UNIVERSITI PUTRA MALAYSIA

KNOWLEDGE, AWARENESS, AND PRACTICE OF PROSTATE SPECIFIC ANTIGEN TEST AMONG ACADEMICIANS IN A PUBLIC UNIVERSITY, MALAYSIA

MAZATUL ASMIRAH BINTI HASSIM ALI

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MAZATUL ASMIRAH BINTI HASSIM ALI

DEPARTMENT OF NURSING

FACULTY OF MEDICINE AND HEALTH SCIENCES

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SERDANG SELANGOR

2021/2021

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BY

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Thesis submitted in fulfilment of the requirement for the degree of Bachelor of Nursing from Faculty of Medicine and Health Sciences, Universiti Putra Malaysia.

KNOWLEDGE, AWARENESS, AND PRACTICE OF PROSTATE-SPECIFIC ANTIGEN TEST AMONG ACADEMICIANS IN A PUBLIC UNIVERSITY, MALAYSIA

Mazatul Asmirah Hassim Ali, Parameseveary L.Subramaniam, Norafisyah Makhdzir

Department of Nursing, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia

Introduction: Prostate-specific antigen (PSA) test is one of the way to prevent prostate cancer incidence by detection of the cancerous cells at an early stages and enable to introduce accurately intervention for the disease. **Objective:** To determine the level of knowledge, awareness, and practice of PSA test among academicians in Universiti Putra Malaysia. **Methods:** A cross-sectional study was carried out among 165 respondents recruited by using multistage sampling method in which a self-administered online survey questionnaire consist of 4 section was used. The sections includes (A) sociodemographic data, (B) practice of PSA test, (C) knowledge of prostate cancer and PSA test and (D) awareness of prostate cancer and PSA test. The questionnaire will be distributed through email to respective academicians. The data collection will be done within 3 months. This study will used SPSS Statistics version 22.0 for data entry and analysis. For descriptive analysis, mean, standard deviation, frequency and percentage will be used. To determine the relationship between knowledge, awareness and practice of PSA test, logistic regression will be used. Confidence level and margin of error are set at 95% and 5% respectively. **Results:** Overall, the mean age of total respondents is 42.94±7.571. Out of 85, 61 (71.8%) represented Malay respondents, and 17 (20.0%) represented Chinese respondents whereas 7 (8.2%) represented Indian respondents. The data shows the mean knowledge of total respondents on prostate-specific antigen test was 17.729±2.945 and the mean awareness of total respondents on prostate-specific antigen test is 32.306±6.651. From the result, found that only 9 (10.6%) out of 85 has good practice of PSA test in their lifetime. Among those who has taken, 7 (8.2%) took PSA test once and 2 (2.4%) has took the test more than once. The findings showed that there was a significant relationship between sociodemographic characteristics of age and race with knowledge where p-value was 0.05 and awareness of PSA test where p-value was 0.001 and 0.016. Similarly, significant finding found between awareness and practice of PSA test whereby the p-value was 0.042. **Conclusion**: Based on the study findings, found that age and race of an individual are the most highly possible to influence their practice of PSA test. Therefore, an individual need to have self-awareness of the disease and prevention measure to take in order to have a good quality of life in longer time.

Keywords: Knowledge, awareness, practice, prostate-specific antigen (PSA) test

PENGETAHUAN, KESEDARAN, DAN AMALAN UJIAN ANTIGEN SPESIFIK PROSTAT DI KALANGAN AHLI AKADEMIK DI UNIVERSITI AWAM, MALAYSIA

Mazatul Asmirah Hassim Ali, Parameseveary L.Subramaniam, Norafisyah Makhdzir

Jabatan Kejururawatan, Fakulti Perubatan dan Sains Kesihatan, Universiti Putra Malaysia

Pengenalan: Ujian antigen spesifik prostat (PSA) adalah salah satu cara untuk mencegah kejadian barah prostat dengan mengesan sel-sel barah pada peringkat awal dan memungkinkan pengenalan intervensi penyakit ini dengan tepat. **Objektif**: Untuk menentukan tahap pengetahuan, kesedaran, dan amalan ujian PSA di kalangan ahli akademik di Universiti Putra Malaysia. **Kaedah**: Kajian rentas dilakukan di kalangan 165 responden yang direkrut dengan menggunakan kaedah pensampelan rawak bertingkat di mana soal selidik tinjauan dalam talian yang dikendalikan sendiri terdiri daripada 4 bahagian digunakan. Bahagian tersebut merangkumi (A) data sosiodemografi, (B) praktik ujian PSA, (C) pengetahuan tentang kanser prostat dan ujian PSA dan (D) kesedaran mengenai kanser prostat dan ujian PSA. Soal selidik akan diedarkan melalui e-mel kepada setiap ahli akademik. Pengumpulan data akan dilakukan dalam masa 3 bulan. Kajian ini akan menggunakan Statistik SPSS versi 22.0 untuk kemasukan dan analisis data. Untuk analisis deskriptif, min, sisihan piawai, frekuensi dan peratusan akan digunakan. Untuk menentukan hubungan antara pengetahuan, kesedaran dan amalan ujian PSA, '*Logistic regression*' akan digunakan. Tahap keyakinan dan margin kesalahan masing-masing ditetapkan pada 95% dan 5%. **Hasil**: Secara keseluruhan, umur min keseluruhan responden ialah 42.94 ± 7.571. Dari 85, 61 (71.8%) mewakili responden berbangsa Melayu, dan 17 (20.0%) mewakili responden berbangsa Cina manakala 7 (8.2%) mewakili responden berbangsa India. Data menunjukkan pengetahuan min jumlah responden mengenai ujian antigen spesifik prostat adalah 17.729±2.945 dan kesedaran min keseluruhan responden terhadap ujian antigen spesifik prostat adalah 32.306±6.651 Dari hasilnya, didapati bahawa hanya 9 (10.6%) daripada 85 mempunyai amalan ujian PSA yang baik sepanjang hayat mereka. Di antara mereka yang telah mengambil, 7 (8.2%) telah mengambil ujian PSA sekali dan 2 (2.4%) telah mengambil ujian lebih dari sekali. Hasil kajian menunjukkan bahawa terdapat hubungan yang signifikan antara ciri sosiodemografi usia dan bangsa dengan pengetahuan di mana nilai p adalah 0,05 dan kesedaran ujian PSA di mana nilai p adalah 0,001 dan 0,016. Begitu juga dengan penemuan yang signifikan antara kesedaran dan amalan ujian PSA di mana nilai p adalah 0.042. **Kesimpulan**: Berdasarkan dapatan kajian, didapati bahawa usia dan bangsa seseorang adalah yang paling mungkin mempengaruhi amalan ujian PSA. Oleh itu, seseorang individu harus mempunyai kesedaran diri terhadap penyakit dan langkah pencegahan yang harus diambil agar kualiti hidup yang baik dalam jangka masa yang lebih lama.

Kata kunci: Pengetahuan, kesedaran, amalan, ujian antigen spesifik prostat (PSA)

ACKNOWLEDGEMENTS

In the name of Allah, the Most Gracious and the Most Merciful

Alhamdulillah, all praises to Allah s.w.t. for the strength and His blessings for me in completing this thesis.

Special appreciation goes to my supervisor, Miss Paramesevary A/P L.Subramaniam, for her constant support, guidance, understandings, and encouragement. Her invaluable help of constructive comments and suggestions throughout this study have contributed to the success of this research. Not forgotten, my appreciation to supportive lecturer who is very dedicated and committed, Dr. Norafisyah Binti Makhdzir, for her support and knowledge regarding this topic.

Sincerely thanks to our research course coordinator, Pn. Rosna Binti Abdul Rahman, all my lecturers and non-academic staffs of the Department Nursing and Rehabilitation, UPM.

Last but not least, I would like to say big thanks to my beloved mother, Laila Binti Nee, my family members, and all my friends for the endless love, prayers, and encouragement throughout writing this thesis. To those who indirectly contributed in this research, your kindness means a lot to me. Thank you very much.

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MISS PARAMESEVARY A/P L.SUBRAMANIAM
Supervisor
Department of Nursing and Rehabilitations
Faculty of Medicine and Health Sciences
Date : 3 June 2022

CIK NORAFISYAH BINTI MAKHDZIR
Co-supervisor
Department of Nursing and Rehabilitations
Faculty of Medicine and Health Sciences
Date: ……

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LIST OF ABBREVIATION

PSA	Prostate-specific antigen
DRE	Digital rectal examination
GLOBOCAN	The Global Cancer Project
FDA	Food Drugs Administration
BPH	Benign Prostatic Hyperplasia
HBM	Health Belief Model

CHAPTER 1

INTRODUCTION

1.1 Background of study

In recent years, the prevalence of prostate cancer has been increasing globally. In 2012, The Global Cancer Project (GLOBOCAN) found that prostate cancer was the second most largely diagnosed cancer, and the fifth major cause of death from cancer among males worldwide (Kimura & Egawa, 2018).In the past two years, prostate cancer contributes to 7.1 percent of all cancers worldwide (Gift et al., 2020). Furthermore, a study reported the number of deaths from 3.8 percent of all cancers worldwide (Gift et al., 2020). In Malaysia, prostate cancer is the fourth most predominant male cancer. (Tun Firzara & Ng, 2016).

The National Cancer Institute in 2017 states that serum PSA in the blood is frequently elevated in men with prostate cancer. In both benign and cancerous cells, this enzyme is present and a small amount reaches the bloodstream. It was first introduced in 1986 when the FDA approved the PSA test for test prostate

cancer, the test should be made as a routine review of asymptomatic males who at risk of developing prostate cancer and is implemented by the healthauthorities (Ito, 2014). The purpose is to minimize mortality and maintain the quality of life of men who suffer from prostate cancer (Ito, 2014). A case in point is steadily decreased in the prevalence of metastatic prostate cancer since PSA test was introduced in the late 1980s in a systematic review conducted by Taitt (2018)., however, the author also reported the striking contrast of findings, in which the prevalence of distant-stage prostate cancer were found to be increased between 2008 and 2014. Ultimately, the review concludes that PSA test could become a determinant of the prevalence of prostate cancer.

The Mayors' Coalition for Prostate Cancer Recognition and Education was established in the summer in the United States (US) to help raise awareness of prostate cancer and promote prostate test. As a consequence, September is declared a month of Prostate Cancer Awareness globally. According to (Sabirin et al., 2011), national prostate cancer test program has yet to be established in Malaysia at present, even though PSA research and DRE are carried out as the need arises. Nevertheless, an annual Prostate Awareness Program has been introduced in Malaysia by the non-government organisations this year as an effort to increase public awareness about different prostate-related disorders, such as

benign prostatic hyperplasia (BPH), erectile dysfunction, and prostate cancer. A national project against prostate cancer was initiated in November 2020 with the theme "Only Men Can" and will be held annually in month of November begin from 2020 until 2024 (Calyn et al., 2020). Henceforth, assessment of the level of knowledge and awareness of the related population from time to time is important to evaluate the effectiveness of the program towards men's attitude in taking action to prevent prostate cancer disease. The public's knowledge level and awareness of prostate cancer test should be an important topic for research that serves as an evaluation of the campaign and to make sure that in a future awareness programmes will be more effective.

1.2 Problem statement

According to the new World Health Organization (WHO) statistics released in 2018, 594 or 0.42 % of deaths in Malaysia were due to prostate cancer (World Life Expectancy, 2018). Contrasting, according to a study done in one of the countries in Asia, the prevalence of cases and prostate cancer deaths has progressively increased in most local Asian populations, about one third less than the Asian-American cohort, and these findings are also smaller than those found in other American cohorts (Ito, 2014). The author also claims that a lack of

understanding of PSA test was evident among Asian men could be a significant contributor to some undetected prostate cancer cases.

A study conducted by Ugochukwu et al., (2019) explained that at later stages, symptomatic men related to greater incidences of death are often diagnosed in low and middle-income compare to high-income countries where regular test is linked to early diagnosis, the death rate is minimal. On the other hand, despite the awareness of prostate cancer test has increased globally but the number of men who undertaking PSA test has remained low (Ugochukwu et al., 2019). The above findings explain that there is a lack of awareness regarding prostate cancer test specifically PSA test in certain countries or regions evidenced by low incidence rates but higher mortality rates due to prostate cancer.

Based on a literature search, Yeboah-Asiamah et al., (2017) in a study in Africa reported that respondents had good perceptions about prostate cancer yet there were still low positive attitudes towards test among an educated at-risk population even though an extensive awareness campaign were established by the government. A study conducted in Petaling District reported 97.4 percent of the respondents aware that prostate cancer risk increased by age of 50years and

above. Even so, 68.9 percent were unaware that a first-degree relative's family history of breast cancer is a risk factor for prostate cancer. This finding shows that the population did not aware of all the risks that might lead to prostate cancer.

There are limited studies on knowledge, awareness, and practices of prostate cancer test among men in Malaysia. As a result, is difficult to determine whether the local population are well aware of the menace of prostate cancer and the importance of prostate cancer test.

1.3 Significant of study

This study could serve as an indication of knowledgeability and awareness of PSA test among specific population in Malaysia. Indirectly, it helps in establishing potential factors responsible for prostate cancer incidence from the Malaysia context. This research could guide healthcare practitioners to develop an effective approaches in providing information and increase understanding of PSA test which helps in the prevention and early identification of the cases.

1.4 Research Questions

i. What are the socio-demographic characteristics of the respondents?

ii. What is the level of knowledge of PSA test among the respondents?

iii. What is the awareness of PSA test among the respondents?

iv. What is the practice of PSA test among the respondents?

v. What is the relationship between level of knowledge and practice of PSA test among the respondents?

vi. What is the relationship between awareness and practice of PSA test among the respondents?

vii. What is the relationship between socio-demographic characteristics and the level of knowledge of PSA test among the respondents?

viii. What is the relationship between socio-demographic characteristics and the awareness of PSA test among the respondents?

ix. What is the relationship between sociodemographic characteristics and the practice of PSA test among respondents?

