table 4.10: Multivariate predictors for surgical intervention in the management of BPH

Predictors	Surgical Intervention			
	AOR	95%CL	Wald(df)	P-value
Age	1.07	1.00-1.11	4.8(1)	0.02*
Age of diagnosis	0.45	0.29-0.68	13.9(1)	0.00*
Years on Catheter	5.3	2.77-10.22	25.1(1)	0.00*
Knowledge Score	0.59	0.44-0.83	9.8(1)	0.00*
Barriers	22.0	9.44-51.3	51.2(1)	0.00*

Confidence Interval =CL, Degrees of Freedom =df, Odds Ratio= OR, Significance= P-value

CHAPTER FIVE

5.0 DISCUSSION

5.0 Introduction

This chapter highlights the main findings and compares and contrasts with other study findings done in Ghana, West Africa, and the World. These are done in line with the study objectives. Recommendations are outlined as well.

5.1 Knowledge of Respondents on BPH management

Knowledge of a disease condition is essential in making the right choices According to Hahn and Truman (2005) "Lack of knowledge of a disease is a factor to makes them neglect to come late for medical advice. The delay to present to hospital and the complication arising from prostatic enlargement play a role in the occurrence of death" (Hahn & Truman, 2005, pp. 657-678)

A greater proportion (45.4%) representing of the respondents had "high knowledge". Those who had relatively low knowledge were 13.8%. In general, in this study majority of the respondents (86.2%) had above-average scores with respect to knowing their condition. This was contrary to a study conducted in Nigeria where patients had low knowledge about their condition, BPH (Ojewola, et al., 2017). Low knowledge of prostate conditions was also found among patients in Zambia in a more current study where 36.2% had low knowledge. The same (low knowledge) was found among patients in Burkina Faso in 2014 (Kabore, Kambou, B, & A, 2014), in Sokoto in Nigeria in 2018 (Wosan, Yunusa, Agwu, & Taofiq, 2018) , and Kenya (Kinyao & Kishoyina, 2018). Similarly, a study conducted in Korea in 2011 found that approximately 60% of the respondents (patients) had low knowledge, thus they specifically misunderstood BPH and its management, and the risk for it progressing to a prostate cancer (Kim et al., 2011).

The findings in comparison to studies conducted in Africa seem to consistently contradict in that many study findings saw low knowledge levels of patients. A study in South Eastern Nigeria claimed that "The respondents had poor knowledge of the signs and symptoms of BPH. A range of 75.4% to 96.7 % of the respondents, that is a mean population of 85.6 % (x = 85.6%) did not know the signs and symptoms of BPH" (Kalu, et al., 2020).

5.2 Barriers to BPH management intervention.

Researchers claim "Lower urinary tract symptoms due to BPH is increasing in frequency in Ghana due to increasing life expectancy of the male population. Open prostatectomy (transversal/ retropubic) has been the surgical method mostly used in Ghana. The reasons include large prostate size, unreliable electricity, and limited access to facilities for TURP" (Kyei, et al., 2012).

In this study (48.5%). many of the respondents were certain about the outcomes of surgical intervention of BPH management, despite its capacity to manage BPH it was a barrier to them undertaking it since side effects were involved. Further 36.5% of them were scared that the surgical intervention can lead to complications later. This is similar to a claim from a medical review article that says that "with any BPH surgery, there may be side effects or complications such as bleeding, narrowing of the urine tube also known as urethral stricture, urinary incontinence or leakage, erectile dysfunction, and retrograde ejaculation" (Bandukwala, 2020, para.10).

Other barriers patients noted were the cost involved in the intervention, hospital-related challenges such as crowded patients over medical consultation, and readiness of the facility to undertake surgery. These barriers were similar to other claims for instance in developed countries there is also a high cost related to the surgical intervention of BPH. According to Gill and Ulchaker 2019, they claim that "at Cleveland Clinic, surgical costs, based on 2017 Medicare

reimbursement, ranged from $1,677 for outpatient transurethral resection of the prostate (TURP) to $2,127 for laser prostatectomy, with higher costs for procedures warranting inpatient status. Some cost-related factors include operative and convalescent time and equipment costs" (Gill & Ulchaker, 2019, para. 7).

