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CHARACTERISTICS OF PATIENTS WITH SUSPECTED BENIGN PROSTATIC HYPERPLASIA BASED ON AGE, OCCUPATION, AND EDUCATION LEVEL AT THE PUSKESMAS TANRALILI MAROS 2022-2023 PERIOD : A RETROSPECTIVE CROSS-SECTIONAL STUDY

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ABSTRAK
Benign *prostatic* hyperplasia (BPH) adalah diagnosis histologis yang mengacu pada proliferasi jaringan epitel dan otot polos di dalam zona transisi prostat. BPH sering menyebabkan disfungsi pada saluran kemih bagian bawah pria dan paling sering terjadi pada pria lanjut usia. Sekitar 18-25% pria berusia di atas 40 tahun dan lebih dari 90% pria di atas 80 tahun mengalami BPH. Penelitian ini menggunakan metode deskriptif retrospektif cross-sectional dengan menggunakan teknik total populasi sampling. Data diperoleh melalui rekam medis periode 2022-2023 di Puskesmas Tanralili dan diperoleh 21 rekam medis yang didiagnosis suspek BPH oleh Dokter Umum di Puskesmas Tanralili. Pengolahan data dilakukan dengan menggunakan Microsoft Excel 2016. Hasil penelitian menunjukkan prevalensi BPH pada tahun 2022 sebanyak 9 pasien (42,85%) dan pada tahun 2023 terjadi peningkatan sebanyak 12 pasien (57,14%). Disimpulkan bahwa prevalensi BPH tertinggi pada rentang usia 60-69 tahun sebanyak 10 pasien (47,61%), dan prevalensi terendah pada rentang usia 40-49 tahun sebanyak 3 pasien (14,28%). Prevalensi BPH tertinggi pada kategori pekerjaan adalah petani sebanyak 13 pasien (61,90%) dan prevalensi terendah masing-masing 1 pasien adalah pensiunan, TNI/POLRI, dan PNS (4,76%). Prevalensi BPH tertinggi pada kategori tingkat pendidikan adalah SD sebanyak 12 pasien (57,14%) dan terendah pada ≥ D3 sebanyak 1 pasien (4,76%).

Kata kunci **:** BPH, pekerjaan, tingkat pendidikan, usia

ABSTRACT
Benign prostatic hyperplasia (BPH) is a histologic diagnosis that refers to the proliferation of epithelial tissue and smooth muscle within the prostatic transition zone. BPH often causes dysfunction in the male lower urinary tract and is most common in older men. About 18-25% of men over 40 years of age and more than 90% of men over 80 years of age experience BPH. The purpose of this study was to determine the characteristics of Benign Prostatic Hyperplasia patients based on age, occupation, and education level. This study uses a cross-sectional retrospective descriptive method using a total population sampling technique. Data obtained through medical records for the period 2022-2023 at Puskesmas Tanralili and obtained 21 medical records diagnosed suspicion of BPH by a General Practitioner at Puskesmas Tanralili. Data processing is carried out with using Microsoft Excel 2016. The results showed that the prevalence of BPH in 2022 was 9 patients (42.85%) and in 2023 there was an increase of 12 patients (57.14%). It was concluded that the highest prevalence of BPH was in the 60-69 year age range as many as 10 patients (47.61%), and the lowest prevalence was in the 40-49 year age range as many as 3 patients (14.28%). The highest prevalence of BPH in the occupational category was farmers with 13 patients (61.90%) and the lowest prevalence of 1 patient each was retirees, TNI/POLRI, and civil servants (4.76%). The highest prevalence of BPH in the education level category was elementary school with 12 patients (57.14%) and the lowest was ≥ D3 with 1 patient (4.76%).

Keywords **:** *age, BPH, occupation, education level*

INTRODUCTION

Benign Prostatic Hyperplasia (BPH) is a histopathological term, namely the presence of hyperplasia of stromal cells and epithelial cells of the prostate gland and is benign (Satriawan

et al., 2021). Histopathologically, the prostate gland consists of glandular and stromal components. The stroma consists of smooth muscle, striate muscle, fibroblasts, blood vessels, nerves and other supporting tissues. The prostate produces a fluid that is one of the components of semen or ejaculate. This fluid is flowed through the secretory duct and empties into the posterior urethra to be released along with semen during ejaculation. The volume of prostatic fluid that comes out is about 25% of the overall ejaculate fluid.(Malbos, 2022).