1.5 Research Objectives

1.5.1 General Objectives

i. To determine the level of knowledge, awareness, and practice of PSA test among the respondents.

1.5.2 Specific Objectives

i. To determine socio-demographic characteristics of the respondents.
ii. To assess the knowledge of PSA test among the respondents.
iii. To determine awareness of PSA test among the respondents.
iv. To determine the practice of PSA test among the respondents.
v. To identify the relationship between level of knowledge and practice of PSA test among the respondents.
vi. To identify the relationship between awareness and practice of PSA test among the respondents.
vii. To identify the relationship between socio-demographic characteristics and the level of knowledge of PSA test among the respondents.
viii. To identify the relationship between socio-demographic characteristics and the awareness of PSA test among the respondents.

ix. To determine the relationship between sociodemographic characteristics and the practice of PSA test among respondents

1.6 Hypothesis

Null hypothesis

i. There is no the relationship between level of knowledge and practice of PSA test among the respondents.
ii. There is no relationship between awareness and practice of PSA test among the respondents.
iii. There is no the relationship between socio-demographic characteristics and the level of knowledge of PSA test among the respondents.
iv. There is no relationship between socio-demographic characteristics and the awareness of PSA test among the respondents.
v. There is no relationship between sociodemographic characteristics and the practice of PSA test among respondents.

CHAPTER 2

LITERATURE REVIEW

Prostate cancer is the second most common malignancy in males worldwide behind lung cancer, accounting for 1,276,106 new cases and causing 358,989 deaths represent 3.8% of all cancer deaths in males in 2018 (Rawla, 2019). Prostate cancer also is an outrageous healthcare problem due to its high incidence and mortality. Based on data of cancer incidence in Australia over the most recent decade, prostate cancer incidence has increased from 11,477 in 2000 to 19,993 in 2011 (Cabarkapa et al., 2016). Baade et al., (2013) in their study claimed that the highest prevalence in Western countries has been recorded by recent international reviews of prostate cancer epidemiology, with lower but constantly rising incidence in less developing countries. Hence, the aim of prostate-specific antigen (PSA) test to identify asymptomatic cancers has been partially due to these various prevalence variations and is also related to some other problems such as diet, genetics, lifestyle, and environmental influences. (Baade et al., 2013). Thus, this chapter will discuss the importance of PSA test and the issues as well as the prevalence of PSA test that had been done globally, and in Malaysia. The details

of the level of the factors contributing to the knowledgeability, awareness, and practice of PSA test will also be explored.

The varying prevalence of PSA test which is the tool that is used to detect prostate cancer is likely to be another contributing cause of global variation. In 2008 and 2009, 52 percent of men aged 50 to 75 years reported having ever had a PSA test (Baade et al., 2013). In a similar study, New Zealand recorded that 49 percent of men aged 40 to 74 years have ever had a PSA test, and 22 percent have it in the previous five years. Although these two countries show a significant rate of PSA test, lower rates of PSA test among men in many other Asian countries are possibly causing the differential in prostate cancer incidence rates throughout the Asia-Pacific region (Baade et al., 2013). These differences are observed from Japan that estimated less than 20 percent of men over 50 years of age had a PSA test and South Korea with 15 percent of men aged over 50 having been screened during the previous two years recorded in 2004 (Baade et al., 2013).

A study by Baade et al., (2013) found that over half of prostate cancers in Malaysia were already at stage 4 compared with less than 20 percent in Japan. From 2003 to 2005, prostate cancer was the fourth most widespread cancer among males in Peninsular Malaysia with 2,150 cases and it accounted for 7.3 percent of the total cancers in males with age-standardised rate (ASR) of 12 cases per 100,000 population per year (Sabirin et al., 2011). With significant numbers of prostate cancer in Malaysia, the Malaysian National Cancer Management Blueprint 2008-2010 has taken initiative for early detection of prostate cancer in Malaysia by providing prostate cancer test service (Sabirin et al., 2011). Due to that, a Health Technology Evaluation (HTA) is suggested to look into the effectiveness and expense of asymptomatic male test for prostate cancer. According to Sabirin et al., (2011), although there is no national prostate cancer test program in Malaysia at present, PSA test and DRE are carried out as the need arises.

The WHO requirements for mass test programmes must be fulfilled in order for a mass test programme to be medically and ethically legitimate (Sabirin et al., 2011) The author however state that due to the substantial over-detection and over-treatment that would result from the test, existing reported evidence were inadequate to recommend the introduction of mass test for prostate cancer as a public health strategy. Therefore, targeted test is recommended for asymptomatic

men with a family history of prostate cancer starting age 40 years or older considering men with this demographic have higher risk of developing the disease. According to Reyes and Slutky (2009), men who are less than 40 years of age are rarely diagnosed with prostate adenocarcinoma.

2.1 Knowledge, Awareness and Practice of PSA test

In a study by Hoffman et al., (2009) almost 90 percent of subjects explained that PSA test was well understood, and 58 percent who score from 8 to 10 regarding knowledge of PSA test felt very informed about PSA test. However, some of the respondents that have poor knowledge of PSA test suggested a potentially inadequate understanding. They are reported to over-estimating their lifetime risk of prostate cancer incidence and mortality (Hoffman et al., 2009). On the other hand, a study by Ogunsanya et al., (2017) reported the general awareness of prostate cancer was poor and the questions concerning risk factors, test age guidelines, limits, and diet were often answered incorrectly.

Awareness was closely linked to having a normal source of treatment, education and income, especially high levels of income, thus, it was less likely men with no health care have learned about the PSA test (McFall, 2007). Moreover,in a study by Ojewola et al., (2017) only 25.1 percent had heard of prostate-specific antigen (PSA) as a test tool for prostate cancer and among them, 59.5 percent and 49.4 percent stated that radio and television are their main sources of information respectively.

The majority of respondents from study of (Ghunaim et al., 2018) confirmed that the clinic doctor did not discuss with them about prostate cancer test. Reported that only 36.6% of the participants obtained the information from medical team members and 17.1% work in the healthcare sector themselves whereas 24.4% claimed social media as their primary source of information,14.0% get the information from their pals and 7.9% get it from the news (Ghunaim et al., 2018).

In Jordan ,the percentage of participants who practiced routine prostate screening was 30 percent followed by 10 percent and 8.3 percent in Saudi Arabia and Egypt respectively, where most of them were in the age group 50 years and over (Arafa et al., 2012). There is a study conducted at a medical university in Iran using

universal sampling of a male population reported that 86.1 percent of the respondents did not know about prostate cancer screening and this study recorded a data of prostate cancer screening of only 8.6 percent (Zare et al., 2016). According to the study, in comparison of the result in their study with other studies, they found that lower prostate test screening associated with a low level of knowledge, awareness, and participation of Iranian men in prostate cancer test. Moreover, study by Yetunde et al. (2009) reported that in respondents with excellent knowledge, the frequency of prostate cancer test methods is almost twice as high as in those with poor knowledge.

All respondents in a study by Winnie et al. (2014) recorded a percentage of prostate test uptake and the reasons they use and not use PSA test. 10% confirmed that they have ever had a PSA test. According to the study, routine physical check-ups, accompanied by local signs and symptoms and physician recommendations, were the three key factors for the most recent PSA test. Contrasting, the three most common reasons mentioned by respondents for never having had a PSA test were that they did not feel it was important, that it was not available, and that they found themselves to be healthy all the time.(Winnie et al., 2014).

2.2 The Health Belief Model of Prostate Cancer Screening

In the 1950s, the Health Belief Model has been developed due to the ground breaking efforts to explain the reasons of people were or were not participating in tuberculosis test services by Rosenstock, Hochbaum, and others from their viewpoint in the U.S. Public Health Service (Glanz et al., 2008). According to the author, the Health Belief Model (HBM) has been widely used to describe health-related behavioural changes and continuity and as a conceptual structure for interventions in health behaviour since it developed. In a study by Glanz (2001), described that the Health Belief Model's four main constructs are known as perceived susceptibility and perceived severity (two dimensions of "threat"), and perceived benefits and perceived barriers (the "net benefits" components). The components 'cue to action' which is a stimulus to perform and 'self-efficacy' that is expectations of personal influence over actions performance, which have been shown to be such strong behaviour predictors are later adapted from Social Cognitive Theory into the Health Belief Model (Norman & Conner, 2016).

Different studies have shown various findings on levels of knowledge appear and participations to such test. In a study, Zare et al., (2016) state that when therapy and instruction are conducted based on a given procedure, it could lead to an

improvement in the actions of individuals. According to Ghodsbin et al., (2014), the Health Belief Model (HBM) has been used intensively to test health beliefs related to cancer test actions. The author also explained that according to HBM, one should initially concern of likelihood developing the health disorder (perceived susceptibility) and the seriousness of the complications derived from such condition with its all physical, psychological, social and, economic dimensions (perceived severity) in order to perform healthy behaviour. Therefore, one can get constructive signals from outside or within to take action (cues to action). However, in this model, there are also external factors that possibly inhibit the person's intention to take the action (perceived barriers) and they might find them more costly than the benefits of taking action itself (perceived benefits).

According to Glanz et al., (2008), assessments of HBM structures are applicable to the test of breast cancer and were correlated to both breast self-examination practises and mammography. HBM predicts that people would be more inclined to stick to mammography test recommendations if they feel vulnerable to breast cancer, assume that breast cancer is a dangerous illness, view test obstacles as smaller than perceived advantages, have greater self-efficacy for mammogram acquisition, and gain an initiation to take action (Glanz et al., 2008).

In a survey of perceptions of Jamaican and Haitian men regarding prostate cancer, both Jamaican and Haitian have a positive perceived susceptibility level. Astudy by Kleier (2004), reported that 40 % of Jamaican men believe that with age beginning at 40 years, the vulnerability of getting prostate cancer increased. Similarly, 30 % of Haitian men agreed that the vulnerability increased from 40 years of age. Moreover, 10 % responded that being black men increased the chance of prostate cancer in both Jamaican and Haitian men respectively. In contrast, a study by Steele et al., (2000) recorded that the definition of "high" risk did not correlate by age, education level, or monthly income. This is proved by the findings of respondents that are more likely to perceive themselves at “no” risk than their comparison groups (Steele et al., 2000). Those respondents are men with 70 years and older, men with low education level and men who earned less than $25000 annually. Similarly, only 7 % of men considered themselves tohave a "high" chance of developing prostate cancer in the African-American Men Study, while others answered with a "medium-low" risk, "no" risk, and some do not have an answers. Study by Ghodsbin et al., (2014) illustrate the fact that the studied men found themselves to be at low risk of the disease as the findings show low mean scores of perceived susceptibility and only 32.7 % of participants belong to a group with positive perceived susceptibility level.

In the latest research by Çapık & Gözüm (2012), the survey population comprises asymptomatic stable individuals, involving only a few people with a history of prostate cancer in their families, friends and connections. This condition may have been the reason of the absence of adequate seriousness among participants in their findings. As reported by Kleier (2004), all Jamaican and Haitian respondents agreed that prostate cancer could pose a significant health problem and result in death. They have been questioned what are possible symptoms if a person had problems with the prostate gland and most of the respondents were able to identify urinary symptoms that are frequent micturition, difficulty starting the urinary stream and nocturia. However, 40 % and 30 % of Jamaican and Haitian respondents respectively, could not identify any problems associated with prostate cancer while only 10 % of Jamaican and 30 % of Haitian mentioned issues of sexual dysfunction and drop in sexual drive respectively. Others identified pain and metastasis as complications. According to the PRECEDE model, knowledge and attitudes of predisposing factors can lead to appropriate health behavior, but the formation of appropriate behavior requires other factors, such as enabling factors and reinforcing factors, which are influential and decisive.

Previous study by Ghodsbin et al. (2014) revealed that 90.5 % of men reported good level of perceived benefits. According to the authors, respondents of the study believed that early diagnosis of the disease may result from taking successful prevention step such as by practicing screening behaviours of prostate cancer. Previous study reported that perceived benefits was found to be second strongest predictor of Nigerian men intention's in uptake of prostate cancer test with $p < 0.001$ (Ekeh, 2020). In the same study, 90% of respondents expected a relatively moderate to high level of gain from screening for prostate cancer with 58.5 % of respondents ranked above the mean of 22.32. Hence, according to Ekeh (2020) ,this result suggests that the majority of research participants felt that screening for prostate cancer was advantageous. This outcome, however, contrasts with a study that analysed the validation of the HBM scale for prostate cancer screening in Turkey. According to Çapık & Gözüm (2012), the study recorded mean scores of 3.33 and 6.24 for health motivation and perceived benefits among Turkish men respectively. Hence, the finding demonstrate that they have lower levels of optimism and perceived advantages toward prostate cancer tests.

A research by Ekeh (2020) found that more than half of the participants had low barriers to screening for prostate cancer. It is proved by findings of Nigerian male immigrant's intention on prostate cancer test that recorded 54 % of respondents disagreed with all issues in the barrier subscale. On the other hand, the findings also revealed that almost half of the participants in the study 48.5 % accepted on an item of fear that prostate cancer might be identified from the screening result in the barrier subscale. Thus, Ekeh (2020) conclude that fear of the test result might be the most possible barriers among participants with higher barrier result. This finding also consistent with Muliira et al., (2016) that found fear of an abnormal result of prostate cancer screening is one of the most common perceived barrier toward PSA test among respondents of the study.

The principle of self-efficacy is useful for intervention studies because affecting the development of influences of self-efficacy offers direction for successful behavioural modification (Lev & Elise, 1997). Therefore, high self-efficacy beliefs are believed to predict the purpose of stopping smoking, increased engagement in test programmes, and cancer adaptation. A study by Consedine et al. (2007) have shown that self-efficacy plays a significant role in the promotion of cancer prevention habits by the finding of a significant test and efficacy relationship with p-value < 0.01, which showed that variations in perceived

efficacy had a significant effect on the test of prostate cancer. A study of factors associated with prostate cancer screening behaviour in Iran by Jeihooni et al. (2015) recorded a poor mean scores for self-efficacy and self-managementhabits and suggesting a lack of commitment and efforts to avoid prostate cancer in accordance with self-care behaviours. Consedine et al., (2007) explained that previous descriptive studies showed that African-American men who had low self-efficacy in the treatment of prostate cancer, are less likely to undertake prostate cancer screening. Conclude by the author that higher self-efficacy or greater awareness may protect men from the consequences of test-related anxiety.