Similarly, income levels of socioeconomic status of patients resolve a great barrier since the cost of surgery as well as related post-care is very high. Buttressed by a finding a study finding mentioned that low-income levels of patients were part of the factors that lead to the utilization of traditional medicines among Ghanaians avoiding surgical interventions (Gyasi, Mensah, & Siaw, 2015).

Consistently in Ghana, due to these factors, a patient may want to avoid the headache involved and resolve other alternative treatment which comparably has less of these barriers and as well in their perspective can produce the same outcome such as herbal medicine treatment (Ampofo, Andoh, Tetteh, & Bello, 2012). Others also claim "we think that the issue of preoperative catheterization may be related not only to public health and educational issues but also to cultural barriers that lead to a delayed search for medical help and, after receiving medical help, a delay in undergoing a proper urological evaluation" (Marmiroli, Antunes, Reis, Nakano, & Srougi, 2012).

5.3 Factors facilitating surgical intervention as a treatment option for BPH

The study found that the factors that facilitate surgical intervention as a treatment option for BPH are having knowledge and the age of diagnosis. It found that for every unit increase in knowledge of their condition decreases the likelihood of rejecting surgery intervention as an option for BPH by the odds of 0.59 or decreases the likelihood of rejecting surgery intervention by 41.0%. Similarly, an increase in the age of diagnosis decreases the rejecting surgery intervention as an option for BPH by the odds of 0.45 or decreases the likelihood of

rejecting surgery intervention by 55.0%. An article outlines factors that may lead to choosing surgical intervention as an option for BPH treatment, they outlined patient knowledge and evaluation, knowing treatment outcomes achievable by available treatment options; patient preferences, disease progression, etc. (Barber & Keng, 2021). Similarly, the European Association of Urology guidelines states that "factors influencing the choice of treatment include findings from the patient evaluation; the ability of the treatment to change the findings; patient preferences; expectations regarding speed of onset, efficacy, side effects, and QoL; and disease progression. Behavioral modifications, with or without pharmacological treatments, should be considered as the first choice of therapy" (European Association of Urology, 2021).

It is claimed that the medical therapy treatment option for BPH as compared to the surgical intervention option for BPH has a different impact on the bladder. A study into this difference found that "there was an improvement in all parameters except for bladder resistive index which improved after TURP but not alpha-blocker". The findings imply a higher rate of retention and hydronephrosis in patients who were treated with long-term medical therapy (Bulut et al., 2015; Fogaing et al., 2021). The findings suggest surgical intervention is better as compared to medical therapy and urologists will likely recommend surgical intervention to BPH patients.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATION

6.1 Conclusion.

Close to half of the respondents had "high knowledge" on surgical intervention in the management of BPH and more than half disagreed and/ or were uncertain to choose surgical intervention. Patient's age, age of diagnosis, years of wearing catheter, knowledge scores and, general barriers were significant factors in predicting uptake of surgery as BPH intervention.

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6.2 Recommendation.

- Consistent and intensive education detailing BPH signs and symptoms and its management as well as surgical intervention and outcomes should be done as it facilitates the likelihood of opting for surgical intervention.
- Worksite health education should be included in health educational talks to create awareness and knowledge for the prevention of prostate conditions through lifestyle as a higher proportion of men encounters prostate issues when aging.
- Media houses through the use of television and radio programs should be encouraged to allot slots for mass education in the various local dialect to encourage reach the populace with regard to benign prostatic hyperplasia.
- The ministry of health should also set up counselling and information centers in the various health facilities to encourage patients and the general populace to have access to information about their health and especially with regard to the various genders and peculiar issues that pertain to them.

- Lastly, the ministry of health should liaise with the ministry of education so that awareness campaign education can be started right from the basic school level.

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APPENDIX I

PARTICIPANTS INFORMATION SHEET

Title of Study: Assessing the knowledge, facilitators and barriers to surgical management of BPH; A study at the Korle Bu Teaching Hospital.