Anatomically, the prostate gland surrounds the posterior urethra (pars prostatica and membranasea) so that in BPH conditions the prostate gland experiences enlargement. An enlarged prostate gland will cause narrowing because it presses on the posterior urethra and ultimately causes obstruction of urine flow (urinary retention) which will result in static urine which will increase the risk of urinary tract stone formation and urinary tract infections (UTI). BPH also results in increased intravesical pressure. Contractions of the urinary bladder must be stronger to expel urine.(Maulana, 2021). Historically, the term BPH (Benign Prostatic Hyperlasia) was used to describe a disease characterized by urinary tract dysfunction which is the result of obstruction of the urinary tract due to an enlarged prostate. Enlargement of the prostate with age and having testicles that can still produce testosterone.(Alfiansyah et al., 2022)

Benign Prostatic Hyperplasia s a disease that very often causes problems in men. In addition to causing morbidity, it also impairs men's quality of life.(Kemalasari et al., 2015). BPH often causes dysfunction in the male lower urinary tract and is most commonly found in elderly men. Around 18-25% of men over 40 years of age and more than 90% of men over 80 years of age experience BPH.(Adelia et al., 2017). In Indonesia BPH is the second most common disease after urinary tract stones. Estimated around 5 million man over 60 years suffering from LUTS (lower urinary tract symptoms) due to BPH.(Sampekalo et al., 2015)

The results of research conducted at the urological surgery clinic of Pertamina Bintang Amin Hospital Bandar Lampung in 2020-2021 found that most of them had heavy work, namely 72 people (90%) and most of them suffered from BPH, namely 69 people (86.3%). From the results of this study it was found that there was a relationship between occupation and the incidence of BPH.(M. R. Ayu, 2022). Research at Sleman Regional Hospital BPH sufferers consisted of men with the majority of age (60-70) years, 60% of elementary school education and 60% of jobs were as manual laborers.(Venny & Prasetyo, 2020)

External factors affecting BPH are the patient's background conditions such as age, family history, obesity, increased blood cholesterol levels, a high animal-based diet, exercise, smoking, alcoholic beverages, diabetes mellitus, and sexual activity. Early symptoms of BPH include difficulty in starting urination and a feeling of incomplete urination. As the prostate gland grows larger, it presses on the urethra and narrows it. This will obstruct the flow of urine. As the prostate gland grows larger, it presses on the urethra and narrows it. This will block the flow of urine. The bladder starts pushing harder to pass urine, which causes the bladder muscles to become larger and more sensitive. This makes the bladder never completely empty and causes the feeling of needing to urinate frequently. Other symptoms include weak urine flow.

Various mediators are influential in prostate growth. The main mediator of prostate growth is DHT (dihydrotestosterone), a metabolite of testosterone formed in prostate cells by the breakdown of testosterone. The enzyme 5-alpha reductase converts testosterone to DHT. This enzyme is the target of 5-alpha reductase inhibitor drug therapy aimed at reducing prostate size.Medication therapy using alpha blockers or 5 alpha reductase inhibitors can cause sexual dysfunction in BPH patients with erectile dysfunction, ejaculation, or decreased libido. This often reduces the quality of life of the patient.BPH treatment can be done in various ways including watch full waiting, medication, and surgery. Transurethral Resection Prostate (TURP) is one of the most common and frequently performed surgical options to treat an enlarged prostate. The procedure, which is performed with the help of a device called a

resectoscope, aims to reduce pressure on the bladder by removing excess prostate tissue. TURP is the first choice of surgery because it is more effective in relieving symptoms faster than the use of medications.(R, 2013). The aim of this study was to determine the characteristics of Benign Prostatic Hyperplasia sufferers based on age, occupation and level of education.

METHOD

This type of research uses a cross-sectional retrospective descriptive method using a total population sampling technique. Data obtained through medical records for the period 2022-2023 at Puskesmas Tanralili Maros and obtained 21 medical records of patients diagnosed with suspicion of BPH by General Practitioner at Puskesmas Tanralili. This study was conducted in January 2024 at Puskesmas Tanralili, precisely at the Medical Records Installation. The population in this study were all patients who had urinary complaints caused by BPH based on the diagnosis of the general practitioner at Puskesmas. With a total of 21 patients taken with total sampling technique. This research instrument uses certain tables to record the data needed from medical records. This data collection was carried out by taking secondary data in the form of medical records of BPH patients based on the diagnosis of Generaal Practitioner at Puskesmas for the period 2022-2023. Analysis of research data was carried out using Microsoft Excel 2016. This research is descriptive with a type of univariate analysis that aims to describe sample data. Where the results of the analysis will be presented in the form of tables and descriptions.