Efforts to raise understanding of illnesses need not only be aimed towards malignant but also benign cancers as it pivotal to decrease morbidity and mortality. According to Ojewola et al., (2017), a good level of knowledge and awareness of cancer is associated with a positive attitude and behaviour towards healthcare as their study reported that 46.9 percent of respondents demonstrated good knowledge about prostate diseases while 53.1 percent had poor knowledge.

2.3 Socio-demographic characteristics

The focus on education could play a major role in the way adult men view and recognize health knowledge (Obana and O'lawrence, 2015). Higher levels of education by individuals indicate a stronger regard about their own welfare based on previous literature (J. D. Allen et al., 2011). Unsurprisingly, slightly higher responses to prostate cancer awareness and PSA test were identified in both undergraduates and postgraduate university students with a p value of <0.001(Ghunaim et al., 2018) with 29.3% of participants gave correct answers when questioned about the age at which prostate cancer screening should be conducted, 38.4% gave incorrect answers and 32.3% could not give an answer. As in this study, the population chosen was academicians who have higher level of education and act as a mediator of knowledge transfer. Stated by Liza Abdullah

et al., (2011) academic organizations have a greater opportunity to exchange high-quality knowledge and skills. The value of information sharing among academics has grown as public universities have been recognized for high-quality research and publications. According to Kim & Ju, (2008), in order to produce new information that emerges from the processing of existing knowledge, a systematic mechanism that enables academics to share knowledge and collaborate efficiently is required. While several studies have demonstrated that teachers are knowledgeable of breast cancer risk factors and proposed screening recommendations (Nadia Yanni Seif & Magda A. Aziz, 2000; Pavia et al., 1999), Madanat & Merrill (2002) stated that female teachers have insufficient screening behaviors. In studies of female teachers and academicians in Iran (Jarvandi et al., 2002), Nigeria (Odusanya, 2001) and Malaysia (Parisa Parsa et al., 2008), the prevalence of conducting monthly BSE was found to be comparable with 6%, 11%, and 19% , respectively. According to Champion (1993), to improve teachers' and academicians' breast cancer screening results, we need to understand how they feel about early breast cancer detection, as well as the obstacles to and predictors of BSE and other early-detection methods' use.

As with demographics, occupation also was found to have a significant impact on the information as follows. According to McFall (2007), lower socio-economic status is related to lower levels of knowledge, reputation, influence and access to services. Regarding history of prostate cancer , most respondents (84.8%) indicated that they have no family history of prostate cancer, while 15.2% had a family history of prostate cancer (Ghunaim et al., 2018). Furthermore, stated by the author that family history of prostate cancer has been found to have no major effects on the knowledge of participants regarding the disease and test of prostate cancer with p-value 0.053. (Ghunaim et al., 2018).

Age might be significant indicator of knowledge, awareness and practice of PSA test. Those with age 65 years and older were found more likely to aware of the PSA test (McFall, 2007). Several findings indicate that younger adults appear to be slightly vulnerable to the risks of their own environment because of assumption that they are resistant to hazards and risks to health issue and do not need to follow preventive measure (Alavijeh et al., 2016). When correcting for other factors, ethnicity was correlated with awareness of PSA test. According to McFall (2007) Hispanic black men have somewhat lower awareness and practice of PSA test than non-Hispanic white men. This can be seen by the proportion of men who aware of the PSA test are ranged from 75% of non-Hispanic white men to just

around half of Hispanic men and men of other races(McFall, 2007). A study by Ross et al., (2005) explained that perhaps men who have never been married are less concerned about prostate cancer and its implications than are men who have been married because of less exposure and discussion with adults. According to (Ghunaim et al., 2018), among participants employed in the healthcare field, substantially higher awareness scores with p-value <0.001 were registered. Regarding history of cancer, family experience of other forms of cancer, had a positive significant impact with p-value <0.001 on participant awareness regarding disease and its test.

This finding is consistent with finding by Alavijeh et al., (2016) that participants aged over 60 were more likely to perform prostate cancer screening behaviour. A study by Bell et al., (2014) describe few recommendations regarding age and uptake of PSA test. However, the recommendations are applied to general population of men without a previous diagnosis of prostate cancer and do not apply to the use of the PSA test for surveillance after diagnosis or treatment of prostate cancer. Based on the low incidence of prostate cancer and prostate cancer mortality for men with age less than 55, thus they are not recommended to take prostate cancer screening. It is because the evidence of benefit of screening as well as the harms are not scientifically found (Bell et al., 2014). Similarly, men

aged 55–69 years of age also not recommended to take the PSA test. It is believed due to a relatively low value on a small and uncertain potential reduction in prostate cancer mortality, and a relatively higher value on the risk of a false-positive result, unnecessary biopsies, over diagnosis of prostate cancer and harms associated with unnecessary treatment. The last and strong recommendation not to take PSA test is for men 70 years of age and older. This recommendation reflects the lower life expectancy and the lack of evidence for benefit of screening in this age group as well as the evidence of harms (Bell et al., 2014).

Stated by Ross et al., (2005) , being married has been correlated with both increased awareness and greater practice of the PSA test perhaps due to the livings with family and many adults offer more support for conversation about prostate cancer and the PSA test. Other than that, monthly income was favourably linked to the use of PSA. A study by J. D. Allen et al., (2011) found that men of lower income ratios were not as likely to get cancer tests.. However, McFall, (2007) found that the number of black men who use PSA test is higher than predicted based on their lower socio-economic status. It may represent expanded understanding of the health threat of prostate cancer faced by black men. In order to make a smarter judgement on taking a PSA exam, it was necessary to determine the affordability of available health coverage among adult males

2.4 Conceptual Framework

Figure 2.4.1: Conceptual framework

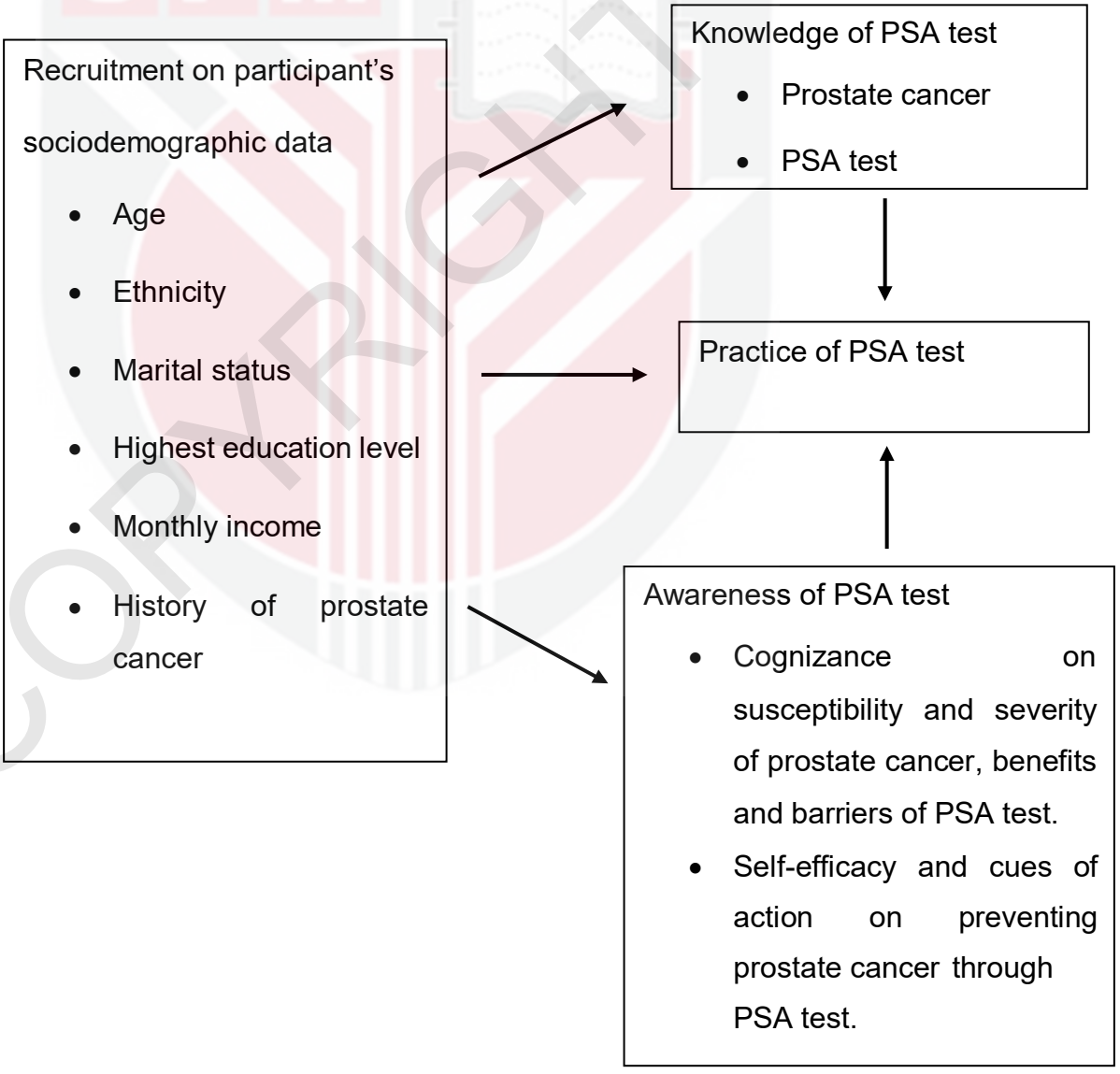


Figure 2.4.1 showed the conceptual framework of the proposal study investigation on knowledge, awareness, and practice of PSA test among academicians in a public university. The socio-demographic data (age, ethnicity, marital status, highest education level, monthly income, and history of prostate cancer), knowledge (prostate cancer and PSA test), and awareness of PSA test were the independent variable while practice of PSA test was the dependents variables.

2.5 Conceptual definition

1. Knowledge

Knowledge defined as the fact or condition of knowing something with familiarity gained through experience or association (Merriam-Webster, 2021)

2. Awareness

Awareness is knowledge that something exists, or understanding of a situation or subject at the present time based on information or experience (Cambridge Dictionary, 2020).

3. Practice

Practice is the application or use of an idea, belief, or method, as opposed to theories relating to it (Oxford Dictionary, 2020). According to American Cancer Society (2017), men who choose to be screened for a PSA of less than 2.5 ng/mL will only need to be retested after 2 years, while test should be performed annually for men with a PSA level of 2.5 ng/mL or higher.

4. Prostate-specific antigen (PSA) test

The most common test tool for prostate cancer is the prostate-specific antigen (PSA) test. This is a simple blood test that measures the presence of PSA circulating in your bloodstream.

5. Socio-demographic data

Socio-demographic are the characteristics of a population (Dobronte, 2013). In this study, socio-demographic data consists of age, ethnicity, marital status, level of education, monthly income, and personal and family history of prostate cancer, and health status.

2.6 Operational definition

1. Knowledge of PSA test

In this study, knowledge is defined as the respondent's understanding on prostate cancer from the aspect of onset of disease, risk factors, symptoms, treatments and PSA test. It will be measured by fourteen questions of True/False/Not sure that assess the level of knowledge of the participants on prostate cancer and PSAtest. The score is within 14 to 28 and the knowledge will be assess based on the mean score.

2. Awareness of PSA test

In this study, awareness is defined based on the Health Belief Model as respondent's cognizance on susceptibility and severity of prostate cancer, benefits and barriers of PSA test. Self-efficacy and cues for his action on preventing prostate cancer are also included as impetus of PSA test. Twenty-one questions with the format of the Five-point Likert scale will be used in measuring the belief of the respondents towards prostate cancer and PSA test. The score is within 13 to 65 and the awareness will be assess based on the mean score

3. Practice PSA test

In this study, practice of PSA test is defined by the prevalence of PSA test uptake and how often the respondent undertaking the PSA test over one year.

CHAPTER 3

RESEARCH METHOD

3.1 Study design

The study design for this study is a cross-sectional study. Self-administered online survey was used to determine the level of knowledge, awareness and practice of PSA test among academicians in a public university. According to Hoe & Hoare (2012), quantitative techniques are used to test hypotheses, determine the relationships between variables and measure the number of observations. The quantitative data can be easily counted or measured (Hoe & Hoare, 2012) and it also allows data about the sample population to be generalized to a larger population (M. Allen, 2017). Therefore, the quantitative research method is most appropriate for this research.

3.2 Study location

This study was conducted in University Putra Malaysia. The selected faculties for the survey were Faculty of Medicine and Health Science, Faculty of Engineering, Faculty of Agriculture, and Faculty of Science.

3.3 Sampling frame

3.3.1 Study duration

The data for this study were collected in 3 months which is from 1st March 2021 until 1st June 2021.

3.3.2 Study population

The target population is the community of people in which the intervention aims to perform analysis and draw findings from the intervention (Barnsbee et al., 2018). In this study, male academicians who are working at Faculty of Medicine and Health Sciences, Faculty of Engineering, Faculty of Science and Faculty of Agriculture in Universiti Putra Malaysia were the target population.