Introduction: I am Eunice Adubea Sarkodie (Principal Investigator), an MPH student of School of Public Health, University of Ghana. I am undertaking this research in partial fulfilment for the award of a Master of Public Health. My contact details are, Tel: 0264826725 and Email: adubsarks@gmail.com

Background and purpose of research:

BPH is linked with aging and identified as the most common cause of lower urinary tract infection among men aged 50 years and above. It can lead to complications such as refractory urinary retention, bladder stones, and renal insufficiency as a results of obstructive uropathy infection. In addition, BPH can also decreased sexual functioning. Appropriate and effective management of BPH using surgical techniques may not only avert complications associated with BPH but also improve quality of life for such patients. This raises questions on the low uptake of surgical management of BPH.

Nature of research: This is a cross-sectional study and will take place at the urology department of the Korle Bu Teaching Hospital. Three hundred and fifty five (355) patients with BPH attending the unit of the hospital will be included in the study. This research is about Benign Prostatic Hyperplasia. The study aims to assess the knowledge barriers and facilitators to surgical management of BPH among clients diagnosed of BPH Hospital and to examine the knowledge level of patients with BPH at KBTH with regards to their condition

and also investigate the barriers to surgical intervention and assess the factors that facilitate uptake of the surgical intervention. The findings from this study will improve the management of BPH surgically.

Participant's involvement

Duration / what is involved: Participants are required to be diagnosed of BPH and on urethral catheter. Your participation in the study will require you answer certain questions on socio-demography (age, sex, marital status, level of education, religion and employment status, accommodation, income etc), knowledge level among patients diagnosed with BPH and barriers or motivating factors to uptake of surgical intervention to BPH. This will approximately take 10 minutes. Either the Principal Investigator or Research Assistants will do the administration of the questionnaire.

Potential Risks: Minimal risk is anticipated since some questions might be discomforting. You may however choose not to answer questions that appear discomforting to you.

Benefits: There is no direct benefit participating in this study. The findings from this study will however contribute to effective management of BPH.

Costs: There will be no cost for participating in the study.

Compensation: There is no compensation for participating in this study.

Confidentiality: We will protect information about you and you're taking part in this research to the best of our ability. The information will purposely be used for research and will not be used against you. Your name will not be captured on the questionnaire and neither will you be named in any of our reports. The Principal Investigator and supervisor will sometimes review the research documents, but no unauthorized person will have access to your information.

Voluntary Participation/withdrawal: Your participation in this research is voluntary and you are at liberty to withdraw from the study at any time without it affecting your further medical care in any way. During the interview, you also have the right not to answer questions that are not comfortable to you.

Outcome and Feedback: Data collected will only be used for this study. No feedback on the data will be given to participants.

Appropriate alternatives Procedure and Treatment: You do not have to participate in the research in order to receive care.

Feedback to participant: No direct feedback of findings will be communicated to participants. However, recommendations from the study findings will be shared with the hospital for possible adoption to improve the urology department.

Funding information: This research is self-financed by the Principal Investigator.

Sharing of participants Information/Data: Data generated from the study will only be used for the purposes of this research. The Principal Investigator will own the data and only the team members of the research will have access to the data. No unauthorized person will have access to participants' information. Should the research be published at any point in time, clearance will be obtained from the Instructional Review Board, Korle Bu Teaching Hospital

Who to Contacts for Further Clarification/Questions: If you have further questions or issues regarding this study, which require clarification, you may contact:

Eunice Adubea Sarkodie (Principal Investigator) – +233264826725

APPENDIX II

Consent Form

Title of the Study: Assessment of Knowledge, Barriers and Facilitators to Surgical Management of Benign Prostatic Hyperplasia (BPH) A Study At The Korle Bu Teaching Hospital.

Participants' Statement

I acknowledge that I have read or have had the purpose and contents of the Participants' Information Sheet read and satisfactorily explained to me in a language I understand (English□/ Twi□). I fully understand the contents and any potential implications as well as my right to change my mind (ie withdraw from the research) even after I have signed this form.

