# KNOWLEDGE AND ATTITUDE TOWARDS PROSTATE CANCER AMONG ADULT MALES IN PENANG, MALAYSIA

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***Abstract***

**Background:** The incidence rate of prostate cancer spiked dramatically in the late 1980s and early 1990s. It is one of the most common cancers among men, together with lung cancer, both accounting for approximately one-third of all male cancers. This study aimed to determine the level of knowledge and attitude towards prostate cancer amongst male adults in Penang, Malaysia.

**Methods:** A descriptive cross-sectional study was conducted on 132 adult male respondents from the general public in Penang, Malaysia.

**Results:** Our findings showed that the majority of respondents (78.03%, n=103) have high level of knowledge regarding prostate cancer. The mean score for total knowledge was 9.1796 with SD ± 1.576. With regards to attitude, the majority of respondents (93.00%) have positive attitudes towards prostate cancer. No significant association was observed between knowledge and attitude towards prostate cancer ($p$>0.05).

**Conclusion:** The majority of respondents reported a good level of knowledge and positive attitudes towards prostate cancer. This study recommends that an educational program must be proposed by the local healthcare authority amongst adult males to encourage them for early screening and examination.

***Keywords:*** Attitude, Knowledge, Male Adult, Prostate Cancer, Public

## *Introduction*

Prostate cancer, also known as adenocarcinoma of the prostate (1), is a medical condition that affects the prostate gland. Physical and psychological symptoms are present in prostate cancer (2). In its early stages, prostate cancer may be asymptomatic or indolent. It can progress slowly but does not pose any immediate threat (25).

The total prevalence of prostate cancer has risen since the 1980s in most countries (4). Based on previous studies, prostate cancer is one of the leading causes of death amongst men after heart disease (5). It is also considered as a common cause of cancer-related death in men worldwide, after lung cancer, as reported in GLOBOCAN 2020 (3, 21). The most affected regions with high mortality rates caused are the Middle East, Southern African and the Caribbean regions (6), followed by Asia and Europe (7). Risk factors such as low socio-economic status and genetics have significant association with the high incidence and mortality rate of prostate cancer amongst Sub-Saharan Africans (5). Overall, the burden of cancer and mortality is rapidly growing worldwide (20, 21). Updated data by The International Agency for Research on Cancer (IARC) on global cancer burden, based on GLOBOCAN 2020, estimated that prostate cancer is one of the most common cancers among men, accounting for 14.1% of cancer incidence (21). In Malaysia, number of new prostate cancer cases reported was estimated to be 9.3% (24).

Early screening can be achieved via a prostate-specific antigen (PSA) test, a common screening test to detect malignancy (8). Due to its indolent nature, early stage prostate cancer may require minimal or no treatment (25). Early detection of adenocarcinoma cells in the prostate gland help patients to seek treatment for prostate cancer, thereby reducing the mortality rate in males. In most cases, the common complaints include difficulty in urination, increased urination frequency and nocturia, which may indicate prostatic hypertrophy (25). A high level of awareness and willingness for early screening and

intervention are motivating factors for early detection of prostate cancer and may prevent cancer-related death. The risk of prostate cancer in men is often overlooked because of the notion that prostate cancer is rare and not fatal in comparison to other types of cancer (9, 10). More advanced stages of prostate cancer may manifest with urinary retention and back pain, which can eventually lead to bone metastatic disease (25).

Aforementioned, prostate cancer is the most common cancer amongst the adult male population (11), and its incidence is on the rise due to the aging Malaysian population. GLOBOCAN 2020 reported that incidence of prostate cancer was the third highest in Malaysian males across all ages, after lung and colorectal cancer (24). According to WHO data published in 2018, prostate cancer deaths in Malaysia reached 594 or 0.42% of total death (26). Malaysia is ranked 160 in the world, with an age adjusted death rate of 5.77 per 100,000 people (26). The high prevalence and mortality rate of prostate cancer, along with costs associated with diagnosis and treatment have become a major concern in the healthcare system. However, public awareness is lacking in Malaysia, particularly amongst communities in rural areas. A study conducted in a rural area of Negeri Sembilan reported that the level of awareness, knowledge and attitudes regarding prostate cancer among the study population were still low, especially among adult males in Malay villages (10). The study also suggested that more initiatives should be conducted among men in rural communities to improve the situation (10). General practitioners (68.9%) were also unaware that a family history of breast cancer in a first-degree relative is a risk factor for prostate cancer (12).

The low level of knowledge and attitudes towards prostate cancer may lead to a low screening rate and an increased incidence of prostate cancer (10). Accordingly, only 40% of patients with prostate cancer are diagnosed in the early stages, whereas 60% of patients are diagnosed in the advanced stages. Based on our literature review, the level of knowledge and attitudes toward prostate cancer amongst adult males in Malaysia are limited. Therefore, assessing knowledge and attitudes towards prostate cancer is important in order to identify crucial areas where interventions can be implemented. This study aims to determine the knowledge and attitudes, in particular, the association between the knowledge and attitudes towards prostate cancer amongst the adult male population in Penang, Malaysia.

## *Materials and Methods*

A cross-sectional study was conducted on 132 adult males at a selected shopping mall in Penang, Malaysia. This study was conducted among males, aged 18 years old and above who visited the mall. Those who were non-Malaysians or have cognitive problems were excluded from the study. Respondents were selected randomly from each floor of the mall and were given pretested self-administered questionnaires.

The target population included visitors of the selected mall in Penang, Malaysia. This mall was selected because it is the biggest mall in the area that attracts many visitors. In view of the COVID-19 pandemic situation in the country, Penang state was placed under Conditional Movement Control Order (CMCO) on 9 November 2020, which allowed most business sectors to be reopened under strict standard operating procedures (SOPs) (22), followed by the Movement Control Order 2.0 (MCO 2.0) on 13 January 2020 (23). After consultation and permission from the manager in charge, data was collected between 15 November 2020 to 15 January 2021. Raosoft sample size calculator was used (5% margin error, 95% confidence interval and 50% distribution rate). The estimated sample size required was 132, inclusive of a 10% attrition rate.

A self-administered questionnaire was used in this study. Section A consists of demographic data such as age, race, marital status, educational level, lifestyle and family history. Section B consists of 14 items to measure participant's knowledge on prostate cancer using binary choice (true and false). The instrument was adapted from Arafa et al. (13) with permission. The level of knowledge score was determined by the total score obtained. A score ranging between 8 and 14 indicates high knowledge level, and a score of less than 7 indicates low level of knowledge on prostate cancer concerning the function of the prostate, signs and symptoms of cancer prostate, risk factors, diagnosis and management (6, 13). In section C, the scale on attitude towards prostate cancer was adapted from Ojewola et al. (14). It consists of six items using a 5-point Likert scale ranging from strongly agree to strongly disagree to measure respondent's attitudes towards prostate cancer. A mean score of 1 to 3 and 4 to 5 indicates a negative attitude and positive attitude towards prostate cancer, respectively.

Content validity of the instruments was determined by a panel of three experts. The Cronbach Alpha obtained was 0.85 for knowledge scale, and 0.62 for attitude scale, indicating an acceptable level of internal consistency of the instrument in the study. Data were analysed using IBM SPSS version 26.0 with descriptive statistics. Pearson chi-square with $p$ value of less than 0.05 was set as a significant correlation.

## *Results*

### *Demographic data*

Due to limitations arising from the pandemic, we were only able to approach 150 individuals, of which 132 participants submitted the completed questionnaires (88% return rate). The demographic data of the respondents are presented in Table 1. The mean age of respondents was 33 years (SD = 7.397). The majority of respondents were Malay (n = 107, 81.10%), followed by Chinese (n = 11; 8.30%), Indian (n = 11; 8.30%), and others (n = 3, 2.30%). With regards to marital status, 59.8% of the respondents were married, 37.10% were single, and 3.00% were divorced (3.00%).

More than half (60.60%) of respondents had tertiary education, followed by secondary (28.00%) and primary (8.30%). 3.00% of respondents had no formal education.

The majority of respondents (94.70%) denied alcohol intake, whereas 10.60% of them reported that they have regular alcohol intake daily. A study among Harvard Alumni reported that there was a positive association between moderate alcohol consumption and the risk of prostate cancer (27). With regards to smoking, 76.50% of the respondents were non-smoker, and 23.50% were smokers. Of the respondents, 2.30% reported a family history of prostate cancer, 3.00% with no known cases, and 94.70% with no family history.