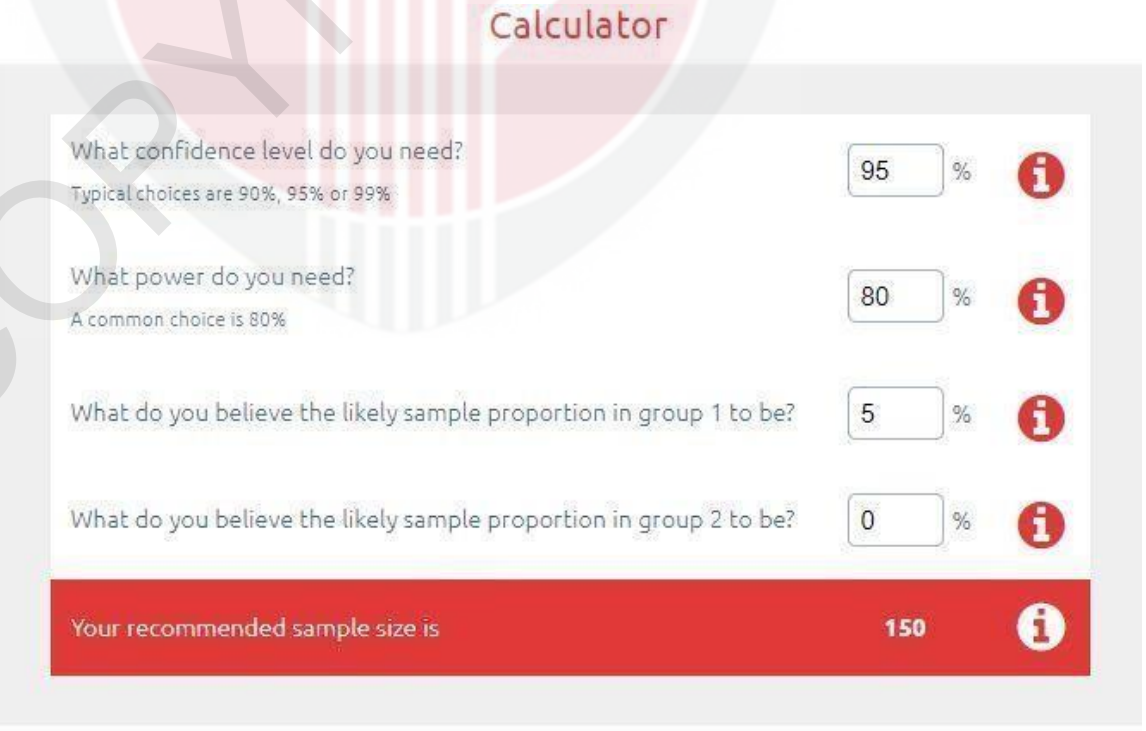
3.3.3 Study criteria

Inclusion criteria	Exclusion criteria
i. Male academicians.	i. Male academicians who are on leave during entire period of the data collection. ii. Male academicians who have history of prostate cancer.

3.4 Sample size

Sample size calculation is very essential because it could directly influence the research findings. The size of the sample selection is based on 2 variables proportion from previous study. First is the proportion of good knowledge=5% and good practice=0% of PSA test from study of Knowledge of prostate cancer and screening practices among men in Sokoto, Nigeria by Awosan et al., (2018). The sample size calculated by using online two proportion calculator derived from https://select-statistics.co.uk/ as shown below:

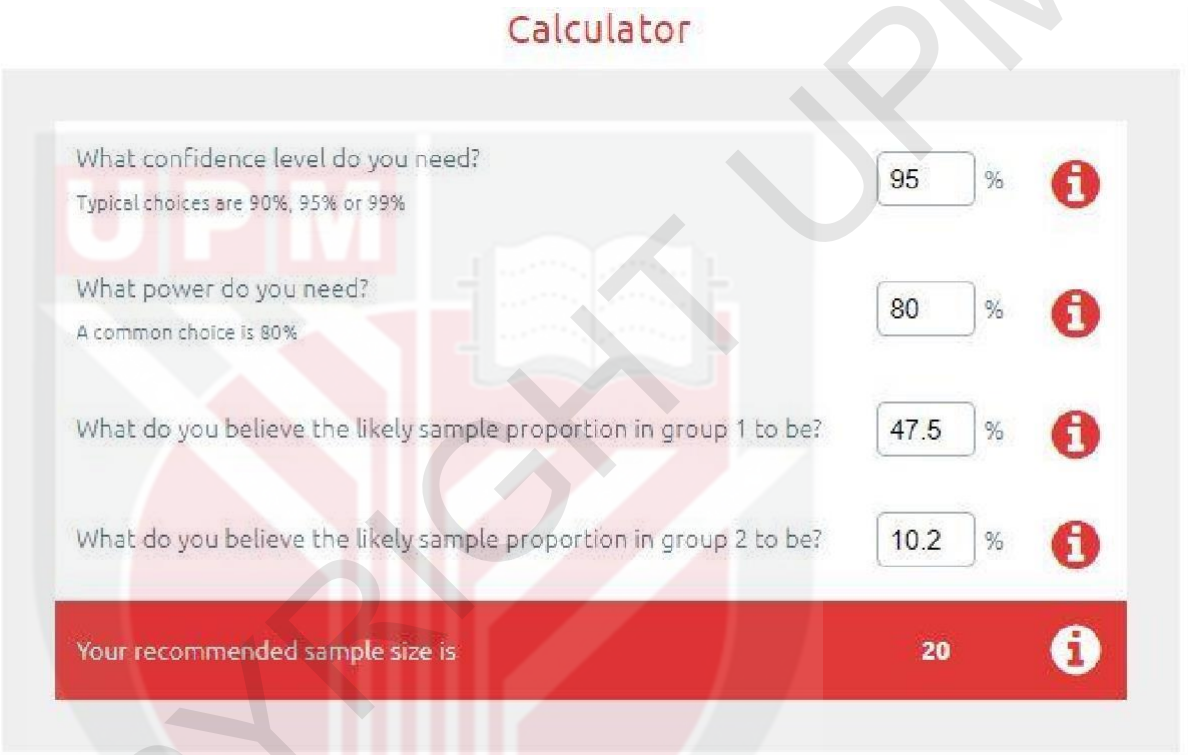
Figure 3.4.1: Sample size calculation 1



Adjusted with 10% non-response rate = 10% of 150= 15. Hence, total sample size is 165.

Another sample size calculation for proportion of awareness and practice is from study by Ojewola et al., (2017) where the proportion of good awareness= 47.5% and good practice= 10.2%. The sample size calculated by using online two proportion calculator derived from https://select-statistics.co.uk/ as shown below:

Figure 3.4.2: Sample size calculation 2



Adjusted with 10% non-response rate = 10% of 20= 2. Hence, the total sample size is 22.

Highest calculation will take to cover the population among academicians in UPM. Therefore, the sample size for this study is 165 respondents whereby the number of respondents would be useful so that the researcher will not over sampling or under sampling. Also, to produce a desirable power of the statistical findings of the study.

3.5 Sampling method

A multi-stage random sampling technique was used in this study. The sampling technique was chosen due to cost-effective and time-effective because this method helps cut down the population into smaller groups. According to Jawale, (2012), this sampling process requires selecting a sample in such a manner that all people in the population have an equal opportunity to be selected. Therefore, it is considered the most credible sampling method hence it becomes the preferred sampling method to be use in this study. Moreover, random sampling is necessary to ensure the appropriateness and consistency of this analysis, since it enables causal relationships formed by the use of randomization to be applicable to the population group outside the survey (Jawale, 2012).

The first random sampling stage in this study was all the sixteen faculties available in the Universiti Putra Malaysia were listed out. The information were obtained from https://ppa.upm.edu.my/. From this list, the faculties are randomly selected by using coin tossing method. The selection of the faculties was made because of the time constraint to obtain data from many faculties for the data collection process. Thus, for the smoothness and appropriateness of the study, researcher has choose four faculties through randomisation. The faculties that comes up “head” during coin toss was chosen to participate in this study, while

the faculty that comes up “tail” were excluded from this study. The procedure was done with the presence of supervisor to avoid the bias. As result, four faculties was selected and be the study location of this study.

Next stage of the random sampling is all the male academician’s staff number from the faculties selected were written out on a slips of paper and being placed in a jar. One jar for one faculty. Since the response rate of the study is 165, 42 male academician’s name are were drawn out from each jar as participants of this study.

3.6 Study instruments

Self-administered questionnaire was used for the data collection in this study. The questionnaire was modified from a study by Weinrich et al., (2004) on knowledge of the limitations associated with prostate cancer screening among low-income men, Mirzaei-Alavijeh et al., (2020) on prostate specific antigen test uptake: a cross sectional study on elderly men in Western Iran and Awosan et al., (2018) on knowledge of prostate cancer and screening practices among men in Sokoto, Nigeria. All three of the questionnaires are public domain and free for use and reconstruct.

There were 38 questions consist of closed-ended questions that categorised into four sections. The first section (Section A) consists 6 items about the socio-demographic profiles of the participants which were age, ethnicity, marital status, highest education level, monthly income and family history of prostate cancer.

The second section (Section B) consists of 5 items related to the practice of PSA test of the participants. Amongst the questions were the frequency, uptake of PSA test, the reason of taking PSA test and what prevents participants from taking PSA test.

The third section (Section C) consists of 14 true/false/not sure questions that assess the level of knowledge of the participants on prostate cancer and PSAtest. There were 10 questions with 'True' answer and 4 items with 'False' answer (refer table 3.6.1 below). Correct answer was scored as 2 and incorrect answer was scored as 0 whereas "Not sure" answer was scored as 1 as it was interpreted as respondent presumably genuinely does not know how to respond or is trying to avoid answering the question. The minimum score was 0 and the maximum score was 28. The internal consistency of the questions related to the knowledge was done by the original author with Cronbach's alpha value (α) of 0.77. However, the questionnaire is modified to fit the context of this study, therefore, pre-test was conducted to obtain new reliability score that is α = 0.85.

The last section (Section D) of the questionnaire consist of 13 items pertains to the awareness of the participants regarding PSA test. The questions represent six constructs originate from the Health Belief Model which includes benefits (α=0.87) and barriers (α=0.80) of PSA test, and self-efficacy (α=0.75) and cues of action (α=0.65) on preventing prostate cancer through PSA test. Section D also includes susceptibility with Cronbach's alpha value (α=0.70) and severity (α =0.71) of prostate cancer. Participants specify their level of agreement to a statement in five points Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). There were 3 reverse questions (4,5,6,) in section D with score

ranging from 5 (strongly disagree) to 1 (strongly agree).The minimum score was 13 and the maximum score was 65. Pre-test was conducted and new reliability score value obtained was $\alpha = 0.61$.

Table 3.9.1: Answer for Section C: Knowledge of prostate cancer and prostate-specific antigen (PSA) test

Answer for Section C : Knowledge of prostate cancer and prostate-specific antigen (PSA) test	
True	**False**
1	4
2	5
3	10
6	13
7	
8	
9	
10	
11	
12	
15	

3.7 Reliability and validity

In this study, the questionnaire was modified in order to suit with the context of the study related knowledge, awareness, and practice of PSA test. Therefore, this questionnaire needs a pre-test on its component for its reliability and validity. The pre-test was carried out among male academicians in Universiti Putra Malaysia that are not selected for the study.

As for reliability score, the result from the pre-test has been reviewed by supervisor and analysed by using the appropriate statistical test such as Statistical Packages for Social Sciences (SPSS) version 22.0 to get the values of Cronbach alpha (α). The value for Cronbach's α coefficient for Knowledge of PSA test was 0.85, Awareness of PSA test was 0.61 and Practice of PSA test was 0.65 which rely between 0.6 and 0.8. Thus, the instruments were acceptable.

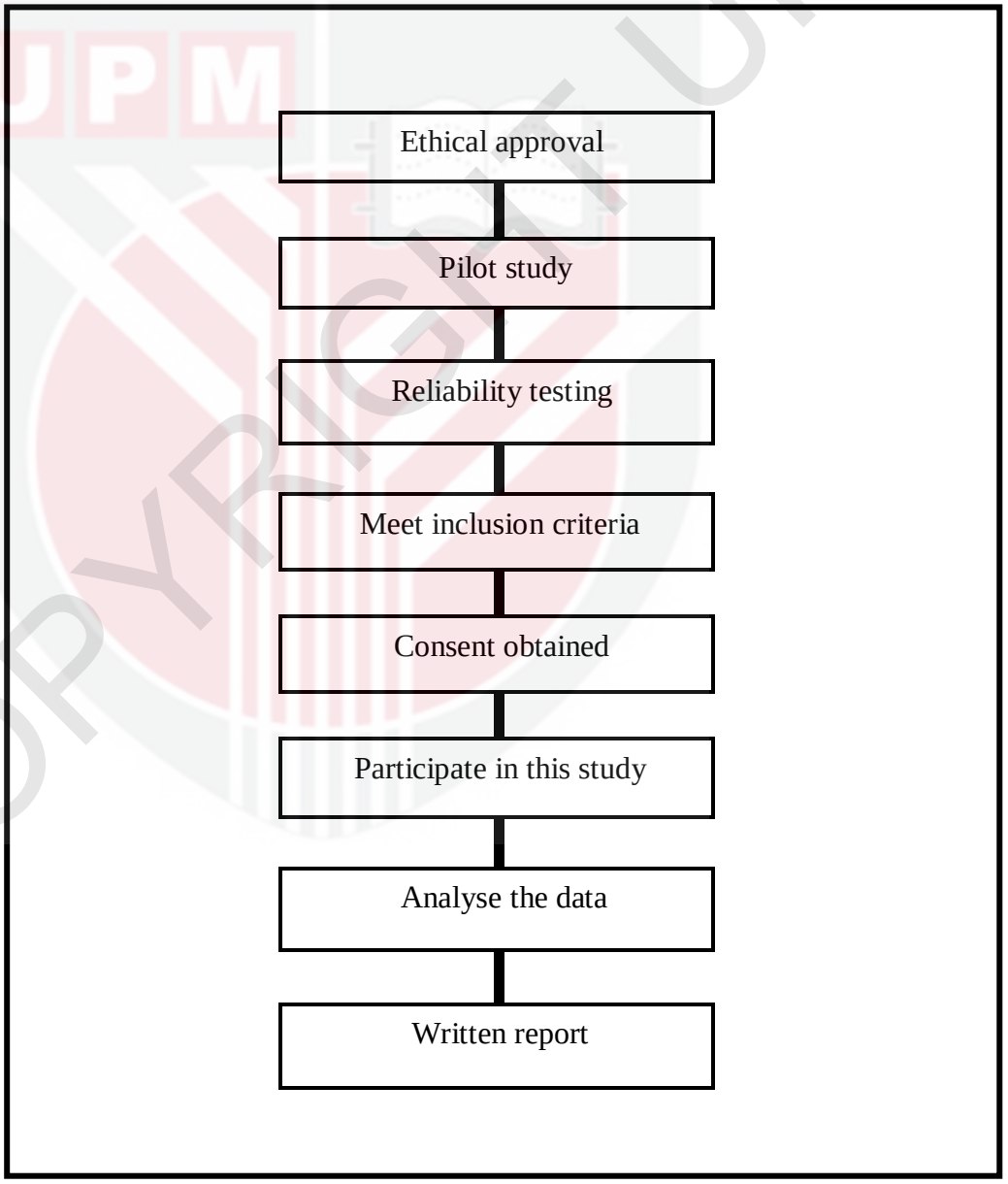
For validity, the questionnaire was checked and revised by the supervisor. Firstly, content validity. It is to check whether the questionnaire adequately covers all the aspect that related to all variable in the study. Next, face validity where I asked my supervisor to view the questionnaire whether the test appears to measure what it claims to.