I voluntarily agree to be part of this research.

Initials of Participant…….. ID Code ……..

Participants' Signature ……OR Thumb Print…… OR Mark (Please specify)…….

Date:……

Interpreters' Statement

I interpreted the purpose and contents of the Participants' Information Sheet to therefore named participant to the best of my ability in the Twi language to his proper understanding.

All questions, appropriate clarifications sort by the participant and answers were also duly interpreted to his/her satisfaction.

Name of Interpreter……

Signature of Interpreter…….. Date:……

Contact Details

Statement of Witness

I was present when the purpose and contents of the Participant Information Sheet was read and explained satisfactorily to the participant in the language he/she understood (English□ / Twi□).

I confirm that he/she was given the opportunity to ask questions/seek clarifications and same were duly answered to his/her satisfaction before voluntarily agreeing to be part of the research.

Name:……

Signature……. OR Thumb Print …….... OR Mark (please specify)……..

Date:……

Investigator Statement and Signature

I certify that the participant has been given ample time to read and learn about the study. All questions and clarifications raised by the participant have been addressed.

Researcher's name……

Signature …….

Date……

APPENDIX III

Study Questionnaire

Structured questionnaire for patients with BPH

I am conducting a research on the topic: **" knowledge, barriers and facilitators to surgical management of benign prostate hyperplasia (BPH): A study at Urological department of Korle-Bu Teaching Hospital, Ghana.** This structured questionnaire is designed to find out find factors that motivate or deter you from undergoing BPH surgical management as a treatment option. If this study is to be useful, it is important that you answer each question as thoughtfully and frankly as possible. Your answers to these questions will be kept completely confidential. Thank you for your cooperation and assistance.

SECTION A

Demographic Data

1. Age: …….
2. Employment status
   a. Employed [ ]
   b. Unemployed [ ]
   c. Pensioner [ ]
3. Religion (Please select from the following):
   a. Christian b. Muslim c. Traditionalist d. Atheist e. Other: …….
4. What kind of home do you live in?
   a. Rented self-contained house b. Rented compound house
   c. Family house d. Own house e. Other (specify)……..
5. Highest Educational Level
   a. No formal education [ ]

b. Basic education [ ]

c. Senior High School [ ]

d. Tertiary [ ]

6. Age of first onset of BPH symptoms and diagnosis (Please state)……

7. How long have you been diagnosed with BPH? (Please state number of years).....

8. How long have you been on urinary catheter as an adjunct means of BPH management? (Please state number of years).....

9. Average income per month

a. Less than GHC 300 b. GHC 301-600 c. GHC 601-900

d. GHC 901-1 200 e. GHC 1201 – 1500 f. GHC 1500 +

10. Have you undergone surgery as a means of managing your BPH?

a. Yes (If yes answer and skip to question 12) [ ]

b. No (If No, continue from question 11, 12 and then skip to question 14) [ ]

11. Average amount spent in each review for catheter change and drugs (Answer and skip to question 13 if on surgical management)

a. Less than GHC 100 b. GHC 101-200 c. GHC 201-300

d. GHC 301- 400 e. GHC 401 – 500 f. GHC 501 and above

12. Have you ever considered undergoing surgery for BPH management?

a. Yes

b. No

13. Average amount spent in review following surgical BPH management

a. Less than GHC 50 b. GHC 100-200 c. GHC 200-300

d. GHC 300- 400 e. GHC 400 – 500 f. GHC 501 and above

14. Means of financing healthcare

a. Self-financed / Out-of-pocket payment [ ]

b. Health Insurance Scheme (specify eg. NHIS) [ ]

c. Employer / Former employer [ ]

d. Family support [ ]

e. Others (specify)……..……..

Section B: Knowledge of BPH among patient diagnosed with condition

Please indicate your response by ticking **(√) YES** or **NO** in the box next to the following questions with regards BPH.

