

The experiences of men living with untreated prostate cancer (PCa)  
in Papua New Guinea

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## Abstract

Prostate cancer (PCa) is a major public health concern worldwide. Many low resource nations in the Pacific region have rapidly increasing incidence and prevalence rates of untreated PCa. Globally, in 2018 there were 18.1 million men diagnosed with PCa and mortality was recorded at 9.6 million. In PNG, the incidence rate is 245 and mortality is 190 (8.3%) out of 2,300 deaths from cancer.

The purpose of this study was to elicit and explore Papua New Guinea (PNG) men's experiences of living with PCa in the peri-urban areas of Port Moresby from a psycho-social and cultural standpoint, in order to devise options to improve men's health care service delivery. Focused ethnography was used as the methodology. Data were collected through semi-structured interviews with 12 men living with untreated PCa in Port Moresby. A review of available documents from online databases relating to statistics and experiences of men with PCa was also undertaken.

A thematic analysis of the data was conducted to identify themes developed from the codes, and to extract subthemes to validate major themes and develop a thematic map. The themes that emerged from data analysis included; unrealistic expectations of treatment on untreated PCa, long waits, poor communication, poor service delivery, lived experience and treatment, men's self-stigma and denial, the stoicism of PNG men, superstitious beliefs about cancer and use of folk treatments.

Recommendations made in this thesis are based on descriptive data obtained from participants in relation to their shared experiences of living with untreated prostate cancer. These recommendations are health education and awareness in the community, medical education in the health institutions on health literacy, education, and awareness. There is a need for greater involvement and participation of men in Family Health Services and a need to embark on men's only health services as a pilot project in PNG.

## Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

Signed:

Date: 15 March 2019

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# Chapter 1 Introduction

This chapter provides the background to the study on PCa as a major public health concern for men as a topic of interest. The topic of PCa has captured the attention of international organisations and governments. Furthermore, the chapter outlines the current situation of PCa world-wide and in Papua New Guinea (PNG). This study aims to contribute to the gap in knowledge on untreated PCa from the experience of men in PNG. The structure of each chapter is as follows; chapter 1; introduction, chapter 2 and 3; literature review on PCa worldwide and in Papua New Guinea, Chapter 4; methodology, Chapter 5; findings, chapter 6: discussion and conclusion. These will be further discussed in 1.2 (thesis structure).

## 1.1 Overview of current situation of PCa in PNG

My years of experience of working in hospitals and on health projects dealing with PNG men motivates me to understand men who had live with untreated PCa. The aim of the study was to engage men in their private space, eliciting their views concerning their experience of living with untreated PCa. The primary research question was what are the experiences of PNG men with untreated PCa?

PCa is a global health concern affecting men. There is a gap in knowledge regarding untreated PCa, which justifies the proposed study. In 2012 there were 1.1 million cases diagnosed worldwide, accountings for 15% of all cancers, with almost 70% (759,000) occurring in developing regions (Ferlay, et al. 2015). The incidence of PCa varies more than 25-fold worldwide. The highest rates are in Australia/NZ with 111.6 per 100 000 men as estimated using age standardised rate (ASR – World Standard), whilst in North America the rate is 97.2 per 100 000. These estimated rates are due to the effective practice of PSA testing and biopsy. In certain less developed regions such as the Caribbean, South Africa and South America, the age standardised rate is 98.8 per 100 000, 61.7 per 100 000 and 60.1 per 100 000 respectively, and is less in Asian populations, with an estimated rate of 10.5 in the Eastern part and 4.5 in South-Central Asia (Ferlay et al. 2015).

Mortality varies worldwide with the number of deaths occurring larger in less developed regions. Mortality rates are high in the Caribbean (29 per 100 000) and in sub-Saharan African (19-24 per 100 000). The rate in Oceania is 4.3 per 100 000, Australia/NZ is 3.9 per 100 000, Melanesia is 0.3 per 100 000, and Micronesia/Polynesia is 0.1 per 100 000 respectively (Ferlay, et al. 2015). PCa is the fifth most common cancer, causing an estimated 307,000 deaths, representing 6.6% of the total male cancer mortality in the world. It is also the second most common cause of deaths for men (Ferlay, et al. 2015) and it is the most common cancer in males in 84 countries, occurring more commonly in the developed world (WHO, 2014). Rates have been increasing in the developing world (Baade, Youlten, Krnjacki, 2009). According to Ernst (2007), men living with PCa are often disadvantaged by lack of awareness, funding, media coverage, and research. This leads to low participation in treatment, care and poorer outcomes as compared to other cancers of equal incidence.

In Papua New Guinea PCa accounts for 8.3 percent of deaths for PNG men, that is 190 PCa deaths out of the 2,300 different deaths from cancer alone each year (WHO, 2014). The PNG National Health Plan 2011-2020 has indicated the need to increase early detection (screening) and immediate clinical interventions for all non-communicable diseases including cancer. Men's sexual health is a growing concern internationally, and particularly in PNG. Men's health has never been a focus of PNG's health initiatives over the last 35 years (National Health Plan, 2010). In 2011, the PNG Ministry of Health introduced a men's health service branch to oversee men's health issues. This initiative signifies an improvement in the government's efforts in targeting men's health outcomes in PNG. In PNG, men's sexual health has become an issue of increasing concern, compounded by PNG men's reluctance to disclose information on sexual health issues, including reproductive cancers. For the government of PNG to reach its Sustainable Development Goals in targeted areas such as health and other social services (Government of PNG, Vision 2050), immediate interventions are needed to improve service delivery in health and other social sectors to achieve improved men's health outcomes.

The current academic literature has revealed a gap in understanding the experience of men having PCa from a psychosocial perspective. The challenges identified in the literature were two-fold, one related to loss of male identity and being silent in adversity. Further, there were challenges in managing services in relation to the delivery of care, such as not being sensitive to culture, not gender sensitive and not using appropriate language in communication.

There is therefore a need to explore and understand the experiences of men living with PCa, focused on a population that previous studies on PCa have profiled (Arrington, 2003; Bailey Jr, Wallace, & Mishel, 2007; Cecil, Mc Caughan, & Parahoo, 2010; Kelly, 2009; Klaeson, Sandell, & Berterö, 2012; Maliski, Rivera, Connor, Lopez, & Litwin, 2008; Shahid, Finn, Bessarab, & Thompson, 2009). Exploration of men's health experiences has been hindered by the societal expectations of masculinity and cultural norms (Peerson & Saunders, 2009; Plowden, John, Vasquez & Kimani, 2006).

Men's physical illness, for example, can impair the psychological health of their female partners; when men are sick, injured or die, households and female partners suffer a loss of income. Improving men's health can therefore benefit men, women and their children (WHO, 2014). The significance of the study is to investigate options for concerted national action to reduce this burden, which could have a transformative social, health and economic impact. It is time to not only acknowledge the benefits of such action to men, but also to recognize and measure its potential benefits to women, children and society (WHO, 2014).

The primary aim of the research was to explore the experience of men living in Port Moresby who had untreated PCa. Men in PNG do not talk openly about their sexuality and maleness in public. This research can pave the way to develop programs in health-seeking behaviour through improved health literacy, information sharing and awareness, send health education messages to communities and have a wider reach through the publication of the findings.

For PNG's approach it could be appropriate to factor those identified issues with the means of advancing men's health through creating healthy public policy. By embarking on healthy public policy where men's issues are brought to the fore within family health services and other inter-government and non-governmental organisations that deal with social issues that include men and boys as their core business. Education and awareness through having a simple or tailored literacy approach with information sharing and awareness would be the way forward for creating positive health-seeking behaviour for a man. These strategies when applied may help advance men's involvement at a larger scale in urban and rural PNG for better social and population health.

## 1.2 Thesis Structure

This master thesis has been divided into six different chapters. Each of the chapters has an introduction, body and conclusion.

**Chapter 1** commences with an introduction providing an overview of PCa as a public health concern world-wide including PNG and showing the structure of the six chapters in this thesis. It starts with an introduction followed by a literature review (this had a two-fold approach; firstly, from a global and regional perspective and secondly, focusing particularly on PCa). Chapter four commences with describing the research methodology that encompasses the research question, research paradigms, epistemology, ethics and analysis. The study findings are in chapter five and provide a brief reflexivity on personal stance, together with the demographic data of participants, and include the six themes identified through the data analysis. Chapter six commences with a summary of the findings, gender and barriers to greater involvement of men in the pschyo-social sphere. It includes the g strengths and limitations of the study, followed by its implications for health service delivery, for medical education and for policy, and some recommendations are made.

**Chapter 2** provides an integrative literature review, describes the search engine, including the inclusion and exclusion, the key findings, limitations, and nature of the research. It also provides information about the aetiology and epidemiology of PCa, diagnosis and treatment.

Chapter 2 commences by presenting the literature review search strategy followed by the search results. The literature reviewed was organised firstly to show the global and regional perspective and secondly, focussing on cancer (particularly PCa) and thirdly, PCa in a Papua New Guinea context. Finally, studies focussing on experiences of men living with PCa were critically reviewed.

**Chapter 3** Outlines Papua New Guinea's background, focusing on demography, languages, age structure and family size, gender roles, culture and society. The chapter also deliberated on the government of PNG in terms of its economic development and cost of living. It also provides a review of international policy documents and aligns these with local policy and local reviews on PCa, using local data from PNG's Ministry of Health. The chapter was not limited to these aspects but considered the PNG health care system with respect to its organisational structure, cost and funding including the types of health conditions by admission and sexual health services.

**Chapter 4** Outlines the methodological approaches taken to answer the research question 'what are the experiences of men living with untreated PCa in PNG?' The section entails the following: design, method, analysis, and conclusion. It describes the research question, the research paradigm, epistemology, post-positivism, ethnography, focused ethnography, and ethics.

**Chapter 5** Presents the demographic findings and the themes, using quotes from the interview material to present the case through six themes. The themes are; (1) unrealistic expectation of treatment, (2) long waits, poor communication, poor service delivery, (3) men's self-stigma and denial, (4) stoicism of PNG men (5) superstitious belief with treatment about PCa and (6) use of folk treatment.

**Chapter 6** Contains a critical discussion of the themes. Comparative literature and quotes from other authors are used to support, compare, and contrast with my findings. In the conclusion, I address the strengths and limitations of the study, its implications for health services delivery and medical and health education and options for policymakers, advice for health professionals and recommendations for further research.

## Chapter 2 Literature Review

### 2.1 Introduction

The following chapter presents a critical review of the literature. The literature search focused on papers relating to PCa. It commences by presenting the search strategy followed by the search results. The literature reviewed was organised firstly into global and regional perspective and secondly, focussing at cancer particularly PCa and thirdly, PCa in a Papua New Guinea context and finally, focussing on experiences of men living with PCa were critically reviewed.

A literature review informs the researcher about existing research on the topic, previous and similar methodologies applied, and indicates gaps in knowledge, as well as identifying gaps and disparities. It sets the scene for the study to be conducted (Kable, Pich, & Maslin-Prothero, 2012). The literature review used a critical approach to ensure its relevance to the topic. Upon synthesising of the relevant literature, the findings were organised into key concepts or themes (Parahoo, 2014; Polit & Beck, 2006).

### 2.2 Search Strategy

Defining and understanding ‘search strategy’ as an organised way of locating relevant literature using the key search terms from different sources and database is pivotal. The search strategy used combined the key concepts of the research question as search terms in order to retrieve appropriate results pertaining to the research question (Kable et al., 2012).

The search used the online databases; CINAHL, MEDLINE via PubMed, Scopus, and Google Scholar. It commenced in February 2018.

The terms or key concepts identified in the research question were “experiences”, “untreated”, “PCa” and “Papua New Guinea”. For those key concepts, the search limits were reports and articles (see Tables 2.1 and 2.2 below) from 2000 to the present.

**Table 2. 1 Selection Criteria: Reports Reviewed**

Inclusion Criteria	Exclusion Criteria
<ul style="list-style-type: none"> <li>• Reports that were published by reputable organisations publishing global reports and in academic, peer-reviewed journals from 2000 to 2018</li> </ul>	<ul style="list-style-type: none"> <li>• Any reports published before the year 2000</li> </ul>
<ul style="list-style-type: none"> <li>• Published in English and with full text access online</li> </ul>	<ul style="list-style-type: none"> <li>• Reports that involved socio-economic status (i.e., HDI)</li> </ul>
<ul style="list-style-type: none"> <li>• Reports focused on other types of cancer including prostate.</li> </ul>	<ul style="list-style-type: none"> <li>• Any reports not in English (publication version)</li> </ul>

**Table 2. 2 Selection Criteria: Selected Studies Reviewed**

<b><i>Inclusion criteria</i></b>	<b><i>Exclusion criteria</i></b>
<ul style="list-style-type: none"> <li>• <i>Published academic, peer-reviewed journals from 2003 to 2018</i></li> </ul>	<ul style="list-style-type: none"> <li>• Any reports published before year 2003</li> </ul>
<ul style="list-style-type: none"> <li>• <i>Published in English and fully retrieval from online</i></li> </ul>	<ul style="list-style-type: none"> <li>• Reports that involved socio-economic status</li> </ul>
<ul style="list-style-type: none"> <li>• <i>Reports are focused on other types of cancer including prostate</i></li> </ul>	<ul style="list-style-type: none"> <li>• Any reports not in English (publication version)</li> </ul>

The search was narrowed from 1 300 initial references to 14 references relating to the study. The 14 articles were stored in “EndNote”. The sources of those articles were from the following journals; American Association for Cancer Research, Cancer Epidemiology, Ethnicity & Health, Lancet, International Journal of Cancer, Psycho-Oncology, and World Health Organisation online database and from period of 2000 to 2018 (see Appendix: O).

## **2.3 Global Perspective – Burden of Cancer**

The review of the reports on cancer including prostate was primarily from 2000 to 2018. The 14 reports reviewed thus far indicated cancer continues to be a complex and significant public health concern globally. Cancer has become a wide public health concern and every country has taken measures to report on different types of cancer. According to World Health Organisation Press Release International Agency for Research on Cancer (IARC) data, the burden of cancer over the last six years (from 2012 -2018) has raised to from 14.1 million in 2012 to 18.1 million new cases (incidence rate). Mortality has seen the same increase from 8.2 million in 2012 to 9.6 in September 2018 (WHO, Press Release No.263 September 2018). This clearly defines the magnitude of cancer in general for incidence and mortality worldwide (WHO, 2018a).

The reports provide the framework for examining the epidemiology in terms of trends relating to prevalence, mortality, and morbidity. In a 2018 report by the WHO (2018a) the global burden exerted by cancer for any individual, either men or women, during their lifetime is in the ratio of one to every five men (1:5) and one in every six women (1:6) globally. In terms of survival after being diagnosed it is a five-year period. There is an estimated population of 43.8 million as prevalence cases (WHO, Press Release No.263 September 2018).

Cancer is increasing due to several factors such as population growth and ageing and is linked to changes happening within certain types of cancer in terms of prevalence associated with social and economic development. This trend is most visible in rapidly growing economies, where the shift is notable from cancers associated with poverty and infections to cancers typically associated with a change in lifestyle in industrialised countries (WHO, Press Release No.263 September 2018).