3.8 Data collection

Data was collected within 3 months. The questionnaires was be formed in Google Form and the link of the form was emailed to selected academicians. It was found that the effective strategy to increase the number of participation is by multiple promotion. Therefore, the participants were reminded to answer the survey at least once a week to ensure maximum participations and that the desired sample size are achieved. Participants were volunteered to participate and consent was automatically obtained once the participant tick the "Agree" button and submitted the survey. All data were kept in Google Account to ensure the privacy and confidentiality

3.9 Study flowchart

Figure 3.7.1: Study flowchart of Knowledge, Awareness, and Practice of PSA Test among Academicians in a Public University, Malaysia.



3.10 Data analysis

DESCRIPTIVE DATA			
Objectives	**Variables**	**Type of data**	**Statistical measurements**
To determine the socio-demographic characteristics (age, ethnicity, marital status, history of prostate cancer and health status) of the respondents.	Age	Continuous	Mean and standard deviation
	Ethnicity	Categorical	Percentage and frequency
	Marital status		
	Level of education		
	Monthly income		
	History of prostate cancer		
To assess the level of knowledge of PSA test among the respondents.	Knowledge of PSA test	Continuous	Mean and standard deviation
To determine the awareness of PSA test among the respondents.	Awareness of PSA test		
To determine the practice of PSA test among the respondents.	Practice of PSA test	Categorical	Frequency and percentage

INFERENTIAL DATA			
Objectives	**Dependent variable**	**Independent variable**	**Statistical measurement**
To identify the relationship between level of knowledge and practice of PSA test among the respondents.	Practice of PSA test (categorical)	Knowledge of PSA test (continuous)	Logistic regression
To identify the relationship between awareness and practice of PSA test among the respondents.	Practice of PSA test (categorical)	Awareness of PSA test (continuous)	
To identify the relationship between socio-demographic characteristics and the level of knowledge of PSA test among the respondents.	Knowledge of PSA test (continuous)	Socio-demographic characteristics (continuous)	Pearson correlation
		Socio-demographic characteristics (categorical)	One Way Independent ANOVA
To identify the relationship between socio-demographic characteristics and	Awareness of PSA test (continuous)	Socio-demographic characteristics (continuous)	Pearson correlation

awareness of PSA test among the respondents.		Socio-demographic characteristics (categorical)	One Way Independent ANOVA
To analyse the statistical association between socio-demographic characteristics and the practice of PSA test among the respondents.	Practice of PSA test (categorical)	Socio-demographic characteristics (continuous)	Logistic regression
		Socio-demographic characteristics (categorical)	Pearson chi-square

3.11 Ethical consideration

Participant

The participant was informed of the consent to participate in this study. The participant was given the Participant information sheet. The participant was given 10 minutes to read the information sheet. In the information sheet, the participant requires to tick their willingness to participate in the study.

Institution

A written approval and permission was obtained from the Jawatankuasa Etika Universiti untuk Penyelidikan Melibatkan Manusia (Ethics Committee for Research Involving Human Subjects), Universiti Putra Malaysia (JKEUPM).

All the information regarding the respondents were kept confidential and only be used for research purpose only. The questionnaire was secure in main supervisor office of Department of Nursing and Rehabilitation for three year before it will be disposed. Any reports or publication from this study is reported in general and

not involve any identifying features. Only the principal investigator and supervisory committee or researchers have total access to the findings.

3.12 Declaration of conflict of interest

There was no any conflict of interest (COI) was participated in this study.

3.13 Honorarium and incentives to respondents

There was no token of appreciation and no cost for transportation since study was conducted by online using internet link which are Google Form. The researcher got data by internet link and there was no face to face sessions with participants.

CHAPTER 4

RESULT

This chapter presents the results of this study that aimed to determine the sociodemographic characteristics with knowledge, awareness, and practice of PSA test among the respondents. All the data had been analysed using IBM Statistical Package for the Social Science (SPSS) 22.0. Value of Skewness and Kurtosis -2 to 2 test was used in this study to test for normality. In this study, the independent variables were the level of knowledge and awareness of PSA test while the dependent variable was the practice of PSA test.

Normality test was conducted on dependent variable and the data found was normally distributed whereby the value of Skewness was 0.261 and Kurtosis 0.517. The significant value obtained from Shapiro-Wilk test was 0.000. The distribution of the practice of PSA test was visualized by a histogram. Hence, normally distributed data were presented with bell-shaped histogram.

4.1 Response rate

A total of 85 respondents responded to the online survey. No respond rate could be calculated as this study was conducted using online platform without specially send to any particular respondents. Sample size needed for study was 165 participants with 95% confidence level and 5% margin error but the researcher got lesser participants from the actual sample size.

For a descriptive analysis, the numerical data includes age of the participant, level of knowledge and awareness of the PSA test. These data was be described by using mean and standard deviation as the data were found to be parametric. As for the categorical data, it was described by using frequencies and percentage. This data was also visualized by using a pie chart and bar chart.

4.2 Socio-demographic data among respondents

Table 4.2.1 shows, the mean age of total respondents is 42.94±7.571 and out of 85, 61 (71.8%) represented Malay respondents, and 17 (20.0%) represented Chinese respondents whereas 7 (8.2%) represented Indian respondents. Most of the respondents' highest educational status were Doctor of Philosophy (PhD) with 61 (71.8%) and the rest 24 (28.2%) of the respondents' highest education level were Master. Majority of the respondents were married which consist of 66 (77.6%) respondents, single respondents were 18 (21.2%) respondents and the rest of the respondents 1 (1.2%) was divorced. For monthly income, there were 13 (15.3%) respondents were having income less or equal to RM4,850, 45 (52.9%) respondents were having RM4,851- RM10,970, and 27 (31.8%) respondents were having income more or equal to RM10,971. From 85 respondents, with mean 1.46 and SD ±1.770 answer they had close relativeswith prostate problems.

Table 4.2.1: Socio-Demographic data of the respondents (n=85)

Characteristics	n	%	Mean	±SD
Age	85	100	42.94	±7.571
Race				
Malay	61	71.8		
Chinese	17	20.0		
Indian	7	8.2		
Other				
Highest Education Level				
Master	24	28.2		
Doctor of Philosophy (PhD)	61	71.8		
Marital Status				
Single	18	21.2		
Married	66	77.6		
Divorced	1	1.2		
Monthly Income(RM)				
≤ RM 4,850	13	15.3		
RM 4,851 – RM 10,970	45	52.9		
≥ RM 10,971	27	31.8		
Any close relatives with prostate problems	85	100	1.46	1 ±1.77

4.3 Knowledge of Prostate-specific antigen (PSA) test among the respondents

Table 4.3.1 shows the mean knowledge of total respondents on prostate-specific antigen test is 17.729±2.945. As for item 1, 70 (82.4%) respondents answer "Yes" correctly. Item 2 answered by 46 (54.1%) respondents correctly with "Yes" as answer .Next, for item 3, 53 (62.4%) respondents answered "Yes". Majority of the respondents 49 (57.6%) answered "Yes" for Item 4 and only 7 (8.2%) answered correctly with "No" option. Item 5 is related to previous diagnosis of prostate cancer where the counts of respondents answered correctly with "No" were 12 (14.1%). Regarding item 6, most of the respondents are well concerned about family history of prostate cancer in which it increased risk of getting prostate cancer where 71 (83.5%) respondents answered "Yes" which is the correct answer. For item 7, it is related to knowledge of symptoms of prostate cancer where half of respondents 44 (51.8%) answered "Yes". As item 8 questioning about the appearance of symptoms if someone having prostate cancer, most of respondents answered correctly with 56 (65.9%) of respondents answered "Yes". For item 9, most respondents answered "Not sure" with 51 (60.0%). From this findings, it shows that there are still lack of knowledge of the recommended age for prostate-specific antigen test in men among the respondents. Regarding item 10, question asked about prognosis by doctor for individual with prostate cancer, where the findings shows 36 (42.4%) respondent did thought that doctor can make a prognosis with answering "Yes". Item 11 and 12 questioning about effect of prostate cancer treatments toward sexuality and urination where 40 (47.1%) picked "Yes" as answer in item 11. As for item 12, 45 (52.9%) answered "Yes". Next, 34 (40.0%) respondents answered "Yes" for item 13. Lastly, item 14 shows findings of 45 (52.9%) respondents who are "Not sure" about frequent back pain is one of sign of prostate cancer.

Table 4.3.1: Knowledge of Prostate-specific antigen (PSA) test among the respondents (n=85)

Characteristics	Mean	±SD	N (%)		
Knowledge of Prostate-specific antigen (PSA) test among the respondents	17.729	±2.945	**YES**	**NO**	**NOT SURE**
1. PSA test is used to help detect prostate cancer or other prostate abnormalities			70 (82.4%)	0 (0%)	15 (17.6%)
2. PSA test is performed the same way as other routine blood tests			46 (54.1%)	7 (8.2%)	32 (37.6%)
3. A small vial of blood is drawn from the arm and brought to a laboratory where prostate-specific antigen (PSA) levels are measured			53 (62.4%)	2 (2.4%)	30 (35.3%)
4. It is necessary for a man to have a prostate- specific antigen (PSA) test			49 (57.6%)	7 (8.2%)	29 (34.1%)
5. Men without previous diagnosis of prostate cancer should start getting prostate-specific antigen (PSA) tests done at age 40			46 (54.1%)	12 (14.1%)	27 (31.8%)
6. A man is more likely to get prostate cancer when			71 (83.5%)	1 (1.2%)	13 (15.3%)

he has a family history of prostate cancer.			
7. Not all men with prostate cancer will experiencing the symptoms of prostate problem.	44 (51.8%)	7 (8.2%)	34 (40.0%)
8. Prostate cancer may grow slowly before the symptoms appear.	56 (65.9%)	3 (3.5%)	26 (30.6%)
9. Men older than 70-year-old do not recommended to go for prostate-specific antigen (PSA) test.	19 (22.4%)	15 (17.6%)	51 (60.0%)
10. A doctor can make prognosis on life expectancy after a man is diagnosed with prostate cancer.	36 (42.4%)	16 (18.8%)	33 (38.8%)
11. Some treatments for prostate cancer cancause affect the sexuality.	40 (47.1%)	6 (7.1%)	39 (45.9%)
12. Some treatments for prostate cancer may cause difficulty to control the urine.	45 (52.9%)	1 (1.2%)	39 (45.9%)
13. An abnormal prostate-specific antigen (PSA) blood test means a man definitely have cancer.	34 (40.0%)	23 (27.1%)	28 (32.9%)
14. Frequent pain often in your lower back couldbe a sign of prostate cancer.	33 (38.8%)	7 (8.2%)	45 (52.9%)