**Table 1:** Socio-demographic information of respondents (n=132)

| Socio-Demographic Information | Frequency (f) | Percentage (%) | Mean | Standard deviation |
|---|---|---|---|---|
| **Age** | | | | |
| Below 20 years | 1 | 0.80 | 33.00 | 7.397 |
| 20-30 years | 56 | 42.40 | | |
| 31-40 years | 58 | 43.90 | | |
| 41-50 years | 14 | 10.60 | | |
| 51-60 years | 2 | 1.51 | | |
| Above 61 years | 1 | 0.80 | | |
| **Race** | | | | |
| Malay | 107 | 81.10 | | |
| Chinese | 11 | 8.30 | | |
| Indian | 11 | 8.30 | | |
| Other | 3 | 2.30 | | |
| **Marital Status** | | | | |
| Single | 49 | 37.20 | | |
| Married | 79 | 59.80 | | |
| Divorced/ Widowed | 4 | 3.00 | | |
| **Educational Level** | | | | |
| No Formal Education | 4 | 3.00 | | |
| Primary School | 11 | 8.40 | | |
| Secondary School | 37 | 28.00 | | |
| Tertiary Level | 80 | 60.60 | | |
| **Alcohol Intake** | | | | |
| Yes | 14 | 10.60 | | |
| No | 118 | 89.40 | | |
| **Smoking Status** | | | | |
| Yes | 31 | 23.50 | | |
| No | 101 | 76.50 | | |
| **Family History of Prostate Cancer** | | | | |
| Yes | 3 | 2.30 | | |
| No | 125 | 94.70 | | |
| Don't Know | 4 | 3.00 | | |

### *Knowledge on prostate cancer*

The majority of respondents (78.03%) had good knowledge on prostate cancer (M = 9.179, SD ± 1.576). Many of them knew prostate as a gland responsible for testosterone excretion (81.06%); some of the respondents understood that prostate cancer is the second leading cause of mortality amongst men worldwide (84.84%), and some were aware that prostate cancer can increase with age (81.10%). A study had previously reported that prostate cancer incidence increases with age (28). Of the respondents, 74.24% responded correctly that genetic factor is an element of prostate cancer. Approximately one quarter of the respondents (25.75%) had poor knowledge on how physicians could discover prostate cancer through a digital rectal examination. More than half of respondents (57.75%) had an understanding of PSA reading for prostate cancer. In addition, many respondents (73.48%) were aware of the common symptoms of prostate cancer such as poor flow and intermittent urination but not back pain and nocturia. With regards to surgical management, 36.60% of respondents stated that it is the only option for prostate cancer, whereas 63.63% of them responded correctly that surgical intervention could lead to incontinence. Although radical prostatectomy is the gold standard for surgical intervention of prostate cancer, other surgical options have grown increasingly complex due to tumour-specific considerations (29). This includes to the need to consider the balance between morbidity and cure, and importantly, weighing the oncological benefits against the potential risks of urinary and sexual function (29). The majority of respondents (80.30%) were also aware that radiation is a suitable treatment for prostate cancer.

**Table 2:** Knowledge regarding prostate cancer amongst respondents (n = 132)

| No | Item | Correct Answer n (%) |
|---|---|---|
| 1 | Prostate is a gland responsible for testosterone excretion | 107 (81.06) |
| 2 | Prostate cancer has the second highest mortality rate among men | 112 (84.84) |
| 3 | Incidence rate is increasing by aging | 108 (81.81) |
| 4 | Genetic element is important predisposing factor | 98 (74.24) |
| 5 | Any prostatic enlargement is cancer | 61 (46.21) |
| 6 | Physicians can discover prostate cancer through digital rectal examination | 34 (25.75) |
| 7 | Prostate-specific antigen (PSA) should be normal with prostate cancer | 51 (38.63) |
| 8 | Prostate-specific antigen (PSA) should be high in normal men without prostate cancer | 76 (57.57) |

**Table 2:** Knowledge regarding prostate cancer amongst respondents (n = 132) (continued)

| No | Item | Correct Answer n (%) |
|---|---|---|
| 9 | Weak/poor flow and intermittent urination are symptoms of prostate cancer | 97 (73.48) |
| 10 | Low back pain is a symptom of prostate cancer | 49 (37.12) |
| 11 | Nocturia is a symptom of prostate cancer | 98 (74.24) |
| 12 | Surgery is the only treatment for prostate cancer | 48 (36.60) |
| 13 | Surgical treatment of prostate cancer leads to incontinence | 84 (63.63) |
| 14 | Irradiation is one of the treatment measurements | 106 (80.30) |

### *Attitudes toward prostate cancer*

Table 3 shows the distribution of frequency and percentage of attitudes towards prostate cancer amongst respondents. Based on the results, between 9.00% and 66.00% of respondents perceived a negative attitude, whereas between 33.00% and 90.00% of respondents perceived a positive attitude amongst items related to attitudes towards prostate cancer. The majority of respondents agree that an early consultation with doctors for urinary symptoms was helpful (90.16%), whereas some respondents agreed that an early diagnosis of prostate cancer improved clinical outcomes (90.09%), and all adult men should undergo screening for prostate cancer (87.12%). However, more than half of respondents (66.67%) perceived that a negative attitude and agreed that consultation with a doctor is only necessary when home remedies fail.

### *Association between knowledge and attitude towards prostate cancer*

The association between the level of knowledge and attitudes towards prostate cancer is shown in Table 4. The results indicate that the two variables had no significant association ($p > 0.50$).

## *Discussion*

### *Knowledge on prostate cancer*

This study was carried out among 132 adult men in a selected shopping mall in Penang (a state in the southern part of Peninsular Malaysia). The findings of the study demonstrated that the majority of respondents have a high level of knowledge regarding prostate cancer. A possible reason could be that the majority of participants in this study had completed their tertiary education (60.60%). Concurrently, a nationwide kick-off campaign on prostate cancer awareness had started five years ago by

**Table 3:** Attitudes toward prostate cancer among respondents (n=132)

| No | Items | Negative Attitude n (%) | Positive Attitude n (%) |
|---|---|---|---|
| 1 | All adult men should undergo screening for prostate cancer | 17 (12.88) | 115 (87.12) |
| 2 | Early diagnosis of prostate cancer improves the clinical outcome | 12 (9.91) | 120 (90.09) |
| 3 | Early consultation with doctors for urinary symptom is helpful | 13 (9.84) | 119 (90.16) |
| 4 | Drug treatment of prostate disease is effective | 62 (46.97) | 70 (53.03) |
| 5 | Medical and surgical treatments can cure prostatic problems | 27 (20.45) | 105 (79.55) |
| 6 | Consultation with doctor is only necessary when home remedy fails | 88 (66.67) | 44 (33.33) |

**Table 4:** Association between overall knowledge and attitude toward prostate cancer (n=132*)*

| | Low Knowledge | High Knowledge | *df* | *p* value |
|---|---|---|---|---|
| Negative Attitude | 0 | 3 | 1 | 0.430 |
| Positive Attitude | 29 | 102 | | |

University Malaya (30). The campaign (#onlymencan), held every November, aims to fight against prostate cancer in conjunction with Men's Health Awareness Month. These results are consistent with the findings of Morlando and colleagues (8), which was the level of knowledge towards prostate cancer was high amongst adults in Italy. They emphasised the importance of introducing an educational intervention to the adult male population, such as self-awareness on early detection of prostate cancer and self-care management at home, particularly in detecting any urgent changes in urination pattern as a routine practice. In Malaysia, there are continued efforts to promote self-awareness and early detection of prostate cancer. Urologists and health experts still continue to promote prostate cancer awareness in the media (31). With the advancement of technology and increased accessibility to the internet, it is even more convenient for adult men to gain knowledge on prostate cancer.

In our study, approximately a quarter of respondents were aware that a digital rectal examination can aid in detecting prostate cancer. A similar finding was reported by Adibe

and colleagues (9). Less than half of Nigerian males in a selected public university were aware about digital rectal examination and its its role in prostate cancer diagnosis (9). Yeboah-Asiamah et al. (15) also reported that many respondents in their study were not aware of a digital rectal examination in prostate cancer screening. Moreover, only quarter of respondents knew that this examination was necessary before proceeding to other diagnostic radiology procedures to reconfirm a prostate cancer diagnosis.

On the contrary, our study revealed that many respondents have good knowledge on the signs and symptoms of prostate cancer such as weak and intermittent urination and nocturia, which indicates a high awareness of self-screening for prostate cancer. In addition, few studies (14, 16) supported that weak and frequent urination, particularly at night, are the most common signs of prostate cancer. Therefore, monitoring the early signs and symptoms of prostate cancer is regarded as primary information that is essential for male adults. Being equipped with this knowledge and awareness will assist male adults on when to seek immediate help and treatment. From a professional diagnostic perspective, there are variations in general practitioners' (GPs) practice when it comes to prostate cancer screening (12). A study found that most GPs (94.9%) would use PSA if they intended to screen for prostate cancer (12). Regardless, continued campaigns to create self-awareness in early detection of prostate cancer is important (31) by leveraging on the advancement of technology. This study also revealed that continuous campaigns will result in a greater proportion of the adult Malaysian male population being informed regarding prostate cancer.

The majority of respondents in our study also have a good knowledge on irradiation treatment for prostate cancer. Acharya and colleagues also attest that the type of cancer cell and recommendation by urologists are the reliable options for treatment (17). Nevertheless, early screening of prostate cancer in adult males, starting from the age of 40, is still recommended throughout their lifetime. In this study, 25.75% of participants were not aware that physicians can discover prostate cancer through digital rectal examination. Nearly half of them stated that any prostatic enlargement was cancer. On the other hand, only one-third of the participants knew that lower back pain was a symptom of prostate cancer. This lack of knowledge could be detrimental and can lead to more adult men delaying treatment, especially if lower back pain was associated with individual occupational hazards.

### *Attitude towards prostate cancer*

In this study, the majority of respondents perceived a positive attitude towards prostate cancer. The findings of this study are consistent with the findings obtained by Adibe et al. who reported a good attitude amongst participants, and more than half of the participants are in favour of screening and treatment for prostate cancer (9). Similarly, a local study by Ismail et al. (10) found that two-thirds of Malaysian male adults have a positive attitude towards prostate cancer. However, another study found that attitude towards prostate cancer amongst samples was low (16). This finding was similar to that of a recent study, in which many Malaysian adult males have poor attitude towards prostate cancer and its screening process (18). Previous literature revealed inconsistent findings regarding attitudes towards prostate cancer amongst male adults. More than half of the respondents were in favour of drug treatment for prostate cancer. This result was consistent with the results obtained by Ojewola et al. (14) who reported that only one-third of their respondents perceived a positive attitude towards medication as a definitive treatment for prostate cancer. On the other hand, 66.67% of participants revealed that consultation with a doctor was only necessary when home remedy fails. This result was alarming; despite yearly self-awareness campaigns on men's health, a proportion of adult men are still reluctant to seek medical advice. Perceived belief in prostate cancer screening also had been revealed in a few studies. A qualitative study on prostate cancer screening among rural African-American men in Alabama identified that disparity, lack of understanding, traditions, mistrust of the system, fear, and threat to manhood were central to their attitudes and beliefs (32). The participants spoke frankly regarding home remedies and the influences that contribute to their choice in treating prostate cancer (32). Similarly, a focus group study in Cameroon revealed that there were a significant number of Cameroonian men that received late prostate cancer diagnosis due to lack of awareness, attitudes, cultural beliefs, self-medication, and economic limitations (34). Accordingly, some men claimed that self-medication was also used as a cheaper alternative to a hospital visit for prostate cancer screening, such as remedies from street vendors hoping that the illness would heal on its own (34). However, in our study, we did not ask further questions regarding the option of home remedies or any similar alternatives. Therefore, healthcare providers must continuously remind male adults on the importance of self-screening to increase their self-awareness regarding prostate cancer prevention (9, 14).

### *Association between knowledge and attitude towards prostate cancer*

The findings of our study showed that knowledge and attitude towards prostate cancer amongst male adults in Penang, Malaysia, have no significant association. In addition, the results of this study are similar to that of a local study conducted by Ismail et al. (10) but contradicts findings obtained by Yeboah et al. (15). Although most of the respondents in our study have a high level of knowledge and positive attitudes towards prostate cancer, their attitude may not be affected by their level of education. Moreover, initiatives that would increase public awareness regarding prostate cancer prevention (19) and early screening should be implemented by the local health authority. This constructive effort is crucial to increase self-awareness on the importance of health check-ups, particularly prostate cancer screening. Thus, the

prevalence of prostate cancer may be reduced in Malaysia in the future.

### *Limitations*

Limitations of our study include a small sample size from one selected area in the district of Penang. This limits the generalisation of our results to the entire Malaysian population. In addition, the self-administered questionnaire may impose bias on participants' response. Our study is based on a a cross-sectional research design, which does not allow for a firm conclusion to be drawn regarding the causal relations of our studied variables. Our study also did not investigate the sources of information and level of awareness of men; thus, the results of the study does not include any additional information.

### *Conclusion*

Male adults in this study demonstrate a good understanding and have positive attitudes towards prostate cancer. However, no association was found between knowledge and attitude towards prostate cancer. The majority of participants were aware of the importance of prostate cancer screening and prevention. Nevertheless, men with low knowledge level and negative attitudes towards prostate cancer screening and treatment should not be ignored. Therefore, future research should investigate the perceptions, beliefs and cultural aspects of Malaysian men towards prostate cancer screening. Public educational programmes promoting self-awareness of prostate cancer should be continued.

### *Recommendation*

Future studies related to contributing factors of knowledge and attitudes towards prostate cancer is recommended. In addition, the study should be replicated using a longitudinal research design to establish causal relationships amongst the study variables. A large sample size involving other regions/states in Malaysia will be more reflective of the Malaysian population.

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### *Competing Interests*

The authors declared that there are no competing interests in the study.

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