## 2.4 Regional Perspective – Burden of Cancer

The regions as defined by WHO in GLOBOCAN (2018a) with the highest to the lowest incidence and mortality; Asia: the mortality rate in Asia is 57.3% (5 477 064) that is higher than the incidence rate or cases of 48.4% (8 750 932). In terms of five-year prevalence, the region accounts for 39% (17 387 570) (GLOBOCAN, 2018a; WHO, Press Release No.263 September 2018). Europe: accounts for 23.4% (4 229 662) of the global cancer incidence and 20.3% (1 943 478) of the cancer deaths, although it has only 9.0% of the global population. The five -year prevalence is 27.7% (12 132 437) (GLOBOCAN, 2018a; WHO, Press Release No.263 September 2018). North America: statistics on incidence equates to 13.2% (2 378 785) of the global population and with mortality worldwide ranking third with 7.3% (698 266). For five-year prevalence it sits at 18.5% (8 132 437) (GLOBOCAN, 2018a; WHO, Press Release No.263 September 2018). Africa: the incidence rate in Africa is 5.8% (1 055 172) that is higher than the mortality rates 7.3% (693 487) and their five-year prevalence is 4.4% (1 930 912). Latin America and the Caribbean: the Latin America and the Caribbean have 7.8% (1 412 732) in terms of incidence globally and account for 7% (672 758) of mortality worldwide and for five-year prevalence in fifth place accounting for 7.6% (3 336 468) (GLOBOCAN, 2018a; WHO, 12 September 2018) and Oceania: The rate in Oceania is 4.3 per 100 000, Australia/NZ is 3.9 per 100 000, Melanesia is 0.3 per 100 000, and Micronesia/Polynesia is 0.1 per 100 000 respectively (Ferlay et al., 2015; GLOBOCAN, 2018a).

An insight into Papua New Guinea relating to cancer in general for both sexes and focusing on PCa for men of all ages show that PNG has a total population of 8 418 343, with 11 913 new cancer cases, the number of cancer deaths is 7 477 and number of five-year prevalent cases. This is summarised in Table 2. 3.

**Table 2. 3 PNG Cancer Rates**

Source: (GLOBOCAN, 2018b).

**Summary statistics 2018**

	Males	Females	Both sexes
<b>Population</b>	4 282 498	4 135 845	8 418 343
Number of new cancer cases	5 263	6 650	11 913
<b>Age-standardized incidence rate (World)</b>	205.2	207.3	202.4
Risk of developing cancer before the age of 75 years (%)	21.66	20.23	20.67
Number of cancer deaths	3 525	3 952	7 477
Age-standardized mortality rate (World)	147.2	128.9	134.6
Risk of dying from cancer before the age of 75 years (%)	15.36	13.32	14.15
5-year prevalent cases	8 248	12 361	20 609
Top 5 most frequent cancers excluding non-melanoma skin cancer (ranked by cases)	Lip, oral cavity, Prostate, Colorectum Liver, Lung	Breast Cervix uteri Lip, oral cavity Thyroid Liver	Breast Lip, oral cavity Cervix uteri Liver Colorectum

PCa as a specific issue within the given summary above, the number of new cases for males in all ages is 646 (12.3%) and it is the second most common cancer from the top five most frequent cancer cases for males (GLOBOCAN, 2018b).

Finally, from those six regions, the cumulative total for incidence 18 078 957, mortality 9 555 027 and 5-year prevalence at 43 841 302 (GLOBOCAN, 2018a).

## 2.5 Prostate cancer

PCa is a global health issue affecting men. In 2012 there were 1.1 million cases diagnosed worldwide, accounting for 15% of all cancers, with almost 70% (759 000) occurring in developing regions (Ferlay et al., 2015). The incidence of PCa varies more than 25-fold worldwide. The highest rates are in Australia/NZ with 111.6 per 100 000 men as estimated using age-standardised rate (ASR – World Standard) and in North America the rate is 97.2 per 100 000. These estimated rates are due to the effective practice of PSA testing and biopsy. In certain less developed regions such as the Caribbean, South Africa and South America the ASR is 98.8 per 100 000, 61.7 per 100 000 and 60.1 per 100 000 respectively, and is less in Asian populations with an estimated rate of 10.5 in the Eastern part and 4.5 in South-Central Asia (Ferlay et al., 2015).

Mortality varies worldwide with the number of deaths occurring larger in less developed regions. Mortality rates are high in people of African descent such as the Caribbean (29 per 100 000) and in sub-Saharan African (19-24 per 100 000). PCa is the fifth most common cancer-causing an estimated 307,000 deaths representing 6.6% of the total male cancer mortality in the world. It is also the second most common cause of deaths for men (Ferlay et al., 2015) and it is the most common cancer in males in 84 countries, occurring more commonly in the developed world (WHO, 2014). Rates have been increasing in the developing world (Baade, Youlten, & Krnjacki, 2009). These statistics provide the scenario for the study which is concerned with having to live with PCa worldwide (see Appendix N).

This is summarised in Table 2.4 as per the reviewed reports on disease burden.

Table 2. 4 Themes on Disease Burden

Challenges world-wide in disease burden	Challenges in managing disease burden
<ul style="list-style-type: none"> <li>• Difference geographically</li> <li>• Difference in gender</li> </ul>	<ul style="list-style-type: none"> <li>• Poor reporting mechanism</li> <li>• Poor health information and awareness</li> </ul>

### Papua New Guinea: Morbidity on PCa

A report is available which covers the period 2007 to 2013 through the national health information system in the Ministry of Health, Government of PNG. The report only captures ages ranging from 25 to 45 and above. The data relate to morbidity for each year over the six-year period. In summary 2007 (9), 2008 (28), 2009 (22), 2010 (24), 2011 (24), 2012 (15) and 2013 (13) - a cumulative morbidity of 144 up to 2103 (Government of Papua New Guinea, 2018a) (See Appendix P).

The Western Pacific Regional Office of WHO reported PNG having total deaths from all cancer types reaching 2 300 (WHO, 2014a). Deaths from prostate alone was 190 (8.3%) out of four other main cancers such as mouth and oropharynx 370 deaths, (16.1%), liver 329 (14.3%), trachea, bronchus, lung 175 (7.6%) and lymphoma, multiple myeloma 168 (7.3%) (Government of Papua New Guinea, 2018a). A summary is in Table 2.5 on PNG PCa Morbidity.

Table 2. 5 PCa Morbidity

<i>Prostate Cancer Morbidity</i>		
Period: 2007 - 2013		
Year	Tally/Score/Year	Cumulative Score
2007	9	9
2008	28	28
2009	22	22
2010	24	24
2011	24	24
2012	15	15
2013	13	13
TOTAL		144

(Government of Papua New Guinea, 2018a) (See Appendix: P).

The PNG National Health Plan 2011-2020 has indicated the need to increase early detection (screening) and immediate clinical interventions for all non-communicable diseases including cancer. Men's sexual health is a growing concern internationally, and particularly in Papua New Guinea (PNG). Men's health has never been a focus of PNG health initiatives over the last 35 years (National Health Plan, 2010). In 2011, the PNG Ministry of Health introduced a men's health service branch to oversee men's health issues. This initiative signifies the government efforts in targeting men's health outcomes in PNG. In PNG, the problems associated with men's sexual health are compounded by PNG men's reluctance to disclose information about sexual health issues on reproductive cancer (Government of Papua New Guinea, 2014).

With respect to the literature review conducted for the study which includes reports and experiences, there were 22 articles altogether that covered qualitative and quantitative analyses, meta-analysis and systemic review and analysis. Due to the paucity of research on PNG, the review focuses on studies using general search terms such as 'PCa experience and incidence' and 'geographical distribution' for reports. According to Ernst (2007), men living with PCa often lack awareness, funding, media coverage, and research. This leads to low participation in treatment, care and poorer outcomes as compared to other cancers of equal incidence. The notion was reiterated by other authors (see Table 2.4).

Table 2.6 is a summary of experiences of men living with PCa.

**Table 2. 6 Themes regarding experiences**

Challenges in experiences	Challenges in managing the experiences
<ul style="list-style-type: none"><li>• Loss of male identity</li></ul>	<ul style="list-style-type: none"><li>• Services: culturally sensitive</li></ul>
<ul style="list-style-type: none"><li>• Differing roles</li></ul>	<ul style="list-style-type: none"><li>• Services: gender sensitive</li></ul>
<ul style="list-style-type: none"><li>• Silence in adversity</li></ul>	<ul style="list-style-type: none"><li>• Services: using appropriate language</li></ul>

## 2.6 Aetiology and Epidemiology of PCa

PCa is the development of cancer cells in the prostate gland, a small walnut shaped organ lying behind the bladder. This organ produces the seminal fluid that nourishes and transports sperm. It is the most common cancer in men globally (PCa Foundation of Australia, 2017).

Like all cancers, PCa begins when a mass of cells has grown out of control and begins invading other tissues. Cells become cancerous due to the accumulation of defects, or mutations, in their DNA. Most of the time, cells can detect and repair DNA damage. If a cell is severely damaged and cannot repair itself, it undergoes so-called programmed cell death. Cancer occurs when damaged cells grow, divide, and spread abnormally instead of self-destructing as they should (PCa Foundation of Australia, 2017). A common condition in men that is part of the normal ageing process is benign prostatic hypertrophy (BPH or enlarged prostate). The urethra is a tube that passes through the prostate and drains the bladder. A man with an enlarged prostate (BPH) often has difficulty emptying the bladder because the urethra is being compressed by prostatic tissue. This compression of the urethra makes it difficult for the bladder to generate enough pressure to overcome the obstruction (enlarged prostate). Over time, the bladder itself begins to weaken making urination even more difficult (PCa Foundation of Australia, 2017) (See Appendix H).

Symptoms of PCa are variable; some men have no symptoms until cancer develops over years. However, symptoms that can develop include the following: urinary frequency (visiting the washroom often to pee); difficulty starting or stopping urination; interrupted or weak or slow urinary stream; blood in urine or in semen; discomfort (pain or burning sensation with urination or ejaculation); intense pain in the low back, hips, or thighs, often present with aggressive or prostatic cancer spread to other organs (PCa Foundation of Australia, 2017). The common assessment done to confirm the diagnosis is through digital or rectal examination and Prostate-specific antigen (PSA) test. PSA is a protein produced by cells of the prostate gland. The PSA test measures the level of PSA in a man's blood. For this test, a blood sample is sent to a laboratory for analysis. The results are usually reported as nanograms of PSA per millilitre (ng/mL) of blood. The normal reading is 4.0 ng/mL and any reading above 4.0 ng/mL is abnormal. If there is an unusual reading, the doctors order a prostate biopsy to determine the presence of the cancer cells (PCa Foundation of Australia, 2017).

Treatment of BPH (which may include medications or surgery) depends upon the individual, underlying medical conditions, and the severity of symptoms (PCa Foundation of Australia, 2017). Sexual health and function are important parts of a healthy lifestyle. PCa makes it difficult to participate actively in sexual intercourse or the ability to be able to perform sex acts and other masculine activities (PCa Foundation of Australia, 2017).

### **2.6.1 PNG Context**

In PNG, cancer hospital admissions as reported in the 2008 health report by type of cancer are as follows: cervical cancer (22.2%), benign neoplasms (22.1%), oral cancer (12.4%), breast cancer (7.3%), liver cancer (7.0%) and all other cancers (29.2%). PCa may be either categorised under benign neoplasm or all other cancers (Government of Papua New Guinea, 2011b). According to the WHO (2014a) the cancer mortality profile for males in PNG is 2,300, with the following distribution of deaths caused by each cancer type: mouth and oropharynx (370 = 16.1%), liver (328 = 14.3%), prostate 190 = 8.3%), trachea, bronchus, lung (174 = 7.6%), lymphoma, multiple myeloma (167 = 7.3%) and others (46.4%).

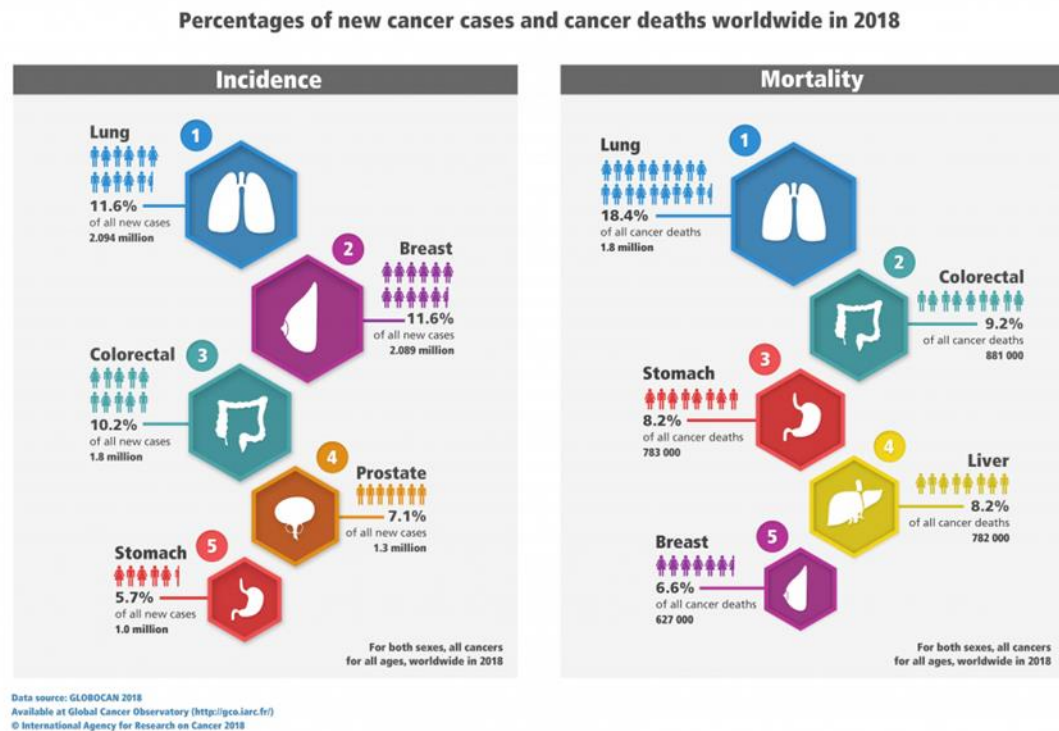
### **2.6.2 Diagnosis and Treatment**

The diagnosis of cancer in the PNG healthcare setting is frequently clinical. Pathological diagnostic services are limited or non-existent in most hospitals (Government of Papua New Guinea, 2015b). The only hospital in PNG that provides histopathological services is Port Moresby General Hospital located in the capital city, Port Moresby. Specimens that are sent from other hospitals for analysis take months or even longer for the results to be returned. Radiology diagnostic services are also basic; CT scanning is limited to Port Moresby and does not offer much help in the diagnosis and staging of cancers (Government of Papua New Guinea, 2015b).

The services provided by the National Cancer Centre in Lae, Morobe province, PNG are external beam radiotherapy (using a Cobalt 60 machine), brachytherapy and chemotherapy (Government of Papua New Guinea, 2015b). The facility is the main centre for cancer prevention and treatment. In addition to this, chemotherapy and surgery are provided in regional hospitals, where Specialist Medical Officers are located (Government of Papua New Guinea, 2015b).

## **2.7 Global cancer by gender**

Gender and sex are terms used interchangeably; however, they can refer to biological differences between men or boys and women or girls. Gender and sex are fundamental aspects of human physiology that splits the population into two identifiable differences for social development to improve quality of life (Miller, 2014). Classifying global cancer by gender provides a snapshot of the incidence and mortality of cancer for both sexes. For men: Lung cancer has become the commonest diagnosed cancer for men, equating 14.5% of total cases and is 8.4% in women. It is the leading cause of cancer death for men accounting for 22.0% (WHO, Press Release No.263 September 2018). For women: breast cancer is the most diagnosed cancer accounting for 24.2% of total cases. The ratio of one to four of all new cancer cases are breast cancers diagnosed globally in women (GLOBOCAN, 2018a).



**Figure 2.1 Incidence and Mortality of Cancer Worldwide**  
(WHO, Press Release No.263 September 2018)

International reports and articles related to PCa reviews done to inform and validate the scale of PCa within respective countries in the six main regions identified by WHO. The national report would be domestic reporting of PCa in Papua New Guinea from the period of 2007 to 2013 as secondary data from National Health Information System, Ministry of Health, Government of Papua New Guinea (Government of Papua New Guinea, 2018a). The reporting domestically would include WHO's Western Pacific Region data for PNG on PCa.