Statements	**True**	**False**
15. BPH is a medical condition that affects men and not women		
16. Ageing is a risk factor for BPH		
17. Men of age 60 years and above are more likely to experience BPH related symptoms.		
18. Unhealthy lifestyle (alcohol intake, smoking, poor eating habit) can contribute to BPH		
19. BPH can cause urine discomfort (eg. dysuria, nocturia, urine incontinence)		
20. Ineffective management of BPH can lead to urinary complications (urine retention, recurrent urinary tract infections etc).		
21. Poor management of BPH can cause erectile dysfunction		
22. Medications can be used in the management of BPH		
23. BPH surgical management is the most effective treatment for BPH		

Section C: Please indicate the extent to which the following statements serve as a barrier to you in terms of undergoing surgery as a BPH management intervention.

Statement	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
24. I have not be informed about BPH surgical management as a treatment option					
25. I am uncertain about the outcome of BPH surgical intervention					
26. I am scared that surgical management of BPH can lead to complications.					
27. I am scared surgical management of BPH can affect my sexual functioning					
28. I cannot afford the cost of BPH surgical management					
29. I am unable to get surgical care at my request because of hospital related challenges (eg. human resource (specialists), malfunctioning equipment etc)					

30. Taking medications for BPH management serves the same purpose as surgical management					
31. I have another medical condition that makes it inappropriate for me to undergo surgery					

Section D: Please indicate your level of agreement or disagreement to the following statements in terms of how it serves as a motivation to undergo BPH surgical management.

NB; SD- Strongly Disagree, *D-Disagree, U-Undecided, A- Agree, SA-Strongly Agree*

Statement	**SD**	**D**	**U**	**A**	**SA**
32. I will undergo surgery as a treatment option if I can afford.					
33. I want to avoid BPH complications					
34. Surgical management of BPH will relief me of bothersome symptoms (eg.					
35. I will undergo surgery for BPH if my family is willing to support					
36. I consider my BPH symptoms as bothersome					

37. I am ready for surgical management for BPH once educated on the advantages and disadvantages					
38. I am prepared for BPH surgical intervention provided the urological unit is ready for the procedure					

Thank You

Regression Tables

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	283.546	5	.000
	Block	283.546	5	.000
	Model	283.546	5	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	133.746[a]	.605	.812

a. Estimation terminated at iteration number 7 because parameter estimates changed by less than .001.