4.4 Awareness of Prostate-specific antigen (PSA) test among the respondents

Table 4.4.1 shows the mean awareness of total respondents on prostate-specific antigen test is 32.306±6.651. As for item 1, most of the respondents answered "Strongly agree" and "Agree" with 37 (43.5%) respectively, 9 (10.6%) answered "Not sure" and 2 (2.4%) respondents answered "Disagree". Item 2 answered by all respondents where 28 (32.9%) answered "Strongly agree", 29 (34.1%) respondents answered "Agree", 21 (24.7%) do not sure of the answer, 4 (4.7%) "Disagree" with the question and the rest 3 (3.5%) "Strongly disagree" on mentioned item. Next, for item 3, 16 (18.8%) respondents answered "Strongly agree", and most respondents 36 (42.4%) answered "Agree", 22 (25.9%) respondents answered "Not sure", while 6 (7.1%) and 5 (5.9%) respondents answered "Disagree" and "Strongly disagree" respectively. Majority of the respondents 38 (44.7%) was "Not sure" for Item 4 which state that PSA test might be a time-consuming procedure, while 6 (7.1%) and 18 (21.2%) answered "Disagree" and "Strongly disagree" respectively. However, about 18 (21.2%) respondents "Agree" with the statement and 5 (5.9%) marked "Strongly agree". The counts of respondents who are agreed to the statement are near to equal to the number of respondents who are not agreed. Item 5 is related to the distance of health centre clinic from respondent's house that stop them from taking PSA test and most respondents 29 (34.1%) are "Not sure" of the answer , 25 (29.4%) "Disagree" with the statement, and 3 (3.5%) "Strongly disagree" whereas count

of respondents who “Agree” were 19 (22.4%) and 9 (10.6%) “Strongly agree”. For item 6, most respondents are “Disagree” with 28 (32.9%) and respondents who are “Strongly disagree” counted 10 (11.8%). Respondents who are “Not sure are around (24.7%) which equal to 21 respondents whereas the other 12 (14.1%) and 14 (16.5%) answered “Strongly agree” and “Agree” respectively. 35 (41.2%) respondents “Agree” that they confident they can make an appointment to have PSA test and 17 (20.0%) even “Strongly agree” of item 7. Only 1 (1.2%) respondent answered “Strongly disagree” and “Disagree” toward the statement while other 31 (36.5%) were “Not sure” that they can or cannot make an appointment of PSA test. For item 8, 2 (2.4%) answered “Disagree”, 29 (34.1%) were “Not sure” of the answer while most respondents 36 (42.4%) “Agree” and 18 (21.2%) respondents “Strongly agree” with the statement. Item 9 asking if respondents would go for PSA test even they are feared of the result. The data shows 45 (52.9%) “Agree” that they would do as said in the statement and 20 (23.5%) were “Strongly agree” about it. However, there are 3 (3.5%) respondents that “Disagree” of the statement and the rest 17 (20%) are unsure of it. Next, item 10 collected 38 (44.7%) and 30 (35.3%) respondents that answered “Agree” and “Strongly agree” respectively. Only small number of respondents which is 4 (4.7%) who are “Disagree” and 13 (15.3%) answered “Not sure”. For item 11, 42 (49.4%) and 20 (23.5%) respondents “Agree” and “Strongly agree” that they will get PSA test if healthcare workers recommend it to them. Meanwhile, 7 (20.0%) “Not sure” that they will go or not and 6 (7.1%) would not go for PSA test even

recommended by healthcare workers. Majority of respondents, 39 (45.9%) would "Agree" to go for PSA test if their family encourage them while 18 (21.2%) "Strongly agree" about it. Item 12 asked respondent's agreement if their family member encourage them to take PSA test, majority of the respondents 39 (45.9%) "Agree" and 18 (21.2%) were "Strongly agree", while 25 (29.4%) were "Not sure" of the answer and only 3 (3.5%) "Disagree". Last item is item 13 where the researcher asked respondents if they would go for PSA test if it is free. The data collected found most respondents 38 (44.7%) were "Strongly agree" that they would go for it if it were free and 32 (37.6%) were "Agree". The rest 12 (14.1%) were "Not sure" while 3 (3.5%) were "Disagree".

Table 4.4.1: Awareness of Prostate-specific antigen (PSA) test among the respondents (n=85)

Characteristics	Mean	±SD	N (%)				
Awareness of Prostate-specific antigen (PSA) test among the respondents	32.306	±6.651	**Strongly disagree**	**Disagree**	**Not sure**	**Agree**	**Strongly agree**
1. Prostate-specific antigen (PSA) test uptake will help to diagnose prostate cancer early.			0 (0)	2 (2.4)	9 (10.6)	37 (43.5)	37 (43.5)
2. Prostate-specific antigen (PSA) test uptake would ease my mind about the risk of getting prostate cancer			3 (3.5)	4 (4.7)	21 (24.7)	29 (34.1)	28 (32.9)
3. Prostate-specific antigen (PSA) test uptake will decrease my chances of dying from prostate cancer			5 (5.9)	6 (7.1)	22 (25.9)	36 (42.4)	16 (18.8)
4. Prostate-specific antigen (PSA) test procedure is time-consuming			6 (7.1)	18 (21.2)	38 (44.7)	18 (21.2)	5

					(5.9)
5. I believe most people do not go for prostate-specific antigen (PSA) test because health centre clinic is far from their house	3 (3.5)	25 (29.4)	29 (34.1)	19 (22.4)	9 (10.6)
6. I am afraid of being diagnosed with prostate cancer if I go for prostate-specific antigen (PSA) test	10 (11.8)	28 (32.9)	21 (24.7)	14 (16.5)	12 (14.1)
7. I am confident that I can make an appointment to have a prostate-specific antigen (PSA) test uptake	1 (1.2)	1 (1.2)	31 (36.5)	35 (41.2)	17 (20.0)
8. I am confident that I can find the time to have a prostate-specific antigen (PSA) test uptake	0 (0)	2 (2.4)	29 (34.1)	36 (42.4)	18 (21.2)
9. I am confident that I can get a prostate-specific antigen (PSA) test uptake even if I am worried about the result	0 (0)	3 (3.5)	17 (20.0)	45 (52.9)	20 (23.5)

10. I believe that I would go for prostate-specific antigen (PSA) test uptake if doctors advised me	0 (0)	4 (4.7)	13 (15.3)	38 (44.7)	30 (35.3)
11. I believe that I would go for prostate-specific antigen (PSA) test uptake if health care workers encourage me	0 (0)	6 (7.1)	17 (20.0)	42 (49.4)	20 (23.5)
12. I believe that I would go for prostate-specific antigen (PSA) test uptake if my family encourages me	0 (0)	3 (3.5)	25 (29.4)	39 (45.9)	18 (21.2)
13. I am willing to go for prostate-specific antigen (PSA) test if it is free	0 (0)	3 (3.5)	12 (14.1)	32 (37.6)	38 (44.7)

4.5 Practice of Prostate-specific antigen (PSA) test among the respondents

Table 4.5.1 shows analyzed data of practice of PSA test among 85 respondents. From the result, found that only 9 (10.6%) out of 85 has taken PSA test in their lifetime. Among those who has taken, 7 (8.2%) took PSA test once and 2 (2.4%) has took the test more than once. Out of 9 respondents who had took PSA test, 3 (3.5%) had underwent the PSA test less than 1 year ago and between 1 to 2 years ago respectively. There are 2 (2.4%) had took the test about 3-4 years ago and 1 (1.2%) could not remember when was the last time he took the test. Next item asked respondent what encourage them to go for prostate-specific antigen (PSA) test where 7 (8.2%) respondents answered that PSA test is part of their routine medical check-up. Other 4 (4.2%) agree that advice from healthcare practitioners was the reason they go for PSA test while 1 (1.2%) respondent took PSA test because he had a family member with previous prostate problem. Last item in practice of PSA test section questioned respondent who never underwent PSA test what prevent them from undertaking prostate-specific antigen (PSA) test. More than half respondent 43 (50.6%) thinks that they do not need it as they are not at risk of developing prostate cancer whereas another common answer from respondents 36 (42.4%) was they not sure where to get the PSA test. Besides those, the test is not available at the government health clinics was the reason by 15 (17.6%) respondents that explained why they did not get a PSA test. Small

number of respondent 7 (8.2%) admit that the cost of PSA test is beyond their capability. The other answers by 4 (4.7%) were never heard about PSA test, do not have time to take one and not sure about its importance.

Table 4.5.1: Practice of Prostate-specific antigen (PSA) test among the respondents (n=85)

Variable	(N)	(%)
Have you ever done prostate-specific antigen (PSA) test?		
Yes	9	10.6
No	76	89.4
How many times have you ever been screened?		
Once	7	8.2
More than once	2	2.4
Not applicable	76	89.4
Last time you underwent a prostate-specific antigen (PSA) test?		
Less than 1 year ago	3	3.5
Between 1-2 years ago	3	3.5
About 3-4 years ago	2	2.4
Over 5 years ago	0	0
I do not remember	1	1.2
Not applicable	76	89.4

	N (%)	
	Yes	**No**
What encourage you to go for prostate-specific antigen (PSA) test?		
I have symptoms of prostate problem	0 (0)	85 (100)
I have family who have cancer	1 (1.2)	84 (98.8)
It is my routine medical check-up	7 (8.2)	78 (91.8)
It is advised by health care practitioners	4 (4.7)	81 (95.3)
Other	0	85

	(0)	(100)
If your response to question 1 is NO, what prevent you from undertaking prostate-specific antigen (PSA) test?		
I do not need it as I am not at risk of developing prostate cancer	43 (50.6)	42 (49.4)
The test is not available at the government health clinics	15 (17.6)	70 (82.4)
The test is costly that I cannot afford	7 (8.2)	78 (91.8)
Other	4 (4.7)	81 (95.3)

4.6 Relationship between level of knowledge and practice of PSA testamong the respondents.

For inferential analysis, the primary analysis will be a finding the strength of relationship between level of knowledge and practice of PSA test, and relationship between awareness of PSA test and the practice of PSA test using Logistic regression with two tailed $p \leq 0.05$ as significance value.

Table 4.6.1 shows the relationship between knowledge and practice of PSA test that was analysed by using Logistic regression. The result found that there is no significant relationship between knowledge and practice of PSA test as the p-value is 0.440.

Table 4.6.1: Relationship between knowledge and practice of prostate-specific antigen (PSA) test

	Practice of PSA test	
	Exp(B)	**p-value**
Knowledge of PSA test	0.912	0.440

4.7 Relationship between awareness and practice of PSA test among the respondents.

Table 4.7.1 shows the relationship between awareness and practice of PSA test that was analysed by using Logistic regression. The result found that there is a significant relationship between awareness and practice of PSA test as the p-value is 0.042.

Table 4.7.1: Relationship between awareness and practice of prostate-specific antigen (PSA) test

	Practice of PSA test	
	Exp(B)	**p-value**
Awareness of PSA test	1.122	0.042

4.8 Relationship between sociodemographic characteristics and knowledge of prostate-specific antigen (PSA) test.

In third hypothesis analyses, Pearson correlation was used to test the relationship between the level of knowledge of PSA test and sociodemographic age of the participants. Next, relationship between the level of knowledge of PSA test and sociodemographic characteristics will also be adjusted by ethnicity, marital status, , monthly income, and by One-way independent ANOVA. Whereas Independent T-test used to study the relationship of knowledge with level of education and history of prostate cancer of the participant.

Table 4.8.1 shows relationship between sociodemographic characteristics and knowledge of prostate-specific antigen (PSA) test that was analysed by using Pearson correlation, One way independent ANOVA and Independent T-test. The result found that there is a significant correlation between age and knowledge of PSA test whereby p-value was 0.050 correlate at r = 0.209. Next, there were no significant relationship between all sociodemographic characteristics and knowledge whereby p-value of race (0.278), highest education level (0.111), marital status (0.361), monthly income (0.412) and family history of prostate cancer (0.168).

Table 4.8.1: Relationship between sociodemographic characteristics and knowledge of prostate-specific antigen (PSA) test

Sociodemographic characteristics	Knowledge of PSA test		
	F/t	r	p-value
Age		0.209	0.050[a]
Race	1.225		0.278[b]
Highest education level	-1.611		0.111[c]
Marital status	1.115		0.361[b]
Monthly income	1.055		0.412[b]
Family history of prostate cancer	1.391		0.168[c]

Key : α – Pearson correlation

b – One way independent ANOVA

c – Independent T-test

4.9 Relationship between sociodemographic characteristics and awareness of prostate-specific antigen (PSA) test

For fourth hypothesis, Pearson correlation was used to test the relationship between awareness of PSA test and age of the participants. Next, One-way independent ANOVA was used to test the relationship between awareness of PSA test and ethnicity, marital status and monthly income, whereas relationship between participant's level of education, history of prostate cancer of the participant with their awareness of PSA test were tested using Independent T-test.

Table 4.9.1 shows relationship between sociodemographic characteristics and awareness of prostate-specific antigen (PSA) test that was analysed by using Pearson correlation, One way independent ANOVA and Independent T-test. The result found that there is significant correlation between age and awareness of PSA test whereby p-value was 0.001 correlate at r = 0.996. Next, there was also significant relationship between race and awareness of PSAtest whereby p-value was 0.016 correlate at F = 2.002. There were no significant relationship of other sociodemographic characteristics and awareness whereby p-value of highest education level (0.066), marital status (0.088), monthly income (0.387) and family history of prostate cancer (0.528).

Table 4.9.1: Relationship between sociodemographic characteristics and awareness of prostate-specific antigen (PSA) test

Sociodemographic characteristics	Awareness of PSA test		
	F/t	r	p-value
Age		0.996	0.001[a]
Race	2.002		0.016[b]
Highest education level	1.862		0.066[c]
Marital status	1.547		0.088[b]
Monthly income	1.085		0.387[b]
Family history of prostate cancer	0.633		0.528[c]

Key : α – Pearson correlation

b – One way independent ANOVA

c – Independent T-test

The last hypothesis, the Logistic regression test was used to analyse the statistical association between the practice of PSA test and age of the participants. Next, Pearson chi-square test was used to analyse the statistical association between the practice of PSA test and ethnicity, marital status, level of education, monthly income, and history of prostate cancer of the participant

4.10 Relationship between sociodemographic characteristics and practice of prostate-specific antigen (PSA) test

Table 4.10.1 shows relationship between sociodemographic characteristics and practice of prostate-specific antigen (PSA) test that was analysed by using Logistic regression and, Pearson Chi square. The result found that there is no significant association between age and practice of PSA test whereby p-value was 0.257. Next, there were no significant association as well between all sociodemographic characteristics and practice whereby p-value of race is p= 0.506 correlate with chi-square value, x^2= 1.364, highest education level with p= 0.506 correlate with chi-square value, x^2= 1.364, marital status with p=0.235 correlate with chi-square value, x^2=2.898, monthly income with p=0.794 correlate with chi-square value, x^2=0.461 and family history of prostate cancer with p=0.541 correlate with chi-square value, x^2=0.373.

Table 4.10.1: Relationship between sociodemographic characteristics and practice of prostate-specific antigen (PSA) test

Sociodemographic characteristics	Practice of PSA test	
	x^2	p-value
Age		0.257[a]
Race	1.364	0.506[b]
Highest education level	1.457	0.227[b]
Marital status	2.898	0.235[b]
Monthly income	0.461	0.794[b]
Family history of prostate cancer	0.373	0.541[b]

Key : α – Logistic regression

b – Pearson chi square

CHAPTER 5

DISCUSSION

This chapter was presented to discuss the result of the study. The practice on PSA test and its relationship with knowledge and awareness of PSA test among study populations were discussed further in this study.

5.1 Sociodemographic characteristic among the respondents (n=85)

The majority of participants in this study were around 43 years old. These findings was similar other study by Morlando et al., (2017) in Italy which the most of the respondents 347 (57.1%) were below 50 years old and the mean age was 48.70.

Besides, majority participants from the finding were married 66 (77.6%) which relatable with another study by Gift et al., (2020) that had response from 174 (87.1%) of married man. and secondary school educational level 83 (37.6%).

Moreover, 61 (71.8%) participants with high education level which was Doctor of philosophy (PhD) were highly participated in this study. These was opposite with a study in Nigeria found that majority of the respondents 116 (38.7%) had little education (Awosan et al., 2018).

5.2 Knowledge of PSA test among the respondents (n=85)

Based on the result of this study, the mean knowledge of total respondents on prostate-specific antigen test is 17.729±2.945. Half of respondents (50%) n= 43 respondents score more than the cut-off point. Thus, this means majority of respondents participate in this study has higher knowledge of PSA test. These were alike with a study by Hoffman et al., (2009) where almost 90% of subjects

explained that PSA test was well understood, and 58% who score from 8 to 10 regarding knowledge of PSA test felt very informed about PSA test.

However, this study finding were contradict with a study by (Awosan et al., 2018) where, the majority 285 (95.0%) of the 300 respondents, had little or no knowledge about prostate cancer and its screening test, while just a handful had fair (2.3%) or good (2.7%) knowledge.

5.3 Awareness of PSA test among the respondents (n=85)

In this study, the mean awareness score was 32.306±6.651 which shows a positive awareness level of respondents toward prostate cancer disease and PSA test uptake as majority of respondents (52%) n= 44 respondents score more than the cut-off point. This finding corresponds with a study by Kleier (2004), reported that 40 % of Jamaican and 30 % of Haitian men agreed that the vulnerability increased from 40 years of age.

Previous study reported that perceived benefits was found to be second strongest predictor of Nigerian men intention's in uptake of prostate cancer test with $p < 0.001$ (Ekeh, 2020). In the same study, 90% of respondents expected a relatively moderate to high level of gain from screening for prostate cancer with 58.5 % of respondents ranked above the mean of 22.32. Hence, according to Ekeh (2020), this result suggests that the majority of research participants felt that screening for prostate cancer was advantageous.

This outcome, however, contrasts with a study that analysed the validation of the HBM scale for prostate cancer screening in Turkey. According to Çapık & Gözüm (2012), the study recorded mean scores of 3.33 and 6.24 for health motivation and perceived benefits among Turkish men respectively. Hence, the finding demonstrate that they have lower levels of optimism and perceived advantages toward prostate cancer tests.

Similarly, Study by Ghodsbin et al., (2014) illustrate the fact that the studied men fouhemselves to be at low risk of the disease as the findings show low mean scores

of perceived susceptibility and only 32.7 % of participants belong to a group with positive perceived susceptibility level.

5.4 Practice PSA test among the respondents (n=85)

From the result, found that only 9 (10.6%) out of 85 has taken PSA test in their lifetime. Among those 9 respondents, explained that the reason of PSA test uptake was a part of their routine medical check-up, advice from healthcare practitioners and because of family history of prostate problem. These reasons were similar to other study by Morlando et al., (2017) where the top three answers by respondent when they were asked why they wanted to have a PSA test, were for prevention (51%), if a doctor advised it (44%), and feeling at risk (44%).

However, in this study, more than half respondent 43 (50.6%) thinks that they do not need it as they are not at risk of developing prostate cancer whereas other common answers from respondents was they do not sure where to get the PSA test, the test is not available at the government health clinics and that the cost of

PSA test is beyond their capability. The other answers by 4 (4.7%) were never heard about PSA test, do not have time to take one and not sure about its importance. This findings was supported with finding of Winnie et al., (2014) whereby the three most common reasons mentioned by respondents for never having had a PSA test were that they did not feel it was important, that it was not available, and that they found themselves to be healthy all the time.

5.5 Relationship between knowledge and practice of PSA test (n=85)

In this study, knowledge was found did not influence the practice of PSA test as the p-value>0.05, thus there is no relationship between these two variables. This shows that although the respondents had good knowledge of prostate cancer and PSA test, the awareness to have a PSA test uptake is not there expectedly.

Contrasting, study by Yetunde et al. (2009) reported that in respondents with excellent knowledge, the frequency of prostate cancer test methods is almost twice as high as in those with poor knowledge. Moreover, Zare et al., (2016)

proved in a study, in comparison of the result in their study with other studies, they found that lower prostate test screening associated with a low level of knowledge, awareness, and participation of Iranian men in prostate cancer test.

5.6 Relationship between awareness and practice of PSA test (n=85)

In this study, there is a significant relationship between awareness and practice of PSA test whereby the p-value is 0.042.The significant portrait respondent's attitude by the degree of agreement of PSA test uptake. Previous study reported that perceived benefits was found to be second strongest predictor of Nigerian men intention's in uptake of prostate cancer test with $p < 0.001$ (Ekeh, 2020). In the same study, 90% of respondents expected a relatively moderate to high level of gain from screening for prostate cancer with 58.5 % of respondents ranked above the mean of 22.32.

5.7 Relationship between sociodemographic characteristics and knowledge of PSA test (n=85)

From the findings, age was significantly affect the knowledge of the respondents as p-value = 0.05. A study by McFall, (2007) seems had same finding as this study as those with age 65 years and older were found more likely to aware of the PSA test. This finding however differ from finding of Ojewola et al., (2017) where only educational and occupational status had significant associations with the level of knowledge of as well as attitudes to prostatic diseases.

In term of other sociodemographic, monthly income did not have significant finding. Contrast to a study by McFall (2007), lower socio-economic status is related to lower levels of knowledge, reputation, influence and access to services.

Regarding history of prostate, stated by the Ghunaim et al., (2018)that family history of prostate cancer has been found to have no major effects on the

knowledge of participants regarding the disease and test of prostate cancer with p-value 0.053.

5.8 Relationship between sociodemographic characteristics and awareness of PSA test (n=85)

Based on the findings in this study, found that age and race had significantly influence awareness as the p-value were 0.001 and 0.016 respectively. This might be because of older people tend to have more awareness as they realized they started to enter middle age of life and are prone to get diseases. This finding supported by a several findings especially by (Alavijeh et al., 2016) that indicate younger adults appear to be slightly vulnerable to the risks of their own environment because of assumption that they are resistant to hazards and risks to health issue and do not need to follow preventive measure.

As for the race, most of the respondents was Malay. Therefore in this study, researcher may encounter biases as the respondent's race did not balance. However, there are another study that correspond to finding of this study in which Hispanic black men have somewhat lower awareness and practice of PSA test than non-Hispanic white men through a study by (McFall, 2007) This can be seen

by the proportion of men who aware of the PSA test are ranged from 75% of non-Hispanic white men to just around half of Hispanic men and men of other races.

5.9 Relationship between sociodemographic characteristics and practice of PSA test (n=85)

The result found that there is no significant relationship between all sociodemographic characteristics with practice of PSA test. Researcher had opinion that this could happen because based on the low incidence of prostate cancer and prostate cancer mortality for men with age less than 55, thus they are not recommended to take prostate cancer screening. It is because the evidence of benefit of screening as well as the harms are not scientifically found (Bell et al., 2014).

Similarly, men aged 55–69 years of age also not recommended to take the PSA test. It is believed due to a relatively low value on a small and uncertain potential reduction in prostate cancer mortality, and a relatively higher value on the risk of a false-positive result, unnecessary biopsies, over diagnosis of prostate cancer and harms associated with unnecessary treatment.

Conclusion

Based on the study findings, found that age and race of an individual are the most highly possible to influence their practice of PSA test which both are categorized as non-modifiable demographic characteristics. Therefore, an individual need to have self-awareness of the disease and prevention measure to take in order to have a good quality of life in longer time.

CHAPTER 6

LIMITATION AND RECOMMENDATION

6.1 Limitation

This was a simple cross-sectional study that had been conducted within a short period of time. There were several limitations were found in this study that need to be acknowledged. Firstly, the study did not reach targeted sample size which is 165 respondents where the response rate was only 85 respondents due to limited of time for collecting data and difficulty to obtain response from respondents.

The second limitation was the low reliability score of awareness of PSA test questionnaire which is the Cronbach's alpha value 0.61 where it did not rely within acceptable range of reliability score suggested by supervisor that is 0.65 to 0.80 or higher. Next limitation was respondents could not remember their last PSA test uptake accurately. Therefore, this study exposed some tendency of recall

bias have occurred during collecting data which may affect the accuracy of the resulting data. Another limitation was the result of this study cannot be generalized to represents the knowledge, awareness and practice of PSA test of whole populations of academicians in Universiti Putra Malaysia. This is because the study only involved a small sample size, thus, it is only applicable for this study population.

6.2 Recommendation

There are several recommendations that for upcoming study. First is to increase the sample size for the study. This is to avoid biases during the analyzation of the data. Next, researcher need to reduce the cultural bias that the future researcher should balance the amounts of races that involve in the study.

In future, the study should be done in community population and not only academicians with adding sociodemographic characteristics such as availability of individual insurance. This is because in my opinion, people with insurance have

more tendency to take screening test compare to non-insurance individual as they have their source of income as backup for any further treatments needed. Lastly, the survey questionnaire should be modify to its best to fit with the study population by obtained good reliability score.

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APPENDICES

Project	2020			2021								
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept
Discussion with supervisor regarding progress of study												
Identify the research problem												
Reviewing of literature review												
Proposal progression												
Formulating questionnaire and conduct pre-test questionnaire												
Ethic approval												
Data collection												

Typing research report												
Submit research report												

FACULTY OF MEDICINE AND HEALTH SCIENCE

DEPARTMENT OF NURSING

NUR4999: FINAL YEAR PROJECT

BACHELOR OF NURSING

(QUESTIONNAIRE)

Research Title

Knowledge, Awareness, and Practice of Prostate-Specific Antigen Test among Academicians in a Public University, Malaysia.

Student's name : Mazatul Asmirah Binti Hassim Ali (193336)

Section A: Socio-demographic data

Please tick (√) in the appropriate box or specify you answer if necessary.

1) Age (years) : …….

2) Race :

☐	Malay
☐	Chinese
☐	Indian
☐	Others (Please specify: .....)

3) Highest education status:

☐	Bachelor
☐	Master
☐	Doctor of philosophy (PhD)

4) Marital status :

☐	Single
☐	Married
☐	Divorced

5) Monthly income :

☐	≤ RM 4,850
☐	RM 4,851 – RM 10,970
☐	≥ RM 10,971

6) Have you or any of your close relatives (father, brothers, etc.) ever had prostate problems? :

	No
	Yes (Please specify: .....)

SECTION B: PRACTICE OF PROSTATE-SPECIFIC ANTIGEN (PSA) TEST

Instruction: please answer all questions by marking (√) in the appropriate box.

1) Have you ever done prostate-specific antigen (PSA) test*?* ***(If your response to question 1 is No, please move to question 5)***

☐ Yes

☐ No

2) If yes, how many times have you ever been screened?

☐ Once

☐ More than once

3) When was the last time you underwent a prostate-specific antigen (PSA) test?

☐ Less than 1 year ago

☐ Between 1-2 years

☐ About 3 to 4 years ago

☐ Over 5 years ago

☐ I do not remember

4) What encourage you to go for prostate-specific antigen (PSA) test? ***(Tick all that applicable)***

☐	I have symptoms of prostate problem
☐	I have family who have cancer
☐	It is my routine medical check-up
☐	It is advised by health care practitioners
☐	Other (Please specify .....)

5) If your response to question 1 is **NO**, what prevent you from undertaking prostate-specific antigen (PSA) test? ***(Tick all that applicable)***

☐	I do not need it as I am not at risk of developing prostate cancer
☐	The test is not available at the government health clinics
☐	The test is costly that I cannot afford
☐	Other (Please specify .....)

SECTION C : KNOWLEDGE OF PROSTATE CANCER AND PROSTATE-SPECIFIC ANTIGEN (PSA) TEST

Instructions: Please answer all questions by marking **(√)** in the appropriate box.

NO	ITEMS	OPTIONS	SELECTION
1	Prostate-specific antigen (PSA) test is used to help detect prostate cancer or other prostate abnormalities.	True	
		False	
		I don't know	
2	Prostate-specific antigen (PSA) test is performed the same way as other routine blood tests.	True	
		False	
		I don't know	
3	A small vial of blood is drawn from the arm and brought to a laboratory where prostate-specific antigen (PSA) levels are measured.	True	
		False	
		I don't know	
4	It is necessary for a man to have a prostate-specific antigen (PSA) test.	True	
		False	
		I don't know	
5	Men without previous diagnosis of prostate cancer should start getting prostate-specific antigen (PSA) tests done at age 40.	True	
		False	
		I don't know	
6	A man is more likely to get prostate cancer when he has a family history of prostate cancer.	True	
		False	
		I don't know	
	Not all men with prostate cancer will experiencing the symptoms of prostate problem.	True	
		False	

7		I don't know	
8	Prostate cancer may grow slowly before the symptoms appear.	True	
		False	
		I don't know	
9	Men older than 70-year-old do not recommended to go for prostate-specific antigen (PSA) test.	True	
		False	
		I don't know	
10	A doctor can make prognosis on life expectancy after a man is diagnosed with prostate cancer.	True	
		False	
		I don't know	
11	Some treatments for prostate cancer can cause affect the sexuality.	True	
		False	
		I don't know	
12	Some treatments for prostate cancer may cause difficulty to control the urine.	True	
		False	
		I don't know	
13	An abnormal prostate-specific antigen (PSA) blood test means a man definitely have cancer.	True	
		False	
		I don't know	
14	Frequent pain often in your lower back could be a sign of prostate cancer.	True	
		False	
		I don't know	

SECTION D: AWARENESS (BELIEFS) OF PROSTATE-SPECIFIC ANTIGEN (PSA) TEST

Instructions: Please tick **(√)** on the chosen box which best describes your agreement to the following statements listed below.