Globally there has been a strong focus on illness prevention and health promotion to mitigate the rising burden of diseases (WHO: Regional Office for Europe, 2014). PCa has considerable attention in western countries but little in the low resources' countries (Plowden, John, Vasquez, & Kimani, 2006). The World Health Organization and National Preventative Health Taskforce have called for a joint effort to empower men to make informed decisions about their health (Plowden et al., 2006; WHO, 2014b). Therefore, it is timely to consider in what ways, health literacy and information matters and what role it might play in men's health based on their beliefs and perceptions (Peerson & Saunders, 2009; Shahid et al., 2009). The incidence of mortality rate on PCa worldwide has risen over the nine years from 2002 to 2011. In 2002 the incidence rate or cases were 679 000 and the mortality rate was 221 002 (Parkin, Bray, Ferlay, & Pisani, 2005). In 2011 the incidence rate extends to 903,500 which is an increase of 224 477 and deaths rates also increased to 258 400; an increase of 37 389 mortalities (Parkin et al., 2005).

The major theme revealed through the reports considered in this review was the difference in disease burden. It is evident that there are disparities in the scale of disease patterns worldwide, including PCa. Cancer has no boundaries in terms of gender and has affected males and females worldwide.

## **2.8 A critical review of the literature on the untreated PCa**

The reviews undertaken for this study were from reports and articles published from 2000 to 2018. The reports provided the epidemiological context, whilst the published articles provided an in-depth understanding of living with PCa. One theme that emerged is that there are differences in roles, issues of male identity and a need to live in silence during adversity, and that the challenges in services encountered were not culturally and gender sensitive and the choice of language in defining and explaining is often a barrier to service utilisation (Arrington, 2003; Bailey Jr et al., 2007; Cecil et al., 2010; Kelly, 2009; Klaeson et al., 2012; Maliski et al., 2008; Rivas et al., 2016b; Shahid et al., 2009).

## **2.9 Challenges in managing cancer burden**

Another major theme discovered in the review of the articles was the challenge in managing the disease burden with the sub-themes of poor reporting mechanisms and poor health information and awareness.

### **2.9.1 Poor reporting mechanisms**

The sub-theme of poor reporting mechanisms stems from limited technical expertise in the low resourced region with no proper cancer registry mechanics to capture essential data relating to all forms of cancer (GLOBOCAN, 2018a; WHO, Press Release No.263 September 2018).

In South Africa, the study identified challenges that had to do with addressing and strengthening cancer care. These were cancer awareness, advocacy, health system monitoring, multi-disciplinary research and training and education (Morhason-Bello et al., 2013). Another study revealed that limited health facilities and expertise exist to cater for emerging cancers, and these were another barrier within the health system (Jemal et al., 2012).

### **2.9.2 Poor health information and awareness**

The sub-theme on poor health information and awareness has been clearly defined in several reviews. Most men with PCa want a lot of information as soon as they are diagnosed with the condition, and health professionals should be prepared to provide men with information about PCa early in their care (Gulavita et al., 2000). There is also a lack of information regarding screening as a health intervention (Grönberg, 2003) and limited comprehension of PCa terms (Kilbridge et al., 2009).

## **2.10 Themes regarding experiences**

Experience is a significant factor for any story told about a particular issue. It relates to the environment and influencing factors in a particular place at any given time (Merriam, 2002). The two major themes identified during the review on experiences of men with PCa were firstly challenges in their experience and challenges in managing the experiences.

### 2.10.1 Loss of male identity

The sub-theme loss of male identity implies experiences encountered by men living with PCa. Although some research on illness narratives exists, men with PCa and consequently, the potential for learning from their unique stories and experiences, have been overlooked. The observations suggest implications related to (a) masculine identity, (b) sex among the elderly, (c) the social construction of sexuality, (d) defining and redefining sexuality, (e) physician-patient interaction, (f) sex talk among social support group members, and (g) the apparent clash between the values of sex and health with the study done in United States of America (Arrington, 2003, p. 30).

Sexual dysfunction was an obstacle to the body, expressed by the men as a single phenomenon that threatened their existence, coupled by the loss of social identities and spiritual beliefs from the studies done in Northern and Western Europe, North America, Australia and South-Central Asia (Rivas et al., 2016a). Klaeson et al. (2012) found from the study conducted in Southern Sweden with 10 men using in-depth interviews an adjunct term “having the elixir of life stolen.” With the following connotation of sexual dysfunction noted as an indictment, feeling of shame and powerlessness due to rectal examination and masking of social identity as though nothing had happened. This typified men’s views preoccupied with embodied experiences unfamiliar to them and silently mourning the loss of their sexual connectivity with their new life situation that threatened their identity.

In summary, the sub-theme loss of male identity clearly defines where the men have seen themselves relating to the world around them from the past and the present. I would like to use this phrase in a question form ‘I don’t know who I am anymore’ and this is reiterated again as questions “Who am I? What am I about? What is my place in my social group? What is important to me? What do I value? What do I want to do with my life?” (Eccles, 2009, p. 78). By saying that phrase ‘I don’t know who I am anymore’ shows men lost their identity, had low self-esteem, were depressed, loss of self-confidence, felt social anxiety and, isolation which may lead to chronic loneliness as an issue of its own that has to be address as well (Eccles, 2009).

### **2.10.2 Differing gender roles**

Another sub-theme was differing roles of man. A 'role' is a prescribed or expected behaviour associated with a position as in this case will be referring to the status assigned to a man as an individual (Eccles, 2009). The review pointed some supporting evidence such as; the final phase of the illness experience and illustrated how the men confronted the existential threat alongside physical changes, and the way each change resulted in a new outlook on life and its priorities (Kelly, 2009). Additionally, sociological issues pertaining to masculinity and maleness with men and differing expectation about gendered behaviour were revealed (Cecil et al., 2010).

Others that were brought into the fore were; social stigma relating to their roles and responsibility as something these men attested to and could not let go and furthermore, was seen as surviving for others and legacy after death, and reflection of time and survival by re-evaluating priorities of life and warning others about the disease (Rivas et al., 2016a).

### **2.10.3 Silences in adversity**

The final sub-theme is is silence in adversity. To me this 'suffering in silence isn't resilience and neither is justice, it's just suffering' in "...a climate of fear and a sense of powerlessness in the face of adversity..." (Flynn, 2008, p. 2).

## **2.11 Challenges in managing the experiences**

The final theme is challenges in managing the experiences, with three sub-themes under the headings Services that; must be culturally sensitive, gender sensitive and use appropriate language.

### **2.11.1 Services: the need for cultural sensitivity**

This first sub-theme of services that have to be culturally sensitive is to provide an avenue where dialogue is established on mutual respect and understanding; where trust is developed through having faith in the kind of services that are being delivered.

### **2.11.2 Services: lack of gender sensitivity**

The second sub-theme on services must be gender sensitive is and must be highlighted that the same applies for male and female. The experiences in the reviewed articles illustrate the issue of sexuality, in terms of constructing and redefining their stances to services. And further knowing their physical status of illness and fuelled with uncertainty. The points are highlighted in the following studies: the findings from 37 Aboriginals in Western Australia provide a multi-level view from cultural, gender, social and biomedical, health education and information sharing in a layman's language. A similar study was conducted in the UK with 8 men highlighting the need for service providers to be gender sensitive and any intervention accounting for masculine values that address men's concerns and foster positive coping strategies (Cecil et al., 2010).

In summary, the health services are to be equitable and efficient by enveloping greater sensitivity toward sex and gender (Doyal, 2001).

### **2.11.3 Services: using appropriate language**

The final sub-theme is using appropriate language during service orientation for clients in any setting but primarily referring to the health care settings. Use of medical jargons in explaining the illness or preventative measures has been proven disastrous for clients. The articles reviewed clearly outline the facts; that physicians' interaction with clients and communication around sex education or talk involves a clash between the values of sex and health (Arrington, 2003; Maliski et al., 2008; Shahid et al., 2009); and that information given on social, biomedical or health needs to be done in layman's language (Shahid et al., 2009).

In summary, being ill or being diagnosed with a life-long illness is a challenge. Further, being ill is a continuous inner struggle displayed by the process of having to balance the "demands of the illness and the demands of everyday life" and being a man in the face of adversity (Van Houtum, Rijken, & Groenewegen, 2015, p. 1). Understanding that everyday life affects the way one self-manage his illness in a way that does not interfere with their revealing of the pain experience within (Van Houtum et al., 2015).

## 2.12 Conclusion

Current literature revealed the gap on psychosocial exploration and understanding, particularly the experience of men having PCa. Exploration of men's experience has been assumed to be hindered by the societal expectations of masculinity and with some having to do with cultural implications. From the identified gap, there is a need to explore and understand the experiences of men living with PCa and for this proposed study, it will focus on a population that previous studies on PCa have profiled; being in developing countries and some related intricacies with culture and the male psychology, which fits perfectly to the study being undertaken in PNG men with untreated PCa.

This review has highlighted issues in the following areas: globally and regionally cancer is a public health concern; there are challenges in disease burden and managing the burden, and challenges in the experiences of having PCa and challenges of managing those experiences attached to the illness.

Therefore, there is a gap in knowledge on the experiences of those with untreated PCa in PNG, with implications for public health policy's goal of meeting the 2050 vision to have healthy, wiser, and wealthy country.

The next chapter will provide contextual information of PNG.

## **Chapter 3 Papua New Guinea Contextual Review**

### **3.1 Introduction**

The review sets the scene for conducting this research on PNG men's health relating to PCa. The key research question was, "what are the experiences of men living with untreated PCa in PNG?" This chapter will follow the following sequence: demographics of PNG, epidemiology of PCa in global and PNG context, treatment regimens, health promotion and PCa, Ottawa charter on primary health care including health promotion policy with supporting policies such as sustainable development goals (SDGs), global action on men's health (GAHM) and PCa in PNG including Australasia and the Pacific Islands countries. The review will also examine local health policies and PNG's health care system.

### **3.2 Papua New Guinea**

"A million different journeys" in the land of the unexpected is a colloquial term used by the Tourism Promotion Authority (TPA) on their website to promote the diversity of PNG, its unheard or untouched cultures and the rural way of life (Government of Papua New Guinea, 2018b). Even though PNG has been a self-governing nation for 43 years there is more to be done and discovered about its identity (Government of Papua New Guinea, 2018). The majority (87%) of PNG's population live in rural settings. Figure 3.1 shows the geography of the country (Government of Papua New Guinea, 2011a).

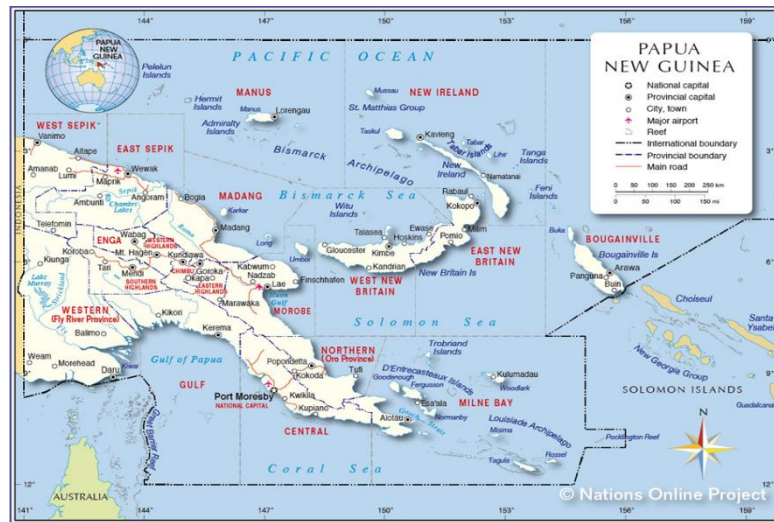


Figure 3. 1 Map of PNG

Source: (NationOnline)

[https://www.nationsonline.org/oneworld/map/papua\\_map.htm](https://www.nationsonline.org/oneworld/map/papua_map.htm)

### 3.2.1 Land

Papua New Guinea has a geographical landscape that is mountainous and ragged with coastal lowlands and rolling foothills with seas and rivers. Access to most remote areas of PNG is either by air, boat, canoe or by foot (Central Intelligence Agency, n.d; World Bank, 2005).

Papua New Guinea has a land mass of 462 840 km<sup>2</sup> (17 704 m<sup>2</sup>) of which 452 860 km<sup>2</sup> is island and 9 980 km<sup>2</sup> is water (Government of PNG, 2018). It is one of the island nation countries in the Oceanian region and occupies the eastern half of the islands in the Melanesian group of islands (Solomon, Vanuatu, and Fiji). It is in the south-western Pacific Ocean, north of Australia.

The capital city Port Moresby is located along its south-eastern coast. The western half of the country forms the Indonesian provinces of Papua and West Papua. It is in the tropics situated 15 degrees to the equator. It is mostly sunny with a temperature of 29 to 30 degree Celsius.

### 3.2.2 People

The total population is 8.085 million. The life expectancy for males is 64 years and for females it is 68 years (Central Intelligence Agency, n.d; World Bank, 2005, 2018c). Papua New Guinea has a fertility rate of 3.70 and the population growth rate is at 2.1 per cent annually (Central Intelligence Agency, n.d; World Bank, 2005, 2018c).

Papua New Guinea is one of the most culturally diverse countries in the world. It is also one of the most rural, with only 18 percent of people living in urban centres (Central Intelligence Agency, n.d; World Bank, 2005). Most of the population people live in customary communities (Connell, 2015; James, Nadarajah, Haive, & Stead, 2012). The country is one of the least explored in the world, culturally and geographically. It is known to have numerous groups of uncontacted peoples, and researchers believe there are many undiscovered species of plants and animals in the interior (Connell, 2015; James et al., 2012).

### 3.2.3 Language Spoken

Papua New Guinea has three official languages widely spoken in parts of PNG and these are; English, the medium used in formal educational learning from lower primary to tertiary level education. It is also used in work settings and in business transactions. The other two languages 'Tok Pisin' and 'Hiri Motu' are spoken by locals in their day to day interactions. Hiri Motu is spoken in the Southern region and Tok Pisin in the Highlands and Northern region including the New Guinea Islands (Central Intelligence Agency, n.d; Knowledge Encyclopedia, n.d). There are 800 plus known languages in the country, of which 12 now have no known living speakers (Ethnologue of Papua New Guinea, n.d.; Knowledge Encyclopedia, n.d).

### 3.2.4 Languages and comprehension

The literacy rate is at 61.6% overall. For females it is 57.9% and for males it is 62.29% (UNESCO, n.d). Spoken language does not guarantee another person will fully understand and acknowledge the real meaning, and this can be relevant to sensitive matters relating to sexual health (Kelly-Hanku et al., 2018). A study carried out in Papua New Guinea with men and women investigating cervical cancer were a real challenge. The language Tok Pisin uses the terms for cervical cancer “bel pen sik” or “sik bilong mama”. However, that should not be a limitation, but as a challenge to the investigator in unravelling the significance of the narration (Kelly-Hanku et al., 2018, p. 18).

Finding investigators who are bilingual or trilingual is a challenge but necessary to avoid misunderstanding. Discrepancies or biases may also be avoided through the process of reflexivity, member checking, expert or community validation through workshops, seminars, or group meetings (S. Lee, 2017).

### 3.2.5 Age structure and Family Size

The population is concentrated in the Highlands and eastern coastal areas on the island of New Guinea. The age structure from 0 to 65 plus is as follows: 0-14 years: 33.43% (male 1 175 934/female 1 133 882); 15-24 years: 19.92% (male 697 463/female 678 680); 25-54 years: 36.89% (male 1 309 843/female 1 238 972); 55-64 years: 5.49% (male 193 273/female 185 931); and 65 years and over: 4.28% (male 148 802/female 146 921) (2017 EST.) (Central Intelligence Agency, n.d). The median age is 23.1 years for males and 23.2 years for females as estimated in 2017 (Central Intelligence Agency, n.d).