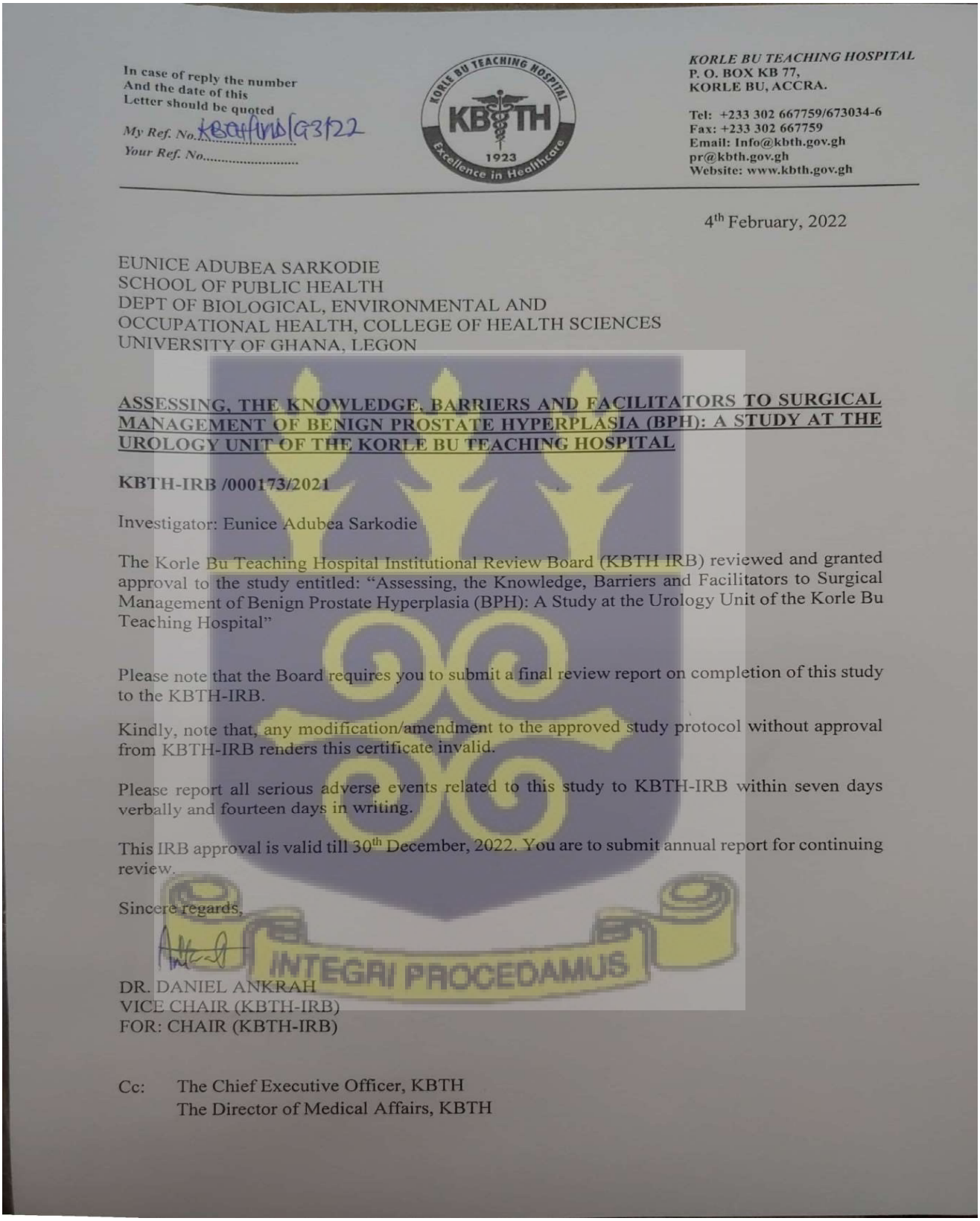
Classification Table[a]

			Predicted		
			dep2_logreg		Percentage
	Observed		do	undo	Correct
Step 1	dep2_logreg	do	118	14	89.4
		undo	10	163	94.2
	Overall Percentage				92.1

a. The cut value is .500

APPENDIX IV

Ethical Clearance



In case of reply the number
And the date of this
Letter should be quoted
My Ref. No. KBTH/IRB/93/22
Your Ref. No.....

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4th February, 2022

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ASSESSING, THE KNOWLEDGE, BARRIERS AND FACILITATORS TO SURGICAL MANAGEMENT OF BENIGN PROSTATE HYPERPLASIA (BPH): A STUDY AT THE UROLOGY UNIT OF THE KORLE BU TEACHING HOSPITAL

KBTH-IRB /000173/2021

Investigator: Eunice Adubea Sarkodie

The Korle Bu Teaching Hospital Institutional Review Board (KBTH IRB) reviewed and granted approval to the study entitled: "Assessing, the Knowledge, Barriers and Facilitators to Surgical Management of Benign Prostate Hyperplasia (BPH): A Study at the Urology Unit of the Korle Bu Teaching Hospital"

Please note that the Board requires you to submit a final review report on completion of this study to the KBTH-IRB.

Kindly, note that, any modification/amendment to the approved study protocol without approval from KBTH-IRB renders this certificate invalid.

Please report all serious adverse events related to this study to KBTH-IRB within seven days verbally and fourteen days in writing.

This IRB approval is valid till 30th December, 2022. You are to submit annual report for continuing review.

Sincere regards,

INTEGRI PROCEDAMUS

DR. DANIEL ANKRAH
VICE CHAIR (KBTH-IRB)
FOR: CHAIR (KBTH-IRB)

Cc: The Chief Executive Officer, KBTH
The Director of Medical Affairs, KBTH