

## Prostate Disease Correlation on Demographics and Clinical Findings Among National Annual Prostatic Digital Rectal Examination Campaign Participants

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**Objective:** National prostatic digital rectal examination (DRE) advocated by the Philippine Urological Association (PUA) started 2 decades ago in the advent of prostate specific antigen (PSA) screening. It is an effective campaign in promoting prostate health awareness among Filipinos. The aim of this research was to describe and correlate the demographics, clinical profile and prostatic physical findings examined by urologists in over 60 centers in the country.

**Methods:** This study was an analytical cross-sectional study involving the participants of the 2013-2015 National DRE campaign. The data were retrieved from the PUA secretariat using a convenience-sampling method on completed forms. The data were correlated using a non-parametric measure of statistical dependence between two variables.

**Results:** The total number of participants was continuously rising [n=978 (2013), n=2052 (2014) and n=2792 (2015)] having 60-70% newly diagnosed cases annually. Participants were mostly on their 6th decade of life, mostly employed, married and an educational attainment of secondary level. The most predominant symptom was nocturia followed by frequency, incomplete emptying and weak stream. The usual prostate size was between 21-30 grams mostly with doughy consistency, nodular and tender. The mean age of having clinically benign prostate enlargement was noted to be consistent at the age of 61 while that of a prostate cancer suspect ranged from 63-69 years old.

**Conclusion:** Filipinos have similar predominant signs and symptoms of prostate disease as compared to Malays, Chinese and Indians. Clinical findings of prostate diseases correlated well with age, prostate size and consistency.

**Key words:** digital rectal examination, prostate specific antigen (PSA)

### Introduction

The disadvantaged status of men's health of Asians due to higher mortality rates and shorter life expectancy than women entails screening of their sex-specific male urological diseases.<sup>1</sup> Prostate diseases have particular inter-racial characteristics based on its incidence. Asians as

compared to Westerners, have a lower incidence of prostate malignancy but a similar incidence in benign diseases such as prostatitis and prostatic hyperplasia.<sup>2</sup> The incidence rate of prostate cancer in the Philippines continuously rises with an annual change of 2.5% making it 8th most common cancer in both sexes (3%) and 4th among male (7%) cancer last 2010.<sup>3,4</sup> Filipinos have an

increased risk of harboring advanced stages of prostate cancer and lower survival rates compared to other Asians.<sup>5</sup>

National digital rectal examination (DRE) of the prostate advocated by the Philippine Urological Association (PUA) started 2 decades ago as prostate cancer screening activity in the advent of prostatic specific antigen (PSA) screening. It caught the attention of Filipino males by increasing their awareness about prostate cancer. It was a single day free nationwide screening for prostate diseases that include a digital rectal examination (DRE) as one of the main screening procedure in assessing the prostate. Urologists performed the examination. The actual day was made to coincide a day before the Fathers' Day celebration every June.<sup>6</sup>

The aims of this research were to: 1) describe the 2013-2015 Philippine national DRE campaign participants in terms of demographics and clinical profile, 2) describe the 2013-2015 Philippine national DRE campaign participants in terms of prostate physical and clinical findings; 3) correlate the clinical impression of participants versus family history, age and prostate characteristics.

## Materials and Methods

The 2013-2015 National DRE Program was held a day before Fathers' Day celebration in over 60 DRE centers all over the country. Information drives by way of media and print coverage were undertaken a few weeks prior to the launch date which include interviews, documentary and print write-ups about the prostate and its diseases. On the day of the program, all data were collected and centrally archived at the PUA secretariat. The investigators employed convenience-sampling method, to include only completed forms submitted among the archived data. The data were retrieved including the basic demographic data, clinical history, and DRE findings. These data were then described and analyzed using an analytical cross-sectional research design. The duration of the study was 12 weeks.