Families in PNG live in communities based on interdependent family links that embrace extended family living in other villages as core members of their family heritage. The size of a family unit is often determined by the family members of the couples, and depends on their wealth, land and amount of bride price given to the spouse's immediate family and relatives. In PNG, a family unit could have between six children and 12 children and include parents. As such the number exceeds the WHO's standards of having six members in a house (WHO, 1978).

The government of PNG has embarked on having a maximum of 6 as a family sized within WHO recommendation of 4 children, plus mother and father. (WHO, 1978).

### 3.3 Gender Roles

Gender is defined as “... the state of being male or female in relation to the social and cultural roles that are considered appropriate for men and women” (Collins English Dictionary, n.d). The definition of role “if you have a role in a situation or in society, you have a particular position and function in it” (Collins English Dictionary, n.d). A gender role is a social role encompassing a range of behaviours and attitudes that are generally considered acceptable, appropriate, or desirable for people based on their actual or perceived sex or sexuality (Doyal, 2001). In society, gender is an important part of how we see the world around us in terms of being a man or boy, a woman, or a girl. This has been influenced by the value-based approach centred on our cultural expectations with gender and the roles bounded therein (Doyal, 2001).

In general, gender roles entail what society expects of man or boy; women or a girl in terms of how to act, talk or speak, wear or dress in the society we belong to. For example, men are known to be strong, aggressive, and bold while women or girls generally are expected by society to dress in a feminine fashion, to be polite, accommodating and nurturing (Doyal, 2001). In rural PNG, men have been the foundation for a family’s survival in hunting, fishing, gathering, building, fencing, form of security and defence, having wealth and power and decision making. In contrast, women do household chores such as child rearing, cooking, cleaning, gardening and accompany men to bigger village gatherings or occasions (Doyal, 2001).

In urban PNG the notion of men being strong, aggressive and bold still exists however, that is slightly diminishing due to more elite women stepping up and doing jobs once known to be male-dominated, such as engineering, construction and building, in the disciplinary forces, doctors and in the legal fraternity—lawyers.

### **3.3.1 Employment Status by gender**

The labour force participation rate by sex according to modelling done by the International Labour Organisation (ILO) for PNG as cited by the World Bank (2018b) is for low income 65% female and male 80%; middle-income female 46% and male 77% and for high-income female 52% and male 69% (World Bank, 2018b).

### **3.3.2 Dependency Ratio**

Dependency has been a norm within PNG's social structure (Central Intelligence Agency, n.d). Dependency ratio provides a pictorial view on inter-dependency within the family unit as one of the core value of PNG's social construct, in relation to psychosocial support and dependency within a family circle, from a nuclear unit to extended unit of family relationship. The dependency ratio in total for youths and elderly equates to 67.4%; the youth is the highest with 61.3% (increased in younger population) and the elderly is 6.1% (decrease in older population) estimated dependency ratio for 2015 (Central Intelligence Agency, n.d).

### **3.3.3 Culture and Society**

Papua New Guinea with 800 plus dialects (World Bank, 2005, 2018c) clearly defines how diverse we are as Papua New Guineans in relation to the culture and society we belong to as individuals, families, and communities. This is further complicated by our set of beliefs, morals, values, and tradition (EU Business School, n.d). Papua New Guinea is one of, if not the most heterogeneous nations in the world. There are hundreds of ethnic groups indigenous to PNG (Central Intelligence Agency, n.d).

One thing that we are proud of as Papua New Guineans is the independence we got back on September 16, 1975, that has brought those divides into one country despite our heterogeneity. This is clearly stipulated in the preamble of the constitution of PNG that states: we people of Papua New Guinea united as one nation, pay homage to the memory of our ancestors the source of our strength and origin of our combined heritage. Acknowledge the worthy customs and traditional wisdom of our people which have come down to us from generation to generation. We pledge ourselves to guard and pass on to those who come after us our noble traditions and Christian principles that are our now read by those who have gone before us during the pre-independence (1975) and for those of us who are following each year September 16 we utter those words (Government of Papua New Guinea, n.d-a).

### **3.4 Administrative function**

Papua New Guinea before becoming a sovereign nation was ruled by three different external powers from 1884 to 1974 and on September 16, 1975 PNG was freed from colonial rulers. It adapted westminister style of governance with the Queen of England being the head of state and is a member of the Commonwealth of Nations. For administrative function PNG is divided into four regions; Highlands, Islands, Northern and Southern making up 21 provinces with 89 districts (Government of PNG, 2018; World Bank, 2018c).

#### **3.4.1 Economic Development**

From 1960 economic growth was very slow and the United Nations through the World Bank in 1962 recognised the need to accelerate the development agenda through the recommendation of 'Foot Mission' (United Nation, 1965).

In 1964 the World Bank designed a five-year development plan to be implemented by Australia as PNG was its colony. The plan's strategical direction for economic growth was focused on key sectors such as agriculture, forestry, and livestock. Mining at that time was not considered as an industry to generate economic growth (Government of Papua New Guinea, 2011d).

In 1973 the 'Eight Point Plan' was devised as a medium for economic growth and development. The overall objectives enshrined in the plan are "increased indigenous participation in the economy; equality amongst ethnic groups, gender...; greater attention to rural and village development; and self-reliance". The plan sets the path for development growth in terms of social and economic benefits. Even with the plan in place, socio-economic growth over the last 34 years has not been impressive for periods from 1975 to 2009. The worst performing year was 1989 (Government of Papua New Guinea, 2011d).

From 2010 to 2018 PNG has grown its economy through the mining sector as a major contributor to the government internal revenue followed by logging, fishing, agriculture, and tourism. In rural and urban PNG, the informal sector has been one of the major contributing factors of economic development and empowerment (World Bank, 2018e).

The 2019 budget for the government of PNG of 16.1 billion Papua New Guinean Kina (PGK) was passed in Parliament on February 14, 2018. The expenditure takes a bigger portion of PGK 16.134 billion and is over the budget. Total revenue is PGK 14.267 billion with a deficit of PGK 1.867 billion.

Expenditure or government spending on operational costs comprises PGK 10.6 billion and capital expenditure is PGK 5.5 billion. In comparison with the 2018 Supplementary Budget appropriation, the 2019 budget is projected to increase by PGK 836.5 million (or 5.5 per cent). The key expenditures items are programmes covering tuition fee-free education, free primary healthcare, infrastructure projects, agriculture, tourism and small-to-medium enterprises (National Paper, 14 November 2018) (Table 3.1).

**Table 3. 1 PNG Government Budget 2019**

2019 Budget (PGK 16.1 billion)

Key Expenditure Items	Amount (PGK)	Percentage (%)	Comments
Health	1.5	9.6	Which is 9.6 per cent of total budget
Education	1.3	8.5	Which is 8.5 per cent of the total budget? This is an increase of 6.6 per cent on the 2018 Budget
Transport	1.3	8	making up 8 per cent of the total budget
Economic sector	742 million	4.6	Which is 4.6 per cent of the total budget? The sector's budget has increased by 11.4 per cent from the 2018 Budget. The increased funding is mainly towards ongoing activities with more emphasis on SMEs, support of smallholders and growers' access to markets and participation, tourism development and onshore processing.
Administration	2	N/A	In operational expenditure which is inclusive of miscellaneous funding worth K1.3 billion and K2 billion in capital expenditure, inclusive of provincial and district improvement programmes (K1 billion). Of the total budget for operational expenditure, K479 million is assigned for compensation of employees and K242.4 million is for goods and services
Renewable sector	This has received funding for a new State land acquisition programme (K20 million), SME funding for agriculture and non-agricultural activities (K100 million), State equity funds – agriculture and others (K100 million), strategic defence against coffee berry borer (K10 million), regional cocoa nurseries programme (K10 million) and Productive Partnership in Agriculture Programme (K22 million);		
Small business	Activities here will be supported by the SME Access Risk Financing Facility (K4.4 million) and the National Development Bank (NDB) to facilitate SME funding – agriculture and non-agriculture (K100 million)		
Tourism	This sector will be supported through the implementation of the Tourism Sustainable Development Project (K50 million) by the Tourism Promotion Authority (TPA)		
Provincial sector	K3 billion which is 19 per cent of the total budget. This comprises K2.8 billion in operational and K195.7 million in capital expenditures.		

Source: (National Paper, 14 November 2018).

### 3.4.2 Cost of living – PNG

For gross domestic product (GDP) by countries based on purchasing power parity (PPP) from the International Monetary Fund (IMF) PNG is ranked 107/190 (IMF, July, 2018). The World Bank ranks it is at 108/188 (World Bank, 2018a) and United Nation's ranking is 171/193. The primary reason is poor financial planning and accountability by the PNG government (World Bank, 2018d). The World Bank reported that worldwide, lower-middle-income countries are living on less than \$3.20 per day and for upper-middle-income countries, the cost of living per day is \$5.50 (World Bank, October 17, 2018).

In Papua New Guinea 87 percent of the population live in rural communities with little to no modern conveniences, and 39.9 per cent of the population is living on less than \$2.00 a day and middle-income earners just above \$2.00. High-income earners well above \$2.00. Papua New Guinea's minimum wage is PGK 3.20 per hour for adult workers in the private sector. In US dollar that is \$1.80. Papua New Guinea's minimum wage was last changed in 1-Aug-2014 and there are discussions happening to increase the rate to 5.00 per hour. The distribution of salaries in PNG has three categories: minimum, median and maximum (Government of Papua New Guinea, 2015a). (See Table 3.2).

Table 3.2 Distribution of Salaries in PNG | All Jobs

#### Distribution of Salaries in Papua New Guinea | All Jobs

<b>Minimum</b> 2,000 PGK	25% of people earn 4,000 PGK or less
<b>Median</b> 6,000 PGK	50% of people earn 6,000 PGK or less
<b>Maximum</b> 40,000 PGK	75% of people earn 10,000 PGK or less
Source: (Government of Papua New Guinea, 2015a, p. 11&12)	

### **3.5 Health Promotion and PCa (WHO)**

Globally there has been a strong focus on illness prevention and health promotion to mitigate the incidence of rising burden of diseases (WHO: Regional Office for Europe, 2014).

PCa has considerable attention in high resource countries but little in the low resources' countries (Plowden et al., 2006). The WHO and National Preventative Health Taskforce has called for a joint effort to empower men to make informed decisions about their health (Peerson & Saunders, 2009; WHO: Regional Office for Europe, 2014).

### **3.6 World Health Organisation – Ottawa Charter (1986)**

The World Health Organisation through the Charter has five action areas in promoting health. The five main areas of the Ottawa Charter are: the provision of healthy public policy; the creation of environments which support health; the development of personal skills; community development and involvement in health; and reorientation of health services (WHO, 1986).

This outlines a holistic approach to preventive health incorporating five major interlinking strategies, which together provide an enabling environment for preventive activities and encourage individual, community and national involvement for better health outcomes (WHO, 1986). Men's health is an ethical case for action according to the WHO's (1946) constitution that states, "The highest attainable standard of health [is] a fundamental right of every human being." In short, health is a fundamental right and there is no objection (WHO, 2017a). The notion is further reiterated in Article 12 of the International Covenant on Economic and Cultural Rights on availability, accessibility, acceptability, and quality of health care services at the executing level of each country (United Nation, n.d).

### **3.7 UN: Universal Declaration of Human Rights**

The UN's (1948) General Assembly resolution recognises all individuals as a dignified being with equal rights. This has to be every human being's aspiration as articulated in Article 1: regarding ... "dignity and rights" of every human being regardless of grid or sexes and in Article 2: there should be no "distinction of any kind such as race, colour, sex, religion, political, or other opinionated notion such as social origin, property, or birth" (WHO, 2017a, p. 72). The UN General Assembly resolution in Article 1 and 2 affirms solid actions required by the government for equal rights adopted by PNG.

### **3.8 Health Promotion Policy**

The World Health Organization Ottawa Charter, the UN Universal Declaration of Human Rights, the Sustainable Development Goals (SDGs), and the Global Action on Men's Health (GAMH) are all sources that are international policy documents that stipulate actions required by responsible government or authorities to be active partners in matters concerning men. Men must be equally important as women concerning health matters. In the country, there are policy documents that are to meet international best practice in addressing issues of importance relating to men. The policy documents are; Government of PNG Vision 2050, Government of PNG: National Health Plan 2011-2020, Government of PNG: National Sexual Reproductive Policy, Government of PNG: National Policy on Health Promotion, Medium Term Development Plan (MTDP) and Sustainable Development Goals (SDGs). Each of those policy documents will be briefly discussed as outlined in the subsequent heading.

### 3.9 Sustainable Development Goals (SDGs)

Sustainable development goals were effectively implemented in PNG (2012) as stipulated by the United Nation Development Program (UNDP) for the country till 2030. The primary goal is to address the global challenges experience at different levels of government geopolitically not leaving anyone behind, including those related to poverty, inequality, climate, environmental degradation, prosperity, and peace and justice to name few (United Nations, 2015). The sustainable development goals were adopted on September 25th, 2015 by UN member countries and PNG is a committed to meeting those goals as a member country. The SDGs have 17 core pillars giving plain specifications targeting 169 key performance indicators to be reached by 2030, which is 15 years from when it was instituted by the UN council (United Nations, 2015). The 17 development goals are; no poverty, zero hunger, good health and well-being, clean water and sanitation, affordable and clean energy, decent work and economic growth, industry, innovation and infrastructure, required inequality, responsible consumption and production, climate action, life below water, life on land, peace, justice and strong institution and partnership for goals (United Nations, 2015).

The SDGs that have to be priority for much anticipated change concerning men's health in PNG would be the following: **Goal 3**: 'Good health and well-being: ensuring health becomes a commodity that is equitable, affordable, efficient and accessible by all populace'; **Goal 4**: 'Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all'; **Goal 5**: 'Achieve gender equality and empower all women and girls' [men and boys]; **Goal 16**: 'Peace, justice and strong institution: promote, providing and advocating for inclusive society where peace and justice prevail' and **Goal 17**: 'Partnership for goals: engaging with international partners for meaningful and sustainable developmental change' (United Nations, 2015). In short, the goals (**3, 4, 5, 16** and **17**) indicate there is space for advancing the men's health agenda.

### 3.10 Global Action on Men's Health (GAHM)

The underpinning priority for GAMH is making sure the WHO and other leading organisations in the public health domain become active partners to progress policies and strategies that account for men and women on the same scale, rather than having policies inclined more towards women (GAMH, 2018). The GAMH is calling on governments to start acting and putting men's health in the global spotlight. The call is a step in the right direction, and for the government of PNG and the Ministry of Health, including Community Development and Youth to be part of the advancement and PNG to be member to this global movement for men's health and other social issues (GAMH, 2018).

### 3.11 PNG and PCa

A literature search was undertaken using online databases; one, for example, is PubMed, utilizing keywords such as "PCa" and "Papua New Guinea". Another search using the same search keywords on Google Scholar and Scopus generated 3,230 results with no specific results relating to PCa in PNG. There were very limited studies undertaken in PNG evident by generating only four results from the online database search.

Only one study has relevance to PCa focusing on serum Prostate Specific Antigen (PSA) testing and values from May 1994 to June 1997 in Port Moresby General Hospital (PNG), analysing the results in correlation to a setting with limited resources and service utilization (Murthy, Ray, Morewaya, & SenGupta, 1998).

Unfortunately, due to the paucity of PNG research, the literature review for this proposed study was conducted about related context and available literature. The extended search strategy using general search terms such as 'PCa and incidences' and "geographical distribution' was used in locating applicable resources on the Auckland University of Technology library database.