RESULT

This study was conducted in January 2024 at Puskesmas Tanralili, Maros Regency and obtained 21 cases of suspected BPH diagnosed by general practitioners. The prevalence of BPH in 2022 was 9 patients (42,85%) and in 2023 there was an increase of 12 patients (57,14%). Based on data from Badan Pusat Statistik (BPS) that in 2023 the life expectancy of the Indonesian population increased by 0,23 years or 0,31%, specifically for Maros district, life expectancy in 2022 was 69.28% and in 2023 it increased to 69.45%.(Statistics, 2017). This explains that as the life expectancy of a population increases, the incidence of degenerative diseases also tends to increase, including BPH.

Table 1. Distribution of BPH Patients By Year

Year	Amount Patient	%
2022	9	42,85
2023	12	57,14
Total	**21**	**100**

The highest prevalence of BPH was in the age range of 60-69 years as many as 10 patients (47,61%), and the lowest prevalence was in the age range of 40-49 years as many as 3 patients (14,28%). The results of research conducted previously by G.N. Collins showed that the average age of BPH patients obtained from this study was 40-49 years.(COLLINS et al., 1993). In 2015, research conducted at Al-Islam Bandung Hospital for the 2014-2015 period found the highest prevalence of BPH at the age of >65 years as many as 63 cases (56%) and the lowest prevalence was in the age range of 36-45 years as many as 1 case (1%).(Hilman et al., 2015). This shows that there are similarities between the results of these studies.

In older age, testosterone levels begin to decline slowly at the age of 30 and will drop more rapidly at the age of 60 and above. Meanwhile, estrogen levels increase relatively. It is known that estrogen in the prostate plays a role in the proliferation of prostate gland cells by increasing the sensitivity of prostate cells to androgen hormone stimulation, increasing the number of

androgen receptors, and reducing the number of prostate cell death (apoptosis).(Carr et al., 2020).

Table 2. Distribution of BPH Patients By Age

Age	Amount Patient	%
40-49	3	14,28
50-59	4	19,04
60-69	10	47,61
≥70	4	19,04
Total	**21**	**100**

The highest prevalence of BPH in the occupational category was farmers as many as 13 patients (61,90%) and the lowest prevalence of 1 patient each was retired, TNI / POLRI, and civil servants (4,76%). The results of research conducted at Pertamina Bintang Amin Hospital Bandar Lampung in 2020-2021 showed that 72 patients (90%) had heavy work. Research conducted at RSUP. Dr. Mohammad Hosein Palembang in 2020 BPH patients who underwent operative measures whose occupational category was heavy work (47,6%).(Despriansyah, 2021).

Due to limitations in supporting examinations at the Puskesmas level, the determination of whether the patient suffers from BPH or Prostate Cancer cannot be established. Some risk factors that are thought to be associated with prostate cancer are occupations as farmers that allow exposure to pesticides and cadmium. In a French study, the risk of prostate cancer increased twice in farmers and ranchers exposed to pesticides. Workers exposed to cadmium are also at risk of prostate cancer as cadmium is a carcinogenic substance.(Sharma et al., 2016).

Table 3. Distribution of BPH Patients By Occupation

Work	Amount Patient	%
Farmer	13	61,90
Self-employed	5	23,80
Retired	1	4,76
TNI/POLRI	1	4,76
Civil servants	1	4,76
Total	**21**	**100**

The highest prevalence of BPH in the education level category was elementary school as many as 12 patients (57,14%) and the lowest was ≥ D3 as many as 1 patient (4,76%). This may be due to underutilization of health services in patients with low education levels. Individuals who do not seek treatment or do not have access to health services are likely to have a delay in diagnosis. In contrast, individuals with higher education are more likely to screen early.(De Souza et al., 2013).

Table 4. Distribution BPH Patients By Education Level

Level of education	Amount Patient	%
Elementary School	12	57,14
Junior High School	4	19,04
Senior High School	4	19,04
≥ Associate's degree (D3)	1	4,76
Total	**21**	**100**

Patients who have higher education will have broader knowledge which also allows the patient to control himself in overcoming the problems faced, have high self-confidence, experience, and have the right estimate of how to deal with events, easily understand what is recommended by health workers, and can reduce anxiety so that it can help the individual in

making decisions. Therefore, from the results of the above research it can be concluded that education is a factor that affects the incidence of benign prostatic hyperplasia because education can change the healthy lifestyle of each individual.(Yuliaw, 2009)

DISCUSSION

The prostate gland is one of the male genital organs located inferior to the buli-buli and encircles the posterior urethra. When enlarged, this organ can block the urethra pars prostatica and cause obstruction to the flow of urine out of the bulb. It is the size of a walnut with a normal adult weight of 20 grams.(Purnomo, 2003).

The adverse impact caused by BPH is an increase in intravesical pressure that can be passed on to the ureters and kidneys so that it can cause decreased kidney function.(Al., 2003). The cause of BPH is still unknown, but several hypotheses state that BPH is closely related to the increase in dehydrotestosterone (DHT) levels and the aging process. Some other hypotheses that are thought to be the cause of BPH include: DHT theory, estrogen-testosterone imbalance, interaction between stromal cells and prostate epithelial cells, reduced cell death, and stem cell theory.(Purnomo, 2003). Although rarely life-threatening, BPH can provide complaints that interfere with daily activities so that it can reduce quality of life. This is due to the obstruction of the bladder neck and urethra due to BPH, which can lead to Lower Urinary Tract Symptoms (LUTS) and complications in the upper and lower urinary tract.

Complications that may occur in patients with BPH left untreated are first, trabeculation, which is a thickening of the detrusor fibers due to intravesical pressure which is always high due to obstruction. Second, saculation, which is the buli-buli mucosa breaking through between the fibers of the detrusor. Thirdly, diverticles when the saculations become large. Other complications include the formation of vesical stones as there is always residual urine after urination, resulting in the deposition of stones. If the constantly high intra vesical pressure is passed on to the ureters and kidneys, hydroureter and hydronephrosis will occur, resulting in decreased kidney function.(Al., 2003).

Research conducted by Rizki Amelia, Dr. Kariadi Semarang Hospital found that risk factors that were proven to affect the incidence of BPH were age, family history, lack of fiber foods, and smoking habits. While risk factors that are not proven to affect the incidence of BPH are obesity, consumption of fatty foods, sexual activity, sports activity, history of diabetes mellitus, and drinking alcoholic beverages. (Amalia et al., 2010)

BPH Patient Incidence Rate

The results of research conducted at Puskesmas Tanralili found that the prevalence of BPH patients in 2022 was 9 patients (42,85%) and in 2023 there was an increase of 12 patients (57,14%). In line with these results, globally the estimated incidence of BPH cases in 2019 was 11,26 million, an increase from the initial 5,48 million in 1990. The number of incidences in 1990 and 2019 both increased with age, the incidence rate peaking at 65-69 years of age. This increase is mainly driven by population growth and population aging. South Asia, Southeast Asia, Central Europe, Eastern Europe, Latin and Central America, Oceania have a higher incidence of BPH. China had the largest number of new incident cases (2,83 million) in 2019.(Awedew et al., 2022). Based on data from the Social Security Administration (BPJS) for Health, the number of patients diagnosed with BPH in West Java from 2016 to 2020 was 97.043 patients. In 2016 there were 4.646 patients, in 2017 there were 18.110 patients, in 2018 there were 20.664 patients, in 2019 there were 21.757 patients, and in 2020 there were 20.497 patients.(D. Ayu et al., 2021). The results of research at RSU Al-Fatah Ambon for the 2019-2021 period were the incidence of BPH in 2019 as many as 6 patients, in 2020 as many as 24 patients, and in 2021 as many as 31 patients.(Nadilla et al., 2023). The results of this study

indicate that there is an increase in the prevalence of BPH patients each year. In the results of the study, there was a significant change in the incidence of BPH. Where there is an increase in BPH cases every year. This is in line with research conducted by Awedew which shows that population growth and aging have a greater impact in driving the increase in prevalence associated with BPH at the global level compared to other risk factors.(Awedew et al., 2022). This is also supported by the WHO statement which predicts that Indonesia will become one of the countries with the largest increase in the elderly in the world by 2025 which results in the number of degenerative diseases including BPH increasing every year.