## Results

The total number of participants included in the study was 5822 with a mean age of 60 (2013 =  $60.36 \pm 9.85$ , 2014 =  $59.82 \pm 10$  and 2015 =

**Table 1.** Demographic and clinical profile.

Profile	Frequency		
	2013	2014	2015
Mean Age	60.36 ± 9.85	59.82 ± 10	59.22 ± 11.14
Marital Status			
Single	111 (11.4%)	352 (17.2%)	467 (16.6%)
Married	725 (74.1%)	1,531 (74.6%)	2,066 (73.4%)
Separated	55 (5.6%)	59 (2.9%)	85 (3.0%)
Widowed	87 (8.9%)	110 (5.3%)	188 (6.7%)

**Age and Marital Status**

Profile	Frequency (Percent)		
	2013	2014	2015
Education			
Primary	144 (14.7)	371 (18.1)	650 (23.1)
Secondary	431 (44.1)	599 (29.2)	847 (30.1)
College	373 (38.1)	977 (47.6)	1,187 (42.3)
Post-graduate	30 (3.1)	104 (5.1)	130 (4.5)

**Education**

Profile	Frequency (Percent)		
	2013	2014	2015
Family History of Cancer			
No	844 (86.3)	1,669 (81.3)	2,288 (81.6)
Yes	134 (13.7)	383 (18.7)	520 (18.4)

**Family History of Cancer**

Profile	Frequency (Percent)		
	2013	2014	2015
Prior Prostate Examination			
No	666 (68.1)	1,219 (59.4)	1,736 (61.7)
Yes	312 (31.9)	833 (40.6)	1,078 (38.3)

**Prior Prostate Examination**

Profile	Frequency (Percent)		
	2013	2014	2015
Prostate Size (grams)			
≤20	213 (21.8)	769 (37.4)	1,060 (37.6)
21-30	344 (35.2)	692 (33.7)	954 (33.9)
31-40	326 (33.3)	439 (21.4)	597 (21.3)
41-50	73 (7.5)	117 (5.7)	155 (5.5)
51-60	17 (1.7)	23 (1.1)	30 (1.1)
>60	5 (0.5)	12 (0.6)	18 (0.6)

**Prostate Size**

Profile	Mean ± SD		
	2013	2014	2015
Urinary Symptoms Score			
Frequency	1.79 ±1.75	1.63 ±1.7	1.51 ±1.71
Urgency	1.09 ±1.59	1.37 ±1.7	1.35 ±1.65
Nocturia	2.23 ±1.59	1.69 ±1.6	1.61 ±1.65
Weak stream	1.58 ±1.76	1.23 ±1.8	1.16 ±1.57
Intermittency	1.28 ±1.68	1.30 ±1.6	1.19 ±1.60
Straining	0.94 ±1.54	0.94 ±1.5	0.87 ±1.47
Incomplete emptying	1.74 ±1.88	1.94 ±1.9	2.21 ±2.54
Total symptom score	10.65 ±9.08	10.11 ±8.6	9.19 ±8.23
Mean Quality of Life Score	4.68 ± 1.98	2.78 ± 2.2	1.85 ±1.78

**IPSS**

59.22 ± 11.14). Most of them are married and had an educational attainment of secondary to tertiary level (Table 1). More participants sought consult at government (54%) treatment centers as compared to private (46%). Most of the patients have no family history of cancer.

Approximately 32-41% had prior prostate examination, which were done mostly in government clinics. The most predominant symptom was nocturia followed by frequency, incomplete emptying and weak stream. The mean International Prostate Symptom Score (IPSS) was 9-10 with a mean quality of life score ranging from

2-5. Most of the enlarged prostates were between 21-30 grams mostly with doughy consistency, nodular and tender. (Table 1)

The age has mild-moderate correlation (r = 0.22 - 0.31) with the clinical diagnosis of LUTS. It has also been considered as one of the most important risk factors in having prostate cancer among Filipinos. There was a moderate to strong correlation between LUTS and prostate consistency and size, respectively. There was no correlation found between the diagnosis of LUTS vs. family history of cancer and prostate gland character. (Tables 2 & 3)

**Table 2.** Demographic profile correlation.

Profile	Normal	BPH/ Prostatitis	Cancer	Correlation
Mean Age (2013)	56.7 (SD 9.8) (n=265)	61.6 (SD 9.5) (n=637)	63.3 (SD9.9) (n=69)	r=0.22* (p<0.01) Mild
Mean Age (2014)	57.4 (SD=10.3)* (n=867)	61 (SD=9.5) (n=1,096)	65.2 (SD=8.5) (n=58)	r=0.28** (p<0.01) Mild
Mean Age (2015)	55.3 (SD 11.4) (n=1,167)	61.8 (SD 10.0) (n=1,590)	69.0 (SD 9.5) (n=57)	r=0.31** (p<0.01) Moderate

**Age**

Profile (Family History of Cancer )	Normal	BPH/ Prostatitis	Cancer	Correlation
2013	(n=265)	(n=637)	(n=69)	r=0.02*** (p=0.05)
No	233 (87.9%)	544 (85.4%)	60 (87.0%)	No Correlation
Yes	32 (12.1%)	93 (14.6%)	9 (13.0%)	
2014	(n=867)	(n=1,096)	(n=58)	r=-0.03*** (p=0.24)
No	693 (79.9%)	905 (82.6%)	45 (77.6%)	No Correlation
Yes	174 (20.1%)	191 (17.4%)	13 (22.4%)	
2015	(n=1,167)	(n=1,590)	(n=57)	r=0.03*** (p=0.09)
No	932 (79.9%)	1,318 (82.9%)	44 (77.2%)	No Correlation
Yes	235 (20.1%)	272 (17.1%)	13 (22.8%)	

**Family History of Cancer**

**Table 3.** Clinical profile correlation.

Correlation	2013	2014	2015
Prostate Size versus Diagnosis	r=0.54* (p=<0.05) Strong positive relationship	r=0.58*** (p<0.01) Strong positive relationship	r=0.61*** (p<0.01) Strong positive relationship

**Prostate Size**

Prostate Consistency	Normal) Prostate	BPH/ Prostatitis	Cancer	Correlation
2013	(n=265)	(n=637)	(n=69)	r=0.30*** (p<0.01) Moderate
Doughy	211 (79.6%)	423 (66.4%)	11 (15.9%)	
Firm	54 (20.4%)	214 (33.6%)	27 (39.1%)	
Hard	0 (0%)	0 (0%)	31 (44.9%)	
2014	(n=867)	(n=1,096)	(n=58)	r=0.32*** (p<0.01) Moderate
Doughy	737 (85%)	699 (63.8%)	15 (25.9%)	
Firm	123 (14.2%)	360 (32.8%)	19 (32.8%)	
Hard	7 (0.8%)	37 (3.4%)	24 (41.4%)	
2015	(n=1,167)	(n=1,590)	(n=57)	r=0.16*** (p<0.01) No Correlation
Doughy	855 (73.3%)	988 (62.1%)	12 (21.1%)	
Firm	309 (26.5%)	571 (35.9%)	16 (28.1%)	
Hard	3 (0.3%)	31 (1.9%)	29 (50.9%)	

**Prostate Consistency**

Prostate Character	Normal	BPH/ Prostatitis	Cancer	Correlation
2013	(n=265)	(n=637)	(n=69)	r=0.17***
Non-nodular	251 (94.7%)	618 (97.0%)	14 (20.3%)	(p<0.01)
Nodular	14 (5.3%)	19 (3.0%)	55 (79.7%)	0.33
2014	(n=867)	(n=1,096)	(n=58)	r=0.17***
Non-nodular	337 (38.9%)	175 (16.0%)	47 (81.0%)	(p<0.01)
Nodular	530 (61.1%)	921 (84.0%)	11 (19.0%)	0.65
2015	(n=1,167)	(n=1,590)	(n=57)	r=0.19***
Non-nodular	442 (37.9%)	255 (16.0%)	42 (73.3%)	(p<0.01)
Nodular	725 (62.1%)	1,335 (84.0%)	15 (26.3%)	

Prostate Character

Prostate Gland Tenderness	Normal	BPH/ Prostatitis	Cancer	Correlation
2013	(n=265)	(n=637)	(n=69)	r=0.18***
Non-tender	250 (94.3%)	575 (90.3%)	60 (87.0%)	(p<0.01)
Tender	15 (5.7%)	62 (9.7%)	9 (13.0%)	None
2014	(n=867)	(n=1,096)	(n=58)	r=0.17***
Non-tender	337 (38.9%)	175 (16.0%)	47 (81.0%)	(p<0.01)
Tender	530 (61.1%)	921 (84.0%)	11 (19.0%)	None
2015	(n=1,167)	(n=1,590)	(n=57)	r=0.24***
Non-tender	459 (39.3%)	270 (17.0%)	14 (24.6%)	(p<0.01)
Tender	708 (60.7%)	1,320 (83.0%)	43 (75.4%)	Mild

Prostate Gland Tenderness

**Discussion**

Population screening through DRE and PSA determination has prostate cancer detection uncertainty of approximately 30-40% in men aged over 60 years. Among these screened patients, around 4% with an otherwise normal prostate will have prostate cancers. DRE screening increased the number of detected tumors leading to early management preventing distant metastasis for prostate cancer and prolonged survival.<sup>7</sup>

Community outreach programs for prostate awareness were excellent vehicle to educate the public and complement efforts of health care practitioners.<sup>8</sup> Community practice in the western and nearby Asian countries demonstrates that PSA and DRE were consistently effective and efficient in the early detection of prostate cancer.<sup>9,10</sup>

A strategy in addressing men's health needs required the understanding of men's health seeking behaviors and social determinants

surrounding them such as diversified cultures and socioeconomic status. Relevant information available locally was needed to formulate these strategies.<sup>1</sup> Men's demographic characteristics should be considered when providing information about prostate cancer. Hearing about prostate cancer from family and friends was not significantly related to screening behavior.<sup>11</sup>

Screened subjects with LUTS should remain in the "screened" category in case-control prostate cancer screening studies since these symptoms may not be associated with increased risk of prostate cancer in validity of the odds ratio.<sup>12</sup> Irritative symptom severity was most highly associated with health care seeking behavior.<sup>13</sup>

Among lower urinary tract symptoms, incontinence, nocturia and straining have the most negative impact on generic health related quality of life using SF-36.<sup>14</sup> The symptoms of prostate cancer when it occurs were usually difficulty in urination and nocturia however mostly they are

asymptomatic. They share common symptoms with benign prostatic hyperplasia except when they are in the advanced stage wherein bone pains were usually felt.<sup>3,4</sup>

The most important risk factor of prostate cancer in Filipinos was increasing age. The increasing number of males who were 55 years of age and older was the main reason for the significant increase expected. Unlike other cancers, the evidence of association between unhealthy lifestyles was not yet clear.<sup>3,4</sup> In contrast, studies showed in Asian Americans that alcohol and possibly cigarettes are related to a lower risk for clinical BPH.<sup>15</sup>

In a study of three Asian ethnic groups (Malays, Chinese and Indians), the prevalence of moderate to severe lower urinary tract symptoms (LUTS) was 70%, 59% and 50%, respectively. The most common bothersome symptoms were nocturia (56%), frequency (50.4%) and sense of incomplete voiding (43.5%). The mean prostate size was 25.1 cc. There was no correlation between IPSS and age. The prevalence of symptomatic benign prostate enlargement (BPE) was 39.3%. The prevalence increased 8% per decade from 41.7% for men aged 50 to 59 to 65.4% for men aged 70 or more. There was no significant difference in prevalence of symptomatic BPE among the three ethnic groups. The prevalence of benign prostate obstruction was 15.8%.<sup>16</sup>

## Conclusion

Filipinos have similar predominant signs and symptoms of prostate disease as compared to other Asian ethnic groups. Most of them were on their sixth decade of life that complained nocturia with a prostate size between 21-30 grams. Clinical findings of prostate diseases correlated well with age, prostate size and consistency.

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