### 3.12 Australasia and Pacific Island Nations

PCa incidence varies worldwide; the rates are highest in Australia/New Zealand and Northern America (ASR 111.6 and 97.2 per 100 000, respectively) because the practice of prostate-specific antigen (PSA) testing and subsequent biopsy has become widespread in those regions (Ferlay et al., 2015). In 2014 PCa was the most diagnosed cancer for men in Australia and in 2018 after four (4) years period, it remains the second commonest cancer diagnosed for males. The new cases of PCa diagnosed in 2014 were 18,291 and it is predicted that by 2018 the new cases will be at 17,729. In terms of mortality, PCa ranked third for both sexes and a second common cause of death for males. The total number of deaths in 2016 were 3, 284 and in 2018 it is likely to increase to 3,500 (Government of Australia, 2018).

PCa in New Zealand's context has ramifications on health especially relating to men by the government of NZ in financing advocacy programs for men's health on information sharing and awareness. PCa has been one of common cancers in New Zealand for males and each year there about 3000 men diagnosed with the disease and out of that 600 die if not detected early (Government of New Zealand, 2016).

The commonest cancers for the Pacific Island Nations for "males were prostate, lung and liver cancers, with prostate being the most common cancer in Fiji, French Polynesia, Guam and New Caledonia" (Tervonen, Foliaki, Bray, & Roder, 2017, p. 185). PCa has cut across all Pacific island nations from past to the present and moving into the future with high incidence rates placing PCa at the 5th spot in the Pacific and globally on 4th and therefore requiring collective efforts through collaborative research to reduce this accelerating epidemic in the male population of the Pacific (Moore et al., 2010).

In Papua New Guinea PCa accounts for 8.3 percent of deaths for PNG men, that is 190 PCa deaths out of the 2,300 different deaths from cancer alone each year (WHO, 2014a). According to Cancer Australia, the incidence rate of PCa among males in Australia, PNG and Pacific Island countries are expected to increase from age group 35–39 until age group 65–69. It is then expected to decrease until age group 80–84 before increasing for males aged 85+ (Government of Australia, 2018; Government of Papua New Guinea, 2018a).

### **3.13 Papua New Guinea health policies**

Papua New Guinean’s policy documents capture essential notions within the international framework on policy guidelines towards marginalised or hard to reach populations. Marginalised or hard to reach populations in these contexts refers to people that are hard to reach or are often left out in any form of service utilisation. The policy documents will be briefly discussed in the following order.

#### **3.13.1 PNG Government: Vision 2050**

Vision 2050 is an ambitious dream for the government of PNG and its citizens to reach in 2050 (Government of Papua New Guinea, 2011d). The government has seven pillars or strategic focus areas in its vision. The pillars are; human capital development, gender, youth and people empowerment, wealth creation, institutional development and service delivery, security and international relations, environmental sustainability and climate change, spiritual, cultural and community development and strategic planning, integration and control (Government of Papua New Guinea, 2011d).

The intention of the Vision is for PNG to become a smart, wise, fair, healthy, and happy society by 2050. For the vision to become a reality “institutional development and service delivery” (Government of Papua New Guinea, 2011d, p. 31) in strengthening health systems has to be promoted on all fronts in terms of medical, gender, human capital and development investment for change. One of the classical examples, men’s health has been obscured in mainstream health service utilisation.

### **3.13.2 PNG Government: National Health Plan 2011 – 2020**

The national health plan serves as an instrument for the execution of service delivery within the Ministry of Health for the government of PNG. The ministry, as the custodian of the plan, oversees making sure all health sector programs are implemented from the national level all the way down through to district level. The national health plan has identified essential values within the health system, and they are accountability, people focused, integrity, equity, quality, diversity and teamwork (Government of Papua New Guinea, 2011a, p. 19). These values are self-explanatory in the context of holistic service delivery in dealing with health matters and therefore men and boys are no exception to these values. Further, in dealing with men's health and specifically PCa, reproductive cancer is sensitive and must be gender specific (Kelly-Hanku et al., 2018; Starrs et al., 2018).

### **3.13.3 PNG Government: National Sexual Reproductive Policy**

The goal of the Sexual and Reproductive Health (SRH) Policy is to find an appropriate solution to the current fragmentation of reproductive health activities and improve the limited impact of existing programs in reducing sexual and reproductive ill-health while improving reproductive health and well-being for the PNG population.

This policy aims to encourage men's involvement in sexual and reproductive health matters and addresses the increasing high-risk behaviour of adolescents leading to premarital sexual encounters, early marriage, unintended pregnancies, unsafe abortions and the social consequences such as school dropout with subsequent negative effects.

The following are the SRH policy statements that will guide its implementation: every mother should be given proper comprehensive free of charge antenatal care and nutrition education from the first trimester of pregnancy; every child-birth must be assisted by a skilled birth attendant in a health facility and every maternal death should be registered, notified, reported and reviewed at facility level, District level and by the Provincial Maternal Death Review Committee. Furthermore, women/girls and men/boys should have access to modern contraceptives every day of the week to prevent unplanned/unwanted pregnancies and its consequences in all health facilities, free of charge; all the population in need should receive correct information, be tested and treated for Sexually Transmitted Infections (including HIV) as per national approved standard guidelines; and there is zero tolerance to all forms of gender-based violence and other harmful practices.

Men/boys and women/girls should have equal access to quality sexual and reproductive health services and the early detection and management of cancers of the reproductive system and breast should be encouraged and promoted. Infertility management services shall be promoted and provided in all provincial health care facilities by an appropriately trained provider (GAMH, 2018; Wilkins & Baker, 2004; Wilkins & Savoye, 2009).

Men and boys should be encouraged to actively engage in reproductive health. Evidence-based research recommendation should form the basis for improvement of SRH services delivery. The national department of health shall maintain central coordination of SRH services and seek political commitment at all levels of government and development partners to implement this policy (GAMH, 2018; Wilkins & Baker, 2004; Wilkins & Savoye, 2009).

The objective of the policy is for all Papua New Guineans to have better sexual and reproductive healthy lives. There are seven key areas in the policy under section 2.3: Objectives of the sexual and reproductive health policy. The emphasis will be on 5 and 6: (5) concerning “availability of sexual and reproductive health services for men through their involvement in sexual and reproductive health programs” and (6) relates to “reducing the incidence and prevalence of reproductive cancers and improve the treatment and care” (Government of Papua New Guinea, 2014, p. 4). The policy document clearly defines action required for services concerning sexual and reproductive issues of men and boys, and women and girls.

#### **3.13.4 PNG Government: National Policy on Health Promotion**

The policy on health promotion in PNG encapsulates the five main strategies of the Ottawa Charter as stated above within its own policy principles that provide guidance to decision making. The National Policy on Health Promotion under section 2.3: Policy principles inform the PNG government and Ministry of Health to uphold the following: consider the individual as a whole and social being (Holistic Approach); use the five action areas as outlined in the Ottawa Charter (Comprehensive approach); to be responsive and adaptable in identifying and resolving health related issues (Healthy Island Concept), and targeting health conditions that cause suffering, disability and death. Equally, promoting healthy behaviours, reducing incidence, and early detection (targeted health promotion/selection of priority conditions).

It has to be directed towards reducing health differences between groups within the population (Reducing health inequalities) and ensuring the health of future generations are not compromised in terms of resource allocation (Ownership and sustainability) and finally, quality improvements in monitoring (Evidence based program planning) (Government of Papua New Guinea, n.d-b).

The principles underpin a common slogan often used within the health sector: ‘health is everyone’s business’, and on that note, responsible government and its citizens have an active part in alleviating issues concerning men and boys.

### **3.13.5 PNG Government: Medium Term Development Plan (MTDP) 2011 – 2015**

The MTDP has been a live document for five years and captures health as an important area. Health within the MTDP is goal 3.3: “achieve an efficient health system which can deliver an internationally acceptable standard” (Government of Papua New Guinea Government, 2011, p. 36). The goal is good; however, there is the obvious omission of men and boys as equal beneficiaries of the health system. Therefore, the calling is for the system to re-orientate health deliverables that are inclusive of men’s health by defining sexual and reproductive health and rights for all genders.

### **3.14 PNG Health Care System**

Papua New Guinea’s progress to a better health care system in meeting the Millennium Development Goals was slow and uneven across 21 provinces and 89 districts (country) over the last 43 years (WHO, 2018b). The provinces with the highest levels of early childhood mortality also have low levels of immunization coverage. National immunization rates have declined to as low as 43% for measles vaccination and 52% for the third dose of the pentavalent vaccine (WHO, 2018b). Difficult terrain and a lack of road infrastructure and transport contribute to the high cost of delivering services and hinder patient referrals and supervisory visits from a health facility in local areas (WHO, 2018b).

The PNG health care system is driven by the National Health Plan (2011 -2020) a policy document to guide the health sector to deliver services where it matters most in the lives of its citizens. It is going back to the basics by promoting health to the disadvantaged in the rural and urban populous who are often left out with any health services to meet their needs.

The goal of the plan is to have “strengthened primary health care for all, and improved service delivery for the rural majority and the urban disadvantaged” (Government of Papua New Guinea, 2011a, p. vii).

### 3.14.1 Organisational Structure

In 2010 the structural organisation of service delivery in the health system of PNG was decentralised, with the National Department of Health as a coordinating point for all services of health to the provincial level. An implementing agency within the district health facility and their community health posts reach out in their catchment areas (Government of Papua New Guinea, 2011a; WHO, 2018b).

The key result areas are; improved service delivery; strengthened partnerships and coordination with stakeholders, strengthened health systems and governance, improved child survival, improved maternal health, reduced burden of communicable diseases, promoted healthy lifestyles, and improved preparedness for disease outbreaks and emerging population health issues (Government of Papua New Guinea, 2011a; WHO, 2018b).

In 2012 the Ministry of Health in PNG recognised the importance of having men's health within the Ministry's portfolio by having a Men's Health Branch. The branch is in its infancy stage and advocating having men's health incorporated into the mainstream health system in PNG. The department has been presented with a working paper for the senior executive managers' deliberation on policy formulation concerning 10 key issues relating to health in general that are also applicable to men's health.

The key policy issues are: (1) Health service delivery, (2) Poor access to and use of health service and men's health-seeking behaviours, (3) Lack of health information (4) Health promotion related to men's health, (5) Workforce shortage, (6) Sexual health – STI/HIV/AIDS), (7) High maternal and infant mortality, (8) Gender-based violence and other violence, (9) Substance abuse – Alcohol and drugs, (10) Non-communicable diseases (Government of Papua New Guinea, 2011a).

The government through its 2050 Vision has seven pillars and one that is specific to health is pillar number one that focuses on 'human capital development, gender, youth and people empowerment' that is very much linked to the National Health Plan Vision by recognising health as a human right for all: women and men, boys and girls (Government of Papua New Guinea, 2011a; WHO, 2018b).

An incapacitating issue confronting man is PCa in PNG (WHO, 2014b). The approach must be holistic and comprehensive. The holistic approach, in this case, must consider men as complete social beings concerning their physical, mental, and social aspects of life (Government of Papua New Guinea, 2011a).

A comprehensive approach must include five action areas as outlined in the Ottawa Charter. That is: developing healthy public policy; conducive environment; supporting community actions; creating ownership and creative health services delivery (WHO, 1986). In this way it creates urgency in addressing health problems affecting men in PNG.

### **3.14.2 Ministry of Health is a National function**

The sole policy governing the health sector in PNG is the National Health Plan (NHP) 2011 (Government of Papua New Guinea, 2011a; WHO, 2018b). The policy entails guidelines of operating health as a core function for its citizens, engaging both the public and private sectors. The NHP is implemented through medium-term plans at the national and sub-national (provincial and district) levels. Through the medium-term plans, the NHP is translated into an operational implementation plan for each level of health system in PNG (Government of Papua New Guinea, 2011a; WHO, 2018b)

The National Health Services Standards (NHSS) of 2011 redefined Papua New Guinea's service delivery platform into seven levels: 1 – the aid post; 2 – the community health post; 3 – the rural and urban health centres; 4 – the district hospital; 5 – the provincial hospital; 6 – the regional hospital; and 7 – the national referral hospital (Port Moresby General Hospital). Levels 1 to 4 constitute Papua New Guinea's rural health services (Government of Papua New Guinea, 2011c). About 50% of the health service delivery, mostly in the rural areas, is provided through church health services (Government of Papua New Guinea, 2011a). These services are subsidized by the government through annual church health services operational grants from the National Department of Health (Government of Papua New Guinea, 2011a).

### 3.14.3 Cost/Funding

The government through its “free health policy” has allowed every citizen to have access to health as a commodity free for its citizen for a better standard of living. The government's expenditure on health personnel in PNG Kina (PGK) from 2010 to 2015 was PGK 1 939 991 with an increase in personnel expenditure of PGK 329 572 in the last five years ending 2015 (Government of Papua New Guinea, 2010).

The 2018 budget allocation for health is 1.5 billion an increase of 9.6 per cent from the total budget appropriation of 16.1 billion. A summary of personnel expenditure is in Table 3.3 for five years ending in 2015.

**Table 3.3 Summary on Health Personnel Expenditure.**

Personnel Expenditure Summary (PGK'000)	2010	2011	2012	2013	2014	2015
NDoH	33 071	33 071	33 071	33 071	33 071	33 071
NDoH ICT personnel		90	180	270	360	450
Pre-service Training	15 876	16 591	17 339	18 120	18 937	19 791
General Hospitals	171 946	171 946	171 946	171 946	171 946	171 946
Regional Hospitals					486	2 900
Provincial/District Health Administration	7 548	7 548	7 548	7 548	7 548	7 548
Provincial ICT personnel		720	1 440	2 160	2 880	3 600
Rural Health Services	142 871	149 310	156 039	163 072	170 422	178 103
<b>Total</b>	<b>371 312</b>	<b>379 277</b>	<b>387 564</b>	<b>396 188</b>	<b>405 650</b>	<b>417 400</b>

**Source:** Government of Papua New Guinea (2010).

### 3.15 Types of health conditions by admission

Here are the health conditions that are prevalent in PNG with admissions per 100 000 population from 2011 statistics. There are 27 conditions in total and I will provide the top 10 cases. These are as follows: normal delivery (1 041.1 = 28.83%), pneumonia (372.0 = 10.30%), malaria and other vector borne diseases (322.5 = 8.93%), accidents and injury (305.2 = 8.45%), obstetric and maternal conditions (247.9 = 6.87%), perinatal conditions (191.9 = 5.31%), diarrhoea and enteric (183.6 = 5.08%), other gastrointestinal (120.5 = 3.34%), tuberculosis (110.7 = 3.07%), and skin conditions (82.5 = 2.28%).

The top 10 conditions for deaths per 100 000 are: perinatal conditions (13.00 = 12.25%), pneumonia (11.00 = 10.41%), sepsis (9.80 = 9.23%), malaria and other vector borne (9.10 = 8.60%), tuberculosis (8.40 = 7.90%), diarrhoea and enteric (6.20 = 5.84%), obstetric and maternal conditions (5.10 = 4.86%), chronic respiratory (5.10 = 4.79%), anaemia (4.90 = 4.60%) and cardiovascular (4.90 = 4.60%) (Government of Papua New Guinea, 2011b).

### 3.16 Sexual Health Services

Sexual health services include maternal and child health programs (health education/awareness, antenatal care, immunization, and treating minor illnesses); different sexually transmitted infections (STIs) and HIV including sexual and reproductive cancers for both genders. The following discussion describes family planning, contraception use by gender, STI's/HIV, aetiology, and epidemiology of PCa.

#### 3.16.1 Family planning methods

The last demography and health survey conducted in 2006 provides nationally representative data on contraceptive coverage in Papua New Guinea. The survey indicated Papua New Guinea had one of the lowest contraceptive prevalence rates in the Western Pacific Region, at 32.4% (WHO, 2017b).