Age Characteristics of BPH Patients

Based on age, the highest prevalence of BPH was in the age range 60-69 years as many as 10 patients (47,61%), and the lowest prevalence was in the age range 40-49 years as many as 3 patients (14,28%). This data is in accordance with several studies, at Cipto Mangunkusumo Hospital (RSCM) from 1994 to 2013 there were 3.804 cases with most patients aged 67 years. Based on Basic Health Research (RISKESDAS) in 2018 BPH is the second most common disease affecting 50% of men in Indonesia aged 50 years or more. Data obtained from Hasan Sadikin Hospital from 2012-2016 obtained 718 cases with the most patients aged 68 years.(D. Ayu et al., 2021). In eastern Indonesia, research conducted at Al-Fatah Ambon Hospital for the period 2019-2021 the incidence of BPH increases with age, especially in the elderly (60-69 years). This is also in line with research conducted at Abdul Wahab Sjahranie Samarinda Hospital found that the average age of patients is 60,45 years with an age range of 48-71 years and most are in the age group 60-69 years.(Nadilla et al., 2023).

Changes due to old age decrease the ability of the buli-buli to maintain urine flow in the process of adapting to urine flow in the process of adapting to obstruction due to prostate enlargement. In accordance with age, testosterone levels begin to decline slowly at the age of 30 years and drop more rapidly at the age of 60 years and above. The incidence of BPH is known to occur in the age range between 50 years and 80 years. An increase in adrenergic tone will trigger growth in the prostate which over time will cause partial obstruction in the buli, causing impaired urinary function. Other common weaknesses in old age include weakness in the buli (detrusor muscle) and decreased innervation function.

Occupational Characteristics of BPH Patients

Based on occupation, the highest prevalence of BPH in the occupational category was farmers as many as 13 patients (61,90%) and the lowest prevalence of 1 patient each was retired, TNI/POLRI, and civil servants (4,76%). The highest prevalence of BPH in the education level category was elementary school as many as 12 patients (57,14%) and the lowest was ≥ D3 as many as 1 patient (4,76%). Research conducted at RSU dr. Soedarso Pontianak in 2013, this study states that the most occupations are retirees as many as 33 people (75%) and the least are teachers and drivers with a total of 1 person each (2,27%). The high incidence of BPH in retirees is often associated with age. Almost all retirees are elderly where the higher the age, the higher the incidence of BPH.(Nurmariana, 2014).

Research conducted at the Urology Clinic of the PMI Hospital in Bogor City in 2020 found that most patients worked as civil servants, namely 21 patients (55%). Where more than half of the patients in the study were civil servants who had entered retirement. This is shown in the age characteristics of patients where more than half are aged >65 years. Meanwhile, research conducted at the Hospital. Dr. Mohammad Hosein Palembang in 2020 BPH patients who underwent operative measures whose occupational category was heavy work (47,6%).(Despriansyah, 2021). The results of the comparison of the above studies found a correlation between occupation and the incidence of BPH. Where it was found that the most

occupations in this study were farmers who were >60 years old and this was equivalent to the work of retirees who were also in that age range.

Education Level Characteristics of BPH Patients

Based on education level, the highest prevalence of BPH in the education level category was elementary school as many as 12 patients (57,14%) and the lowest was ≥ D3 as many as 1 patient (4,76%). This is in accordance with the case study research on risk factors for benign prostate enlargement at Dr. Kariadi Semarang Hospital where it was found that the largest proportion according to the education level of respondents in the case group was elementary school graduates as many as 19 respondents (36,5%) and the smallest proportion was undergraduate and diploma for the case group as many as 4 respondents (7,7%).(Amalia et al., 2010)

This study is different from research conducted at the Urology Poly of the Bogor City PMI Hospital, in this study it was found that most had a college education, namely 30 people (79%) and a small proportion had a junior high school education, namely 3 people (8%). This study is different because the demographic factors of each region are different, especially in rural and urban areas. The condition of this research location at Puskesmas Tanralili is included in the rural category at the district level.

CONCLUSION

From the results of research at Puskesmas Tanralili, Maros Regency, it can be concluded that: The prevalence of BPH in 2022 was 9 patients (42,85%) and in 2023 it increased to 12 patients (57,14%). The highest prevalence of BPH was in the age range of 60-69 years as many as 10 patients (47,61%), and the lowest prevalence was in the age range of 40-49 years as many as 3 patients (14,28%). The highest prevalence of BPH in the occupational category was farmers as many as 13 patients (61,90%) and the lowest prevalence of 1 patient each was retired, TNI/POLRI, and civil servants (4,76%). The highest prevalence of BPH in the education level category was elementary school as many as 12 patients (57,14%) and the lowest was ≥ D3 as many as 1 patient (4,76%).

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