NO	ITEM	STRONGLY DISAGREE	DISAGREE	NOT SURE	AGREE	STRONGLY AGREE
1	Prostate-specific antigen (PSA) test uptake will help to diagnose prostate cancer early.					
2	Prostate-specific antigen (PSA) test uptake would ease my mind about the risk of getting prostate cancer.					
3	Prostate-specific antigen (PSA) test uptake will decrease my chances of dying from prostate cancer.					
4	Prostate-specific antigen (PSA) test procedure is time-consuming.					
5	I believe most people do not go for prostate-specific antigen (PSA) test because health centre					

	clinic is far from their house.					
6	I am afraid of being diagnosed with prostate cancer if I go for prostate-specific antigen (PSA) test.					
7	I am confident that I can make an appointment to have a prostate-specific antigen (PSA) test uptake.					
8	I am confident that I can find the time to have a prostate-specific antigen (PSA) test uptake.					
9	I am confident that I can get a prostate-specific antigen (PSA) test uptake even if I am worried about the result.					
10	I believe that I would go for prostate-specific antigen (PSA) test uptake if doctors advised me.					
11	I believe that I would go for prostate-specific antigen					

	(PSA) test uptake if health care workers encourage me.					
12	I believe that I would go for prostate-specific antigen (PSA) test uptake if my family encourages me.					
13	I am willing to go for prostate-specific antigen (PSA) test if it is free.					

(THE END OF THE QUESTIONS. THANK YOU FOR YOUR COOPERATION.)

Ref. no: UPM/TNCPI/RMC/JKEUPM/1.4.18.2 (JKEUPM)
Date: 14 April 2021

Dear Prof./Dr./Mr./Ms.,

APPLICATION FOR JKEUPM ETHICAL CLEARANCE: APPROVED

With reference to the above, I am pleased to inform you that your application for ethical clearance for the research project entitled **'Knowledge, Awareness, and Practice of Prostate- Specific Antigen Test among Academicians in a Public University, Malaysia'** has been approved.

Please note that the official letter of approval will be issued as soon as possible. However, the ethical clearance is considered effective from the date of this email, and you may now proceed with your research.

Kindly remind the ethical approval is required in the case of amendments/ changes to the study documents/ study sites/ study team.

Researchers should also complete a Study Final Report upon study completion. The form can be obtained from the Ethics Committee for Research Involving Human Subjects (JKEUPM) website (http://www.tncpi.upm.edu.my/faildokumen).

If you have any enquiries, please contact Ms. Nurulhasanah Ishak (03-97691605) or Ms. Nor Ellia Abd Ajis (03-97691244).

Note: Please use this reference number for any transaction: **JKEUPM-2021-080**

Thank you.

Yours faithfully,

Prof. Dr. Zamberi Sekawi

Chair

Ethics Committee for Research Involving Human Subjects

Universiti Putra Malaysia

JAWATANKUASA ETIKA UNIVERSITI UNTUK PENYELIDIKAN MELIBATKAN MANUSIA (JKEUPM)
UNIVERSITI PUTRA MALAYSIA, 43400 UPM SERDANG, SELANGOR, MALAYSIA

FORM 2.4: RESPONDENT'S INFORMATION SHEET AND INFORMED CONSENT FORM

Please read the following information carefully and do not hesitate to discuss any questions you may have with the researcher.

1. STUDY TITLE :

Knowledge, awareness, and practice of prostate-specific antigen test among academicians in a public university, Malaysia.

2. INTRODUCTION:

This study will investigate the knowledge, awareness and practices of the prostate-specific antigen (PSA) test. Prostate cancer is the second most common malignancy in males worldwide behind lung cancer. Prostate-specific antigen (PSA) test is used to help detect prostate cancer or other prostate abnormalities. However, lack of knowledge and awareness about prostate cancer and PSA test are one of the factors contributing to the lack of practice of PSA test which lead to detection of advanced cancerous stages.

3. WHAT WILL YOU HAVE TO DO?

A questionnaire will be provided to you through online survey while participants are in University Putra Malaysia. The questionnaire consists of four sections, Section A, Section B, Section C and Section D. You are required to answer all the questions in the sections voluntarily and take approximately 15-20 minutes. Your response to all the questions is greatly appreciated.

4. WHO SHOULD NOT PARTICIPATE IN THE STUDY?

The study population are male academicians in selected faculties of Universiti Putra Malaysia. Male academicians who are on leave during entire period of the data collection should not participate in the study.

5. WHAT WILL BE THE BENEFITS OF THE STUDY:

(a) TO YOU AS THE SUBJECT?

Your contribution is invaluable in providing information on PSA test knowledge, awareness and practice in identifying early prostate cancer cells. The findings of this study can be useful in assessing the level of knowledge, awareness and practices of PSA test. This is student research, so no fee will be given to participants who voluntarily participate in this study.

(b) TO THE INVESTIGATOR?

Information and data from the results of this study will be used to raise awareness of the importance of PSA test to identify prostate cancer cells in the early stages.

6. WHAT ARE THE POSSIBLE RISKS?

It is anticipated that there will be no risk to the participants.

7. WILL THE INFORMATION THAT YOU PROVIDE AND YOUR IDENTITY REMAIN CONFIDENTIAL?

All information is confidential. The findings from this study will only be used for the purpose of the research report. The questionnaire will be available at the main investigator's office for five years before it is disposed of. Any report or publication from the study will be reported in a manner that retains the validity of the respondents' names and will not include any identifying features. Respondents will only be identified by serial number. Only the principal researchers and the supervisory committee

(researchers) have full access to the findings of this study.

8. WHO SHOULD YOU CONTACT IF YOU HAVE ADDITIONAL QUESTIONS DURING THE COURSE OF THE RESEARCH?

If you have any questions regarding your rights as a participant in this research, please contact the Secretary, Ethics and Medical Research Committee, Ministry of Health Malaysia, by telephone 03-2287 4032.

If you have any inquiry or questions regarding the research, you can contact me or my supervisor by contact information below:

Mazatul Asmirah Bt Hassim Ali

Student research,

Department of Nursing,

Faculty of Medicine and Health Sciences,

University Putra Malaysia.

Phone : 017-524 6814

Email : mazatul38@gmail.com

Parameseveary A/P L.Subramaniam

Supervisor,

Department of Nursing,

Faculty of Medicine and Health Sci

University Putra Malaysia.

Phone : 012-627 6327

Email : parameseveary@upm.edu.m

Please initial here if you have read and understood the contents of this page_____

9. CONSENT

I …… Identity Card No. …… address…… ……... ……..hereby voluntarily agree to take part in the research stated above *(clinical /drug trial/video recording/ focus group/interview-based/ questionnaire-based).

I have been informed about the nature of the research in terms of methodology, possible adverse
effects and complications (as written in the Respondent's Information Sheet). I understand that I have the right to withdraw from this research at any time without giving any reason whatsoever. I also understand that this study is confidential and all information provided with regard to my identity will remain private and confidential.

I* wish / do not wish to know the results related to my participation in the research

I agree/do not agree that the images/photos/video recordings/voice recordings related to me be used in any form of publication or presentation (if applicable)

* delete where necessary

Signature …….…… Signature ……..…….
(Respondent) (Witness)

Date :…….. Name :……..…..
I/C No. :……..…..

I confirm that I have explained to the respondent the nature and purpose of the above-mentioned research.

Date ……..…… Signature ……..…….
(Researcher)

JAWATANKUASA ETIKA UNIVERSITI UNTUK PENYELIDIKAN MELIBATKAN MANUSIA (JKEUPM)
UNIVERSITI PUTRA MALAYSIA, 43400 UPM SERDANG, SELANGOR, MALAYSIA

BORANG 2.4: LEMBAR MAKLUMAT RESPONDEN DAN BORANG PERSETUJUAN MAKLUMAT

Sila baca maklumat berikut dengan teliti dan jangan ragu untuk membincangkan sebarang pertanyaan yang anda ada dengan penyelidik.

1. TAJUK KAJIAN :

Pengetahuan, kesedaran, dan praktik ujian antigen khusus prostat di kalangan ahli akademik di sebuah universiti awam, Malaysia.

2. PENGENALAN :

Kajian ini akan mengkaji pengetahuan, kesedaran dan amalan ujian antigen spesifik prostat (PSA). Kanser prostat adalah keganasan kedua paling umum pada lelaki di seluruh dunia di belakang barah paru-paru. Ujian antigen spesifik prostat (PSA) digunakan untuk membantu mengesan barah prostat atau kelainan prostat lain. Walau bagaimanapun, kurangnya pengetahuan dan kesedaran mengenai kanser prostat dan ujian PSA adalah salah satu faktor yang menyumbang kepada kurangnya amalan ujian PSA yang menyebabkan pengesanan tahap barah lanjut.

3. APA YANG ANDA HARUS LAKUKAN?

Soal selidik akan diberikan kepada anda melalui tinjauan dalam talian semasa anda berada di Universiti Putra Malaysia. Soal selidik terdiri daripada empat bahagian, Bahagian A, Bahagian B, Bahagian C dan Bahagian D. Anda diminta untuk menjawab semua soalan di bahagian tersebut dan mengambil masa lebih kurang 15-20 minit. Jawapan anda terhadap semua soalan sangat dihargai.

4. SIAPA YANG TIDAK HARUS MENYERTAI KAJIAN?

Populasi kajian adalah staf akademik lelaki di fakulti terpilih Universiti Putra Malaysia. Ahli akademik lelaki yang cuti sepanjang tempoh pengumpulan data tidak boleh mengambil bahagian dalam kajian ini.

5. APAKAH KEBAIKAN KAJIAN:

(a) KEPADA ANDA SEBAGAI SUBJEK?

Sumbangan anda tidak ternilai dalam memberikan maklumat mengenai pengetahuan, kesedaran dan praktik ujian PSA dalam mengenal pasti sel-sel kanser prostat awal. Dapatan kajian ini dapat berguna dalam menilai tahap pengetahuan, kesedaran dan amalan ujian PSA. Ini adalah penyelidikan pelajar, jadi tidak ada bayaran yang akan diberikan kepada peserta yang mengambil bahagian dalam kajian ini secara sukarela

(b) KEPADA PENYELIDIK?

Maklumat dan data dari hasil kajian ini akan digunakan untuk meningkatkan kesedaran tentang pentingnya ujian PSA untuk mengenal pasti sel-sel barah prostat pada peringkat awal.

6. APA RISIKO YANG MUNGKIN?

Dijangka tidak akan ada risiko bagi peserta.

7. ADAKAH MAKLUMAT YANG ANDA SEDIAKAN DAN IDENTITI ANDA KEKAL SULIT?

Semua maklumat adalah rahsia. Hasil kajian ini hanya akan digunakan untuk tujuan laporan kajian. Soal selidik akan tersedia di pejabat penyiasat utama selama lima tahun sebelum dilupuskan. Sebarang laporan atau penerbitan dari kajian akan dilaporkan dengan cara yang mengekalkan kesahihan nama responden dan tidak akan menyertakan ciri pengenalpastian. Responden hanya akan dikenali dengan nombor siri. Hanya penyelidik utama dan jawatankuasa penyelia (penyelidik) yang mempunyai akses penuh ke dapatan kajian ini.

8. SIAPA YANG PERLU ANDA HUBUNGI JIKA ANDA MEMILIKI SOALAN TAMBAHAN SELAMA KURSUS PENYELIDIKAN?

Sekiranya anda mempunyai pertanyaan mengenai hak anda sebagai peserta dalam penyelidikan ini, sila hubungi Setiausaha, Jawatankuasa Penyelidikan Etika dan Perubatan, Kementerian Kesihatan Malaysia, melalui telefon 03-2287 4032.

Sekiranya anda mempunyai pertanyaan atau pertanyaan mengenai penyelidikan, anda boleh menghubungi saya atau penyelia saya dengan menghubungi maklumat di bawah:

Mazatul Asmirah Bt Hassim Ali

Penyelidikan pelajar,

Jabatan Kejururawatan,

Fakulti Perubatan dan Sains Kesihatan,

Universiti Putra Malaysia.

Telefon: 017-524 6814

E-mel: mazatul38@gmail.com

Parameseveary A / P L.Subramaniam

Penyelia,

Jabatan Kejururawatan,

Fakulti Perubatan dan Sains Kesihatan,

Universiti Putra Malaysia.

Telefon: 012-627 6327

E-mel: parameseveary@upm.edu.my

Please initial here if you have read and understood the contents of this page_____

9. PERSETUJUAN

Saya …… No. Kad Pengenalan …… alamat …… …… ... …… .. dengan itu secara sukarela setuju untuk mengambil bahagian dalam penyelidikan yang dinyatakan di atas * (ujian klinikal / ubat / rakaman video / kumpulan fokus / berdasarkan temu ramah / berdasarkan soal selidik).

Saya telah dimaklumkan mengenai sifat penyelidikan dari segi metodologi, kemungkinan buruk
kesan dan komplikasi (seperti yang tertulis dalam Lembaran Maklumat Responden). Saya faham bahawa saya berhak menarik diri dari penyelidikan ini pada bila-bila masa tanpa memberikan alasan apa pun. Saya juga memahami bahawa kajian ini adalah rahsia dan semua maklumat yang diberikan berkaitan dengan identiti saya akan dirahsiakan dan dirahsiakan.

Saya * ingin / tidak ingin mengetahui hasil yang berkaitan dengan penyertaan saya dalam penyelidikan ini
Saya setuju / tidak setuju bahawa gambar / gambar / rakaman video / rakaman suara yang berkaitan dengan saya boleh digunakan dalam bentuk penerbitan atau persembahan (jika berkenaan)
* padam jika perlu

Tandatangan …… .. …… Tandatangan …… .. ……

(Responden) (Saksi)

Tarikh: …… .. Nama: …… .. ..

No. I / C: ……

Saya mengesahkan bahawa saya telah menjelaskan kepada responden sifat dan tujuan penyelidikan yang disebutkan di atas.

Tarikh …… .. …… Tandatangan …… .. ……

(Penyelidik)