#### 3.16.2 Contraception use by methods

A summary report on contraception from the WHO for the Western Pacific Regional Office reported PNG's contraception prevalence rate was 32.4%. These are presented in their order of acceptability as from the report: injectable at 9.1%, female sterilisation at 8.6%, pills with 4.6%, male condoms at 1.4% and Intra-Uterine Device 0.0% and Implant N/A (WHO, 2017b).

### **3.16.3 Sexual health (STIs & HIV) - care and treatment**

Sexually transmitted infections (STIs), including HIV and AIDS, are a major public health concern in PNG. The STI and HIV infection rate is the highest in the Asia-Pacific region (Government of Papua New Guinea, 2011b).

It is not only a health concern, but an economic burden on families, communities, and the nation. In 2008, 93% of new HIV infections were reported in eight provinces. These included the five Highlands provinces (Southern, Enga, Western, Chimbu and Eastern), and National Capital District, Morobe, and Madang (Government of Papua New Guinea, 2011b). Sexually transmitted infections and HIV transmission continue to increase annually. The surveillance report data indicates that genital discharges are prevalent and highest among females (62%) and then males (36%) (Government of Papua New Guinea, 2011b). Most notably there were high infections of genital ulcers and discharges in the Eastern Highlands Province. By the end of December 2008, a cumulative total of 28,294 HIV infections had been reported, since the first reported infection in 1987 (Government of Papua New Guinea, 2011b). These cumulative infections included 12 432 males (44%), 14 598 females (51%), and 1 264 people (5%) where their sex was not reported. Most of the infections had occurred through unprotected heterosexual sex (Government of Papua New Guinea, 2011b).

Treatment of STIs is a combination of antibiotics as a once-only dose (of Amoxycillin 2 grams, Probenecid 1 gram, Augmentin two tabs, and Azithromycin 1 gram) then followed by Doxycycline two tablets daily for two weeks. For genital ulcers (male/female) it is an intramuscular injection of Benzyl Penicillin of 2.4 million units for the first dose then weekly maintenance doses for three weeks. Any lower abdominal pain syndrome for women would be the same combination of STI treatment. HIV is treated with antiretroviral drugs (Government of Papua New Guinea, 2006).

### 3.17 Conclusion

This literature review provides an overarching framework of conducting this study on the gap in knowledge on untreated PCa in Papua New Guinea with well established sources of information from journals on previous studies relating to PCa and men's experience. The policy documents provide a contextual application base on international best practices, by reflecting on the essence of those policy documents through aligning national policies as standards in the local context, with the application of socio-ecological model to advance men's health in PNG.

The literature review provides the window leading onto the methodology and searches techniques to be discussed in the subsequent chapter on methodology. However, the literature on the PNG context provided some insight into areas of action for men's health. Specifically, for the ministry of Health to be a registered member of the Global Action on Men's Health, limited resources and expertise on men's health and delivery of care.

## Chapter 4 Research Methodology

### 4.1 Introduction

The section provides an outline of the methodological approaches taken to answer the research question ‘what are the experiences of men living with untreated PCa in PNG?’ The section includes the following features: design, method, analysis, and conclusion. It discusses the research question, the research paradigm, epistemology, post-positivism, ethnography, focused ethnography, and ethics including methodological logic. Further the data will be analysed using Braun and Clarke’s (2013) inductive thematic approach to data analysis. Complimenting the analysis would be use of Socio-Ecological Model from SBCC and gender Implementation kit (2017) and use of focused ethnography by Oliffe and Bottofff (2006) to interpret and discuss the study findings.

### 4.2 Design

#### 4.2.1 Methodology

Research methodology is concerned with the following: what is significant in conducting research –(the paradigm); why the research study was undertaken or the value of conducting the research -) ontology) How did one formulate a research problem and the idea behind this – (epistemology) why it is critical for a researcher to be transparent about reporting – (axiology); what process to follow and what types of data are to be collected – (methodology) What tool has been used in collecting those data- (method) and why was a technique of analysis of data used – (data analysis) (Guba & Lincoln, 1994; Wisker, 2007, 2009).

Research methodology is a logical and systematic search for new and useful information on a topic. It is an investigation of finding solutions to scientific and social problems through objective and systematic analysis. It is a search for knowledge, that is, the discovery of hidden truths. Here knowledge means information about matters. The information might be collected from different sources like experience, human beings, books, journals, nature, etc. Research can lead to new contributions to existing knowledge. Only through research is it possible to make progress in a field. Research is indeed civilization and determines the economic, social, environment, technology, and political development of a nation. The results of scientific research very often force a change in the philosophical view of problems which extend far beyond the restricted domain of science itself (Creswell, 1998; Guba & Lincoln, 1988, 1994).

#### **4.2.2 Research Question**

The question of interest in the current research project was: *What are the experiences of men living with untreated PCa in PNG?*

#### **4.2.3 Research paradigm**

Research paradigms are known to be “basic belief systems based on ontological and [epistemological] methodological assumptions” (Guba & Lincoln, 1988, p. 107). The term research paradigm reflects one’s world view that influences research design and the discovery or construction and interpretation of knowledge in the world (Creswell, 1998; Wisker, 2007, 2009). Therefore, understanding a research paradigm provides the roadmap of conducting any research of a quantitative or qualitative nature (Guba & Lincoln, 1994).

#### **4.2.4 Epistemology**

The term epistemology is concerned with knowledge of what can be known – understanding and explaining what exists and the construction of knowledge (Lambert, Glacken, & McCarron, 2011). The terms ontology and epistemology bring about the notion of research paradigms that inform how research can be conducted (Creswell, 1998; Wisker, 2007, 2009).

Research can be grounded in a positivistic research paradigm that says that knowledge exists and will be discovered through research, or post-positivistic or interpretive research paradigm, where knowledge is constructed and interpreted (Creswell, 1998; Wisker, 2007, 2009). This study will take a post-positivist framework centred on critical theory or realism and align it with a social-ecological model in constructing and interpreting the phenomena. The social-ecological model will be used in chapter five of the thesis.

#### **4.2.5 Post-positivism**

According to Krauss (2005), the paradigm the researcher selects determines the research methodology. The post-positivist paradigm chosen evolved from the positivist paradigm. It is concerned with the subjectivity of reality and moves away from the purely objective stance adopted by the logical positivists (Ryan, 2006). The post-positivist perspective is that not everything is completely knowable (Krauss, 2005). Therefore, if the experience had to be discovered, then it would not be knowable. It will require technical modelling and constructing to be able to make meaning by constructing and interpretation. This does not disqualify the qualitative method. The qualitative method has been widely used as an exploratory design to capture unforeseen phenomena. It focuses on “naturally occurring, ordinary events in a natural setting” in order to know what “real life” is like (Miles, Huberman, & Saldana, 2014, p. 11; Crotty, 1998; Patton, 2002). In the design, planning, and implementation of any research, the strengths and weakness of the design, either quantitative or qualitative, must be well understood to produce a valid report on the findings. In quantitative research, this involves numerical analysis and a linear approach. In qualitative research there will be unexpected findings that will pop up as surprises that were never anticipated and which become the focus of further investigation using either quantitative or qualitative methods (Wisker, 2007, 2009).

#### 4.2.6 Ethnography

Ethnography as a research method has a long-standing in anthropological studies (Savage, 2000). The method applied for this study uses an ethnographic lens known as focused ethnography which stems from (Venzon Cruz & Higginbottom, 2013).

Ethnography has a long history with anthropological and sociological studies dating back to the 19th century (Lambert et al., 2011). In recent times ethnography has become a diversified approach in many fields such as anthropology, sociology, education, midwifery, nursing and medicine (Lambert et al., 2011). The diversification of ethnography as a methodology has prompted scholars to mirror ethnography with a different perspective in terms of defining what ethnography is.

According to Lambert et al. (2011), there are 13 different definitions relating to ethnography by different authors. I will provide a snapshot of what each of the authors stated as cited in (Lambert et al., 2011, p. 19); ...philosophical paradigm..., for others it designates a method that one uses...Atkinson and Hammersley (1994); ...is the work of describing culture. ...understand another way of life from the native point of view. Spadley (1980); ...emphasises encountering the alien world and making sense of them.... Agar (1986); ...is a collaborative, participatory methodology...representation you build is neither theirs nor yours.

Agar (1996); ...is an ambiguous term, representing a process and product. The product is usually a book...focuses on some social group...guided by any number of theories and methods. ...something about various environments...and some detail on the things the groups do and the belief they hold. Agar (1996); ...is the art and science of describing a group or culture, Fetterman (1998); ...more anthropological writers distinguish between ethnography as process and ethnography as a product. Wolcott (1999); ...involves the use of various techniques for collecting data on human beliefs, values, and practices. Hume and Mulock (2004); ...is a method of collecting, describing, and analysing the ways in which human beings' categories the meaning of their world. ...attempts to learn what knowledge people use to interpret experience and mould their behaviour... Aamodt (1991); ...literally means 'a portrait of a people' ... 'native's' point of view.

Ethnography is used to describe and explain the regularities and variations of social behaviour. Lipson (1991); ...is always informed by a concept of culture. ...focuses on the group of people who have something in common. Boyle (1994); ...can refer to as a way of collecting data (a set of research methods); ...a methodology; and/or a product (the written account of an ethnography project. Savage (2006); ...is a product – the book that tells a story about a group of people – and a process – the method of inquiry that leads to the production of the book. According to the authors above ethnographic research could be used to develop contextual cultural explanation of the phenomena or the researched as an affirmation of exploratory study using ethnography (LeCompte & Preissle, 1993).

Ethnography is a qualitative methodology used to explore people's culture in a bid to understand, describe, and interpret a way of life from the point of view of the participants or researched. Moreover, it is done there and then in real time occurring in a natural setting by gaining an in-depth perception of the overt or tacit culture that are known and reasonably salient within that subgroups that is never shared in the populous of that community (Creswell, 1998; Higginbottom, Pillay, & Boadu, 2013; Lambert et al., 2011; Miles et al., 2014; O'leary, 2004).

Ethnography also explores methods, rules, roles, and expectations that any given structure or culture may be microscopically studied in any given situation or environment of interest by the researcher. It also encompasses (a) rich and in-depth exploration of values, beliefs and practices of the participants in a natural setting and (b) it recognizes the importance of multiple worldviews and offers an approach for building understanding from the perspective of the participants or the researched (Agar, 1980; Miles & Huberman, 1994; Miles et al., 2014; O'leary, 2004).

Additionally, ethnography as a method adds value when the ethnographic analysis is applied in the study using the lens of critical theory thereby; employing critical realism through inductive reasoning both up approach to knowing by listening and reasoning process from engaging and gauging men's experience.

Which are culturally centred ideas and beliefs that arise during active involvement “in the field” (Thorne, 2000, p. 69), and are understood, translated, and represented in a written document? It involves sifting and sorting through pieces of data to detect and interpret thematic categorisations, search for inconsistencies and contradictions, and generate conclusions about what is happening and why. In short, ethnography relates to describing culture using the process of learning about the people by learning from them (Roper & Shapira, 2000; Spradley, 2016; Thorne, 2000). Furthermore, ethnography should be seen as a research ‘process of learning about people by learning from them’ through; them providing a truthful account of their own in their own words while as a researcher immersed in their social world to better grasp the influential social factors affecting their behaviour in their culture (Venzon Cruz & Higginbottom, 2013, p. 37).

#### **4.2.7 Focused ethnography**

Ethnographic study has been recommended by men’s health experts to look at social contexts and their influence on illnesses affecting men in different psychosocial contexts such as gay men and working-class including men with PCa. These groups are referred to as “health consumer groups” (Oliffe & Bottorff, 2006, p. 106).

Focus ethnography investigates culture within a population, groups, sub-groups and communities and is centred on culture, values, norms and the influence of political, economic, environmental, social and technology as underpinning determinants people react to in their life’s (Oliffe, 2005).

Focused ethnography as described by Muecke (1994), has been widely used as probing tool into areas of interest “where measurement is not easy, where the issues are sensitive and multifaceted, and where it is important to get the tacit, not the already evident” norms of that culture or subculture (Dixon-Woods, 2003, p. 326). Therefore, focused ethnography was used in the current study with the following to scrutinise specific phenomena; with the aim of eliciting views on unstructured data; using a sample size; and having a narrated and descriptive product or data set, with no quantification of data (Hammersley & Atkinson, 2007). These intense ethnographic approaches have been effectively used in short studies to in health research to gain an understanding of culture (Oliffe, 2005).

### 4.3 Method

Research methods are the various procedures, schemes and algorithms used in research. All the methods used by a researcher during a research study are termed as research methods. They are essentially planned, scientific and value-neutral (Ritchie, Lewis, Nicholls, & Ormston, 2013). Research methods help us collect samples and data and find a solution to a problem (Ritchie et al., 2013). Scientific research methods call for explanations based on collected facts, measurements, and observations and not on reasoning alone.

Semi-structured open-ended interview questions allow for a free flow of response or communication by the interviewee and are not restricted or bound by the interviewer having control the length of response (Polit & Hungler, 1999; Ritchie et al., 2013; Schensul, Schensul, & LeCompte, 1999). In this current study the broad research question (*what are the experiences of men living with untreated PCa in PNG?*) was to understand men's experiences of living with untreated PCa in PNG.

The set of questions (9 in total – see Appendix L) in the interview schedule relate back to the broad question about experiences and beliefs within each participant's cultural context and other factors such as roles and responsibility, social, environmental, as well as political, legislative and technological, which were the focus for the discussion (Chapter 6). These questions were asked with the aim of 'probing into areas where measurement is not easy, where issues are sensitive and multifaceted, and where it is important to get the tacit, not the already evident' (Dixon-Woods, 2003, p. 326).

#### 4.4 Ethics Approval (AUTEC & PNG MRAC)

The primary reasons for gaining ethical approval from an institutional review board are to ensure that as a researcher I was doing the right things, in the right place with the right people at the right time. This was done for the research to result in benefit and minimise the risk of harm. Considering the ‘three’ Ps in research—partnership, participation and protection, in the PNG context, those three Ps’ were an important element, because our cultural values are centred on these as much as New Zealand’s Treaty of Waitangi (School News-New Zealand, October, 25 2018). Partnership is creating a partnership through open communication that is built on good faith and trust. Participation is a process of creating a trust-worthy relationship through clear and open dialogue with no hidden motives.

The third P (protection) is about how to protect the participants’ and researcher’s integrity during the entire data collection process. Ethical approval was received from the Auckland University of Technology Ethics Committee (AUTEC), number **18/132** (see Appendix A) and from the PNG Medical Research Advisory Committee number **18.10** (see Appendix B).

I as the researcher bore personal responsibility for the drafting of my ethics application and for any claim therein. Issues considered included informed consent, being non-coercive, respecting their rights of participants and maintaining confidentiality always when meeting dates and times were proposed and confirmed.

I applied the ethical principles highlighted by Polit and Beck (2006) and Parahoo (2014). These fundamental research principles will now be discussed.

##### 4.4.1 Informed consent

The approach used to recruit was through contact with participants through their mobile phone. When I met with them, I read the Tok Pisin version of participant information sheet (see Appendix D). The information sheet avoided medical jargon to provide participants with plain, simple information regarding the study. The participants were given one week to consider participation, after which they were to call me and make an appointment for the first interview if they decided to participate.

Before the interview, participants were given an opportunity to ask questions. I also asked them to choose a pseudonym to assure their anonymity, and a consent form was signed (see Appendix E).

#### **4.4.2 Beneficence**

Beneficence is a highly regarded ethical principle in which, as a researcher, I needed to consider minimizing harm and maximizing benefits. This is related to the principle of non-maleficence or ensuring participants will not be subjected to any form of coercion—unnecessary risks or discomfort (Polit & Hungler, 1999). As a man and a Papua New Guinean I was aware of the potential emotional distress that can be triggered when talking about issues that are sensitive regarding maleness and sexuality. I recognised it was important to build trust and mutual understanding. This would create an environment that would allow participants to communicate freely. Allowing that time and space in their private life for disclosure was a remarkable achievement.

#### **4.4.3 Self-determination**

This refers to participants' rights to decide voluntarily to withdraw at any time. This was clearly described in the participant information sheet (PIS). It was also reiterated in the PIS that the participants could decline to answer questions if they wished. However, none refused to answer any questions.

#### **4.4.4 Justice**

Preparation before the study for all participants was done in the same manner, by inviting them for a one-on-one face-to-face conversation. They were invited to access free confidential counselling support if required during the research process.

#### **4.4.5 Privacy**

Participants were assured that their stories would be kept in storage for six years at AUT in line with the Retention of Health Information Regulations 1996. The material would be stored in locked cabinets in the office of each of my supervisors.

#### 4.5 Convenience sampling

Convenience sampling was used in this study due to several underpinning factors, such as availability of participants due to the sensitivity of the topic and the limited time available for data collection. No restriction was placed on when participants were invited to participate; however, participants had to meet the inclusion criteria (see below). Hospital health record books were used as a means of verifying if they were hospital patients with PCa (Etikan, Musa, & Alkassim, 2016; Patton, 1999; Saunders, Lewis, & Thornhill, 2012).

#### 4.6 Developing an interview guide

Firstly, I had to identify individuals who could provide rich descriptive accounts on the topic of interest. I knew from the outset that interviews would be my primary method of investigation, and I was clear in my mind what my inclusion and exclusion criteria were. In discussion with my supervisors it was decided that I would identify men who (1) could provide in-depth descriptions about the topic; and (2) were willing to take the time to talk to a researcher about those topics. The academic literature provided examples of studies pertaining to men and their experience of having to live with PCa. For example, interviews in Belfast in Northern Ireland involved semi-structured interviews with eight men having a history of PCa who were no longer being actively treated (Arrington, 2003). Thus, as a researcher wanting to examine men's experiences via interviews, I had to develop specific strategies that helped me to facilitate conversations in meaningful ways (Olliffe, 2005; Olliffe & Bottofff, 2006; Olsen, 2007). I also met with ethics advisors to discuss the types of questions that could be used during the field interviews.

## 4.7 Site

The site where the research would be conducted was purposely chosen to gain access to the population who would provide insights into the phenomenon of interest. The target audience for the study was men living within Port Moresby's peri-urban area of Moresby - North East, Moresby - South and Moresby - North West. These are populations residing in squatters' settlements across the city of Port Moresby. To locate those individuals for the study a number of different means were used, mainly through notices and flyers (both in 'Tok Pisin' and English) placed in health centres at Kaugere, Gerehu, Gordons, Lawes Road and Port Moresby General Hospital. They were also placed in seven different churches and community halls. The invitation to participate in the study was also aired on the national broadcasting network – Karai national radio. This approach was taken to identify enough men who could participate, given the short period allowed for field study.

## 4.8 Sampling

Participants were selected on the principle of "first come first served" (Etikan et al., 2016; Patton, 1999; Saunders et al., 2012) if they fell within the inclusion criteria for the sample; aged between 30 to 50 years; living in the peri-urban area of Moresby North East, Moresby North West and Moresby South and with schooling level of 1 – 8 grades (lower level education) or had completed lower grade primary education. They had been diagnosed with PCa during their first visit to the hospitals; with medication for pain (Panadol) and antibiotic (Amoxycillin) supplied for a week and were advised to go for review thereafter. They were reluctant to go back to the hospital and had not received any further medication or health education. Whilst the PNG Ministry of Health has an adult standard treatment book or protocol, it must be stressed here that cancer is not included in the treatment protocol, but specialised care should be given by a urologist (King, 2015; Zavaski et al., 2016).

### 4.8.1 Gaining access and building rapport

My contact details were clearly indicated on the invitation notice, including a residential address.

It was after a week of disseminating the invitations that I received calls from potential participants. I requested them to allow me to register their number on my local mobile sim card and advised them I would delete it once the interview was completed. I called them back, introducing myself and set an initial appointment time. These were held in a food court. It is a custom in PNG to offer a drink and a light snack when meeting a new person in order to build a relationship and trust. During this meeting, the researcher and participant agreed to meet at a mutually convenient time in a private place where it was not crowded and noisy, and this was the home of the participant.

#### **4.8.2 Collecting data**

Each participant informed their family that he would have a visitor at a time and date, and so they should not be surprised when a stranger came to the house. To ensure the safety of the researcher, all interviews were conducted in daylight.

#### **4.8.3 Use of a voice recorder**

All interviews conducted were audiotaped. Data collection started on Friday 6, July 2018 and continued to Thursday 9, August 2018. Data collected with the participants were conducted as per the interview schedule and allowed the participant to be the driver of the conversation. The researcher completed a form to collect demographic details of participants because the participants were semi-literate.

Recording of my participants' information was a key element of having rich datasets. I was concerned to have sound recording equipment that functioned well. Therefore, the equipment was tested before use in interviews, and I ensured that spare batteries were available.

Audio recording has the added advantage allowing the researcher to take a fresh look at the data again when it is replayed. Replaying the recorded interview was an important component to me as a researcher to become familiar with the sets of information collected relating to my topic of interest. It was easy to record the interviews conducted because the devices used worked effectively.

#### 4.8.4 Data storage

Keeping data safe at all times was a crucial part of the research journey. During the research project, the storage of digital research data was on my personal laptop, with different copies kept on the external hard drive and flash-drive. These were secured with a password and backed up regularly (monthly). The hard copy of the participant's demographic information and consent forms were locked away in the filing cabinet.

I am fluent in spoken English, though it is not my mother tongue. I did the transcription of the interviews by listening to the audio recording of interviews, and then transcribed them to provide an assurance of the verbal accuracy. I read through the transcripts while listening to the audio, making sure that what I had written were the words used and took notes of pauses and hesitations that indicated their thought processes during the interview.

Furthermore, I made sure the meanings of idiomatic expressions used were reliably accounted for from 'Tok Pisin' into English. These were done through peer review by four Papua New Guinean scholars at AUT and two of my supervisors.

#### 4.9 Resolving field issues

What is the experience of men living with untreated PCa in PNG? The nine sets of question relating to the main question were scrutinized by academics from AUT, New Zealand, School of Public Health, University of PNG, two PhD students at AUT and four PNG men. The approach taken was to minimise ambiguity in these questions. All suggested feedback was considered for alteration by me as the primary researcher, and once amended, questions were sent again for feedback until they were finally agreed.

In the event, the first four participants answered questions eight and nine together and I had to omit question nine from the other interviews, after consultation with my supervisors. (see Appendix L). Good preparation and understanding the processes involved set the pace for a worthy outcome (Luborsky & Rubinstein, 1995; Qu & Dumay, 2011).

On the notion of preparedness as mentioned above, interviews are not to be taken lightly. They require the inseparable effort of getting the basics right with the use of various skills, such as intensive listening and note-taking, careful planning and thorough preparation (Qu & Dumay, 2011; Ritchie et al., 2013). To collect meaningful or purposeful information from the interview data I made sure I was knowledgeable about the topic of interest and was comfortable moving forward with questions framed to gain an insight into the participant's world. It was clear to me as a researcher about who to interview, how many interviewees would be required, what type of interview to conduct, and how the interview data would be analysed (Qu & Dumay, 2011; Ritchie et al., 2013). Interviewing requires “a respect for and curiosity about what people say, and a systematic effort to really hear and understand what people tell you” (Rubin & Rubin, 2011, p. 17).

#### **4.10 Research reflexivity/subjectivity**

Bilingual or trilingual attributes of a researcher in an investigation are something that must be highly advocated for to ensure the welfare of individuals in any subgroups regardless of age, gender, race, colour, or ethnicity. I as the investigator became an insider as well as an outsider and every effort was made to make sure the insights gained from the investigation minimised nuances around dialect and local idioms (Chidarikire, Cross, Skinner, & Cleary, 2018).

Ethnography as a methodology promotes the use of “monolingual [ethnographies] ethnography” and “life [histories] history” as a product of doing ethnography—the use of ‘Tok Pisin’ followed by a transcription into English has its place in research when it is meticulously validated and sound (Spradley, 1979, pp. 23-24; 2016).

In Papua New Guinean direct communication is not always the only medium used but can be implicit. I can still recall two common watchwords used by my late father as a teenager growing up were, ‘Em samting blon ol man’... (it only relates to man...) and ‘Yu man ya, yu mas strong...’ (you are a man, you must be strong...).

‘Em samting blon ol man’... (it only relates to man...) is the concept that was taught to me from a very young age. It is a taboo to disclose anything to a young man about sexually related conditions or problems, as I can recall in my childhood days growing up in the village.

‘Yu man ya, yu mas strong’ (you are a man, you must be strong...) was the other vivid watchword used by my father. It is customary for men to be strong on all fronts, no matter what circumstances they may be faced with as an individual, family man and in the community at large. It is an onus for them to have the status of a man and not disclose anything personal relating to sex and maleness.

I personally believe this has impacted on the way the men in PNG look at their sexual and maleness issues and why they cannot disclose these openly. There is a strong stereotyping of behaviour, particularly not exposing matters of importance to their physiological, psychological, social, cultural, or environmental, well-being—stoicism. As a boy growing into a teenager and being where I am now, this “male madness” relates to the dysfunctional or perplexing way males regard their intimate or sexual issues that confront them.

This male health issue is one that arises from physiological, psychological, social, cultural or environmental factors that have a specific impact on boys or men and necessitates male-specific actions to achieve improvements in health or their well-being at either individual or population level.

#### **4.11 Analysis (Rigour)**

As mentioned above, I am a Papua New Guinean man and have an interest in Men’s Health; therefore, self-awareness and reflectivity or reflexivity have guided me in understanding and interpreting human experiences as and when it happens (Patton, 2002).

Doing ethnography has expanded my awareness of prejudices and biases accumulated in my own experience of being a man and Papua New Guinean. According to Koch and Harrington (1998), research is an ontological project underpinned by our values, history and interests that play a central role in understanding. Personal reflection as a researcher and theoretical pre-understanding interact with how data collection and analysis are done (Parahoo, 2014; Polit & Beck, 2006).

Analysis was carried out using six criteria suggested by Braun and Clark (2013): familiarisation; generating codes, constructing themes, reviewing potential themes, defining and naming themes and finally, producing a completed report as a final end product of the investigation conducted.

**Table 4. 1 Six phases of Thematic Analysis**

	Phase	Description of the Process
1	Familiarisation of the collected data	Immersion of the data through reading and re-reading to be acquainted with the data while noting down initial ideas
2	Generating initial codes	Coding frequent occurrence or features within the data in a systemic approach. Collating data significant to each code.
3	Constructing themes	Primary approach used in collating codes of potential themes, making sure all relevant data attest to each potential theme
4	Reviewing themes	Checking the themes correspondences with coded extracts and the entire data set, generating a thematic map of the analysis
5	Defining and naming themes	Ongoing analytical process of refining and re-defining specification of each theme, and the overall story the analysis tells, generating clear definitions and names of each theme
6	Producing the report	The final product of the analysis, when the first 5 phases are correctly executed producing a scholarly report of analysis addressing the research question supported by scholarly literature

Source: (Braun & Clark, 2013)

#### 4.11.1 Familiarisation

According to Braun and Clark (2013) familiarisation refers to immersion in the raw data through listening and re-listening to the audiotape, reading and re-reading the notes, transcripts and noticing re-occurring features. The process was worthwhile because it gave me a connection with the data that was before me; and helped me to be thoughtful and curious about what I was listening to and reading. Furthermore, familiarisation was not about attaching labels but about looking out for what is interesting and possible in the data. To me, repetitiveness during this familiarisation stage with my dataset was something I highly valued because it made me feel confident about the data.

#### 4.11.2 Generating codes

“Codes identify a feature of the data (semantic content or latent) which is interesting to the analyst, and refers to ‘the most basic segment, or element, of the raw data or information that can be assessed in a meaningful way regarding the phenomenon’” Boyatzis (1998, p. 63).

This process of looking at my data with critical awareness, moving toward more detailed and systemic engagement was focused and systemic and I made sure my datasets were organised around similar meanings, words or phrases that were used often during the interview. This helped in my thought process of applying inductive reasoning—the bottom-up approach to knowing, by looking at the datasets, and deductive reasoning—a top-down approach of knowing through looking at the datasets with a different lens of reasoning (ideas, concepts, theories).

#### 4.11.3 Constructing themes

The process of constructing themes was an active one for me, which built on the previous phase (generating codes), through building, modelling, and giving meaning to each dataset. Through this process the themes began to emerge. My supervisors pointed out that good theme is those that tell a coherent, insightful story about the data and suggested using a table to clearly spell out the themes and subthemes. This helped to draw the relationships between themes (Braun & Clark, 2013). I was asked about participants’ quotes to support themes and subthemes as evidence of the research findings.

## 4.12 Producing a report

The six phases of reflexive thematic analysis (TA) from Braun and Clarke (2013), provided a working framework to analyse and report the data set. According to Boyatzis (1998), thematic analysis (TA) examines original definitions and its associations that are collected in the field during the data-gathering procedure. Thematic analysis has been recognized as an efficient and flexible way of coding qualitative information. Braun and Clarke (2006, P.79) define thematic analysis as “. . . a method for identifying, analysing, and reporting patterns (themes) within data.

The process involved consideration of credibility, dependability, and transferability (Polit & Beck, 2006).

### 4.12.1 Credibility

According to Polit and Beck (2006, p. 323), credibility refers to “confidence in the truth of the data and interpretations of them”. The trustworthiness of my study can be seen in my ability to understand and interpret a phenomenon as it presents itself. In other words, the way I analysed the data was based on the meanings that emerged from participants’ discourses within an ethnographic framework. Another important aspect I considered while interpreting data was non-verbal communication, particularly being aware of body language and concentrating on the process of attentive listening” (p. 179).

After the interviews, I made notes of important observations such as facial expressions, hands shaking, the tone of voices, and the brightness of eyes, whereby the unspoken words were revealed. These body language observations were important sign-posts indicating the participants’ motives. According to Koch and Harrington (1998) the credibility of the study can be enhanced by returning the data to the participants to authenticate the accuracy of data collected. I was able to make phone calls with two of the 12 participants to gather their comments. They both agreed to meet to discuss the transcript. I had to read the transcription in ‘Tok Pisin’ and later replayed the audio for them to listen. Ipai (38) commented in tok pidgin saying “nogat toktok em orait tasol” / *have nothing to comment on, it is all good for me*. Toni (42) “em ol toktok mi mekim na mi wanbel” *Those are my own words and I am happy about it*.

Further to enhance quality and credibility I was able to employ *analyst triangulation*, that is, using multiple analysts including Papua New Guineans scholars and my supervisors to review and confirm that words used in English corresponded to the original meaning in “Tok-Pisin” - *confirmation of transcription* (Patton, 1999, p. 1193).

#### 4.12.2 Dependability

Demonstration of dependability with my datasets as referred to by Polit and Beck (2006) was durable, meaning it was consistent over time and condition, and I was able to clearly articulate the analytical pathway I took in terms of validating the datasets, though “...others can agree or disagree or question the decisions that have been made” (DePoy & Gitlin, 2005, p. 251).

#### 4.12.3 Transferability

Transferability in research has been a contested notion. However, it should not defeat the purpose of trustworthiness. In my case, I did all I could to produce thorough contextual information concerning the processes I have undertaken, thereby allowing readers to make comparisons of transferable information for underprivileged groups or hard to reach populations. From my standpoint there was consistency in the participant’s responses, suggesting the findings could be transferred to similar men living with untreated PCa.

#### 4.13 Conclusion

In this chapter, I have explained the processes taken using focused ethnography in a constructionist approach, developing meaning through inductive and deductive reasoning (Braun & Clark, 2013). I have described how I selected and interviewed my participants and discussed how the data were analysed. Ethical principles have also been discussed.

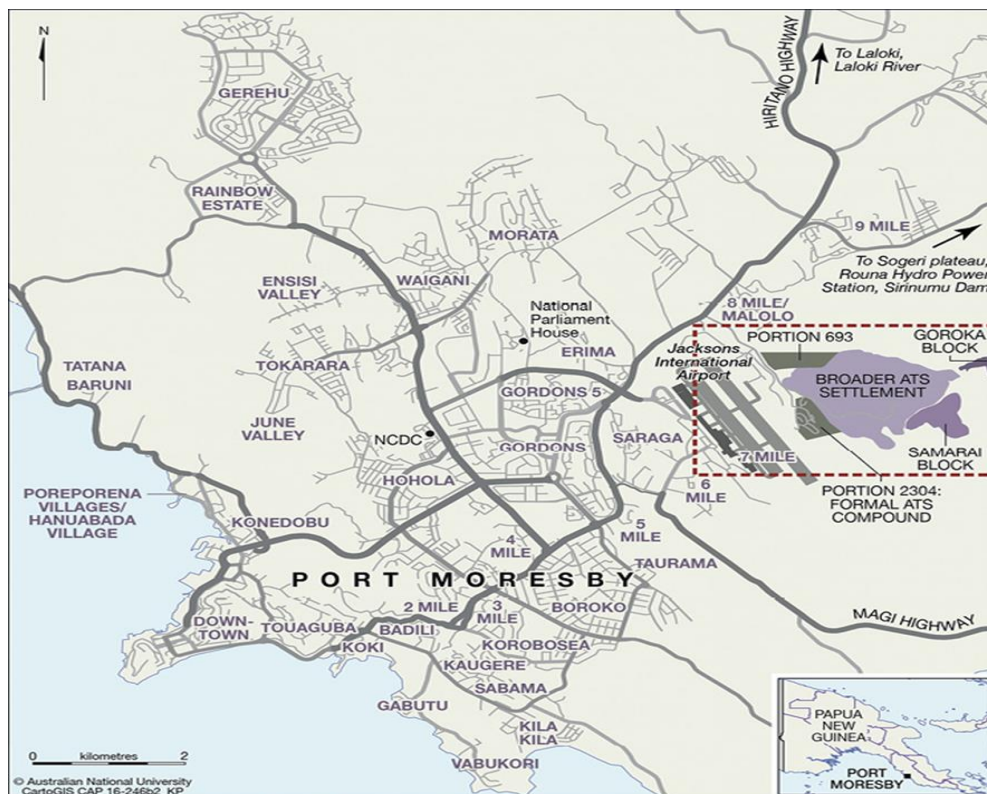
## Chapter 5 Findings

### 5.1 Introduction

The chapter will cover the following areas: a brief background information on reflexivity, followed by demographic information of the participants including the themes, sub-themes, and conclusion.

### 5.2 Demographic Profile of the Participants

The age range of the 12 participants in the study was 30 – 50+. All participants lived in a peri-urban setting within three suburban areas of Port Moresby (see **Figure 5.1**).



**Figure 5. 1 Map of Port Moresby, PNG**

The demographic data collected included age, marital status, region of residence, whether born in Port Moresby or migrated, level of education and religious faith. Additional information added to the demographical profile of individuals were observations on the setting in which the interview took place (See Table 5.1).

**Table 5. 1 Detail Demographic Profile and Additional Information**

<i>Participants Demographic Information</i>									
<i>Pseudonym</i>	<b>Age</b>	<b>Marital Status</b>	<b>Regional Identity</b>	<b>Level of Education – Grade</b>	<b>Born or migrated – POM</b>	<b>Faith/ Religion</b>	<b>Observation on the influence of surrounding during an interview</b>		
							<i>Individual</i>	<i>Setting</i>	<i>Surrounding</i>
<i>Tau</i>	42	Married	Southern	6	Migrated	UC	Relaxed mood, free discussion of information; emphasis points using hands and facial expression - screwed; pauses indicating through the process	Village/home as requested by participants for interview	Noisy but comfortable discussing information.
<i>Ipai</i>	38	Married	Southern	5	Migrated	UC	Confident and relaxed, free disclosure of information; use of hands, the tone of voice cool but firm and tightening of the face as the emphasises the points raised	Requested to meet the participant in the village/home	Village setting with noise at the background but secure interview environment
<i>Bosco</i>	30	Single	Momase	7	Migrated	JW	Relaxed and happy; free discussion of information; emphasis points through the use of hands – (clamping), facial expression – (grim); pause – through the process	Community environment in the settlement where the interview was conducted	Peri-urban area of Port Moresby where the interview was conducted (home).
<i>Max</i>	32	Married	Southern	4	Migrated	UC	Compose and relaxed; free disclosure of information; use of facial expression by raising of eyebrows; raising of hands and tone of calm voice – emphasises points of importance.	Community setting as requested to conduct the interview	Quiet and without noise at his home
<i>Leo</i>	34	Married	Southern	6	Migrated	JW	More relaxed and comfortable, free disclosure of experience; points emphasis through tone of voice – cool but firm added by use of hands and face speaks volumes	In the settlement with noise at the background	Noisy environment but requested to conduct the interview.

<i>Jud</i>	36	Married	Southern	5	Born	UC	Relaxed and free disclosure of personal experience; emphasises point through tone of voice cool but firm supported by hand being clinch and facial muscle is tired	In the settlement with noisy background during the interview but all good	Noisy but requested to have an interview conducted in the home
<i>Rex</i>	31	Married	Southern	4	Born	Catholic	Relaxed and free disclosure of information; the emphasis of important points through the use of hands – (pointing), facing (hard look) and pausing for recollection of thought process	Peri-urban setting with noise	Noisy but the interview area was quiet and requested to have an interview conducted (home)
<i>Hans</i>	36	Married	Southern	3	Migrated	UC	Relaxed and comfortable; free disclosure of information; pauses – thought process; the emphasis of points with the use of hands (pointing), facial expression (hard look) and tone of voice-firm	Peri-urban setting with noise	Peri-urban/ Settlement with noise around but requested to have an interview conducted
<i>Toni</i>	42	Married	Southern	8	Migrated	UC	Relaxed and comfortable; pauses noted as way of thought process, the emphasis with use of hands, face and tone of voice (soft but firm)	Community/village as even noisy requested by participants	Place of the interview was quiet but noisy outside – kids playing
<i>Rob</i>	46	Married	Highlands	5	Migrated	Pentecostal	Looked relaxed; disclosure of information openly; again, emphasis using body language to point out importance; pauses indicating through the process	Noisy life of peri-urban setting but requested for the interview to be conducted	Hussle bustle life of settlement with noise; Interview conducted in a private space in the house

<i>Neta</i>	49	Married	Island	4	Migrated	Catholic	Relax and comfortable with open disclosure; pauses- though process; points emphasis using body language tone of voice, hands (fist clamp); face looks grim	The peri-urban setting in Port Moresby; requested for an interview at his place/house	Close to police Northwest command
<i>Asa</i>	50	Married	Island	2	Migrated	UC	Openness and willing to disclose; relax as observed; pauses during the interview; facial expression and use of hands	Peri-urban setting noisy but advice to have an interview conducted	Noisy surrounding far off from the house.

The choices of demographic data to be collected were limited because it was clear that most of the participants were of low socio-economic status. A summary of the demographic data is displayed in Table 5.2.

**Table 5. 2 Summarised Demographic Data**

Age			Marital Status (Single, Married, Separated, Divorced, Widowed)					Regional ID (Highlands, Momase, Southern, Island)				Education (Grade: 0 - 8)			Faith/Religion (United Church, Roman Catholic, Jehovah Witness, Pentecostal)			
30 - 39	40 - 49	50 +	Sin	Mar	Sep	Div	Wid	H	M	S	I	0 - 2	3 - 5	6 - 8	UC	C	JW	P
7	4	1	1	11	0	0	0	1	1	8	2	1	7	4	7	2	2	1
Total: 12			Total: 12					Total: 12				Total: 12			Total: 12			

Seven participants fell between the ages of 30 – 39; four between 40 – 49 and one was 50. Regarding marital status, one participant was single and 11 married, with none separated, divorced or widowed. Most were from the Southern region (8 in total), two from Islands and one each from the Highlands and Momase. With respect to educational level in grades completed, only one participant had only completed grades 0 – 2, seven had completed grades 3 – 5 and four had completed grades 6 – 8. Religious adherence was mainly to the United Church with a total of seven participants, two each were from the Catholic Church and Jehovah Witnesses and one participant was from the Pentecostal church.

It was observed that men were eager to share their experiences in the settings they chose. All men were relaxed, confident, composed and there was a free flow of information sharing, expressed also through pointing and talking, clearly expressing themselves, by clamping their fists and grimacing to emphasise important points (Table 5.1).

### 5.3 Themes and Sub-themes

The six themes are summarised in Table 5.3, together with sub-themes.

Themes were developed in graphic form to provide interlinks between the identified themes indicating significant of men's experience of having to live with untreated PCa in PNG (Figure 5.2). Furthermore, in examining the themes and sub-themes, observation on the influence of the surroundings during interviews from individual body language was be utilised as well (see Table 5.3).

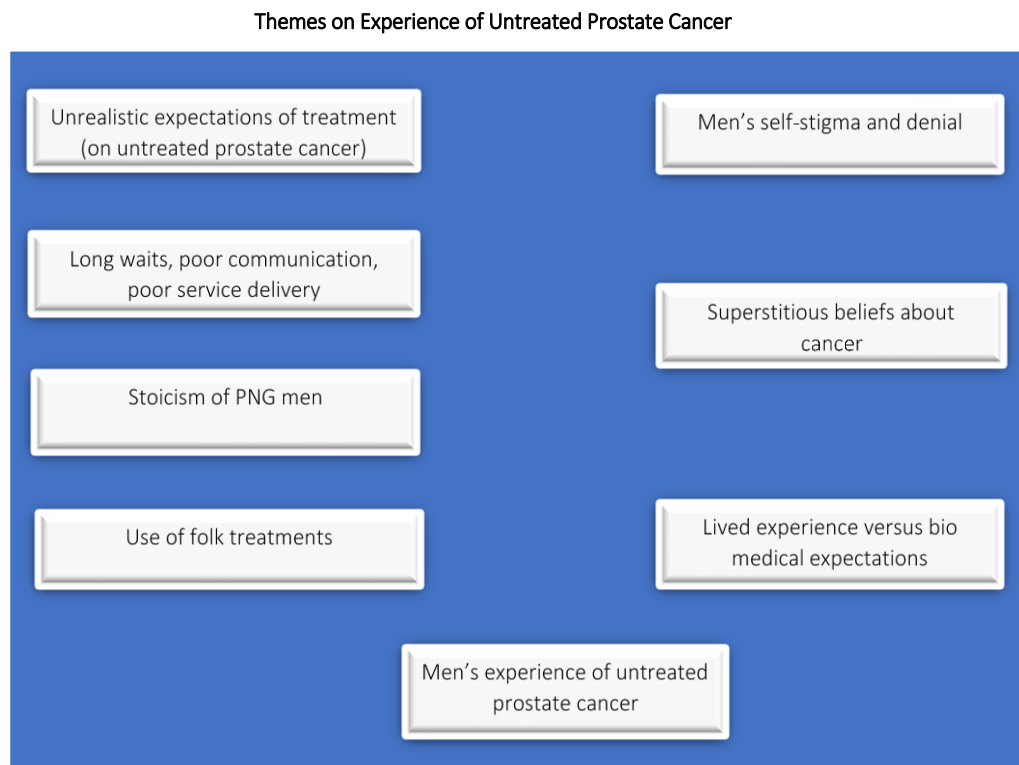
Table 5. 3 Themes and Sub-themes

Themes and Sub-Themes		
NO:	Themes	Sub-themes
1	Unrealistic expectations of treatment*	<p><b>Believing medicine cannot cure once doses are given and completed</b> (in 'tok pisin' mi belief olsem marasin bai ino helvim mi taim mi pinisim olgeta marasim)</p> <p><b>Not going for review after completing medicine or prescribed doses</b> (in 'tok pisin' mi no go bek lon hausik lon sekim mi yet ken taim mi pisin marasin na dei ol makim lon mi go)</p>
2	Long waits, poor communication, poor service delivery	<p><b>Longer waiting</b> (in 'tok pisin' mipla save wet lonpla taim)</p> <p><b>No/limited time for an explanation of the condition</b></p> <p><b>Limited professional interactions and fragmented approach</b></p>
3	Men's self-stigma and denial	<p><b>Illness for men only</b> (in 'tok pisin' sik blon man)</p> <p><b>It always pains</b> (in 'tok pisin' em save pan)</p> <p><b>I do not go and get medicine or hospital</b> (in 'tok pisin' mi no save go kisim marasin o hausik)</p>
4	The stoicism of PNG men	<p><b>Men's business</b> (in 'tok pisin' em sik o samting blon man ya)</p> <p><b>The shame of being a patient as a man</b> (in 'tok pisin' mi man ya em sem pasin ya lon tok aut na olsem mi save stap wantaim)</p> <p><b>Disgraceful and humiliating</b> (in 'tok pisin' em sem pasin lon tok aut lon sik blon mi lon femili lain na ol wantok o meri-pikinini)</p> <p><b>Crisis identity a patient as a man</b> (meri ol tambu lon askim sik blon ol man em pasin blon yumi PNG). Ladies [female health workers] are not allowed to ask man about our illness as a man. It is typical of us PNG.</p>
5	Superstitious beliefs and treatment	<p><b>Demonic conceptualisation on illness</b> (in 'tok pisin' wei blon painim displa em hat tumas em "demonic" pasin na em hat lon painim aut)</p> <p><b>Relating to spirit house/ rituals</b> (in 'tok pisin' em pasin tubuna ya na samting blon hausman em blon hausman ino blon tok aut)</p> <p><b>Conflicting thought about their illness</b> (in 'tok pisin' olsem sampla taim mi gat strongpla belief olsem marasin ino nap helvim na olsem na mi no save go kisim helvim lon hausik- English: <i>At times I have a strong conviction that going to the hospital would not help.</i> Sopos em sik blon blon bodi em lon siat blon helt marasin bai helvim. English: <i>If it relates to the illness of the body than medicine will help instead about being punished for going to forbidden or sacred place</i></p> <p><b>Lived experience and treatment</b> (in 'tok pisin' is pasin kustom na bilip ya em mi mas go lon ples I tambu lon em na masalai givim sik) related to customary beliefs by going to the forbidden or sacred area and being punished by the spirits.</p>
6	Use of folk treatments	<p><b>Use of hot compression to relief pain</b> (in 'tok pisin' mi save putim laplap lon hat wara presim lon hap em pan na pan save pinis)</p> <p><b>Self-treatment with Panadol over the shop counter</b> (in 'tok pisin' mi pelim pan em mi go baim marasim panadol lon stoa).</p> <p><b>Use of medicinal leaves</b> (in 'tok pisin' taim mi pelim pan mi paitim "salat" lon hap em pan na pan save pinis)</p> <p><b>Lived experience and treatment</b></p>

Unrealistic expectations of treatment\*:

This refers to men who have gone to the hospital during their first visit examination (per rectal) done and been given medication for pain (Panadol) and antibiotic (Amoxicillin) as prophylaxis for 1 week and had never gone back for their one-week review. The PNG Ministry of Health has an adult standard treatment book or protocol; however, it has to be stressed here that treatment on cancer is not included in the standard treatment protocol but is managed by the urologist. Specialised care with cancer is often referred to Angau General Hospital in Lae, Morobe Province where external beam radiotherapy (using Cobalt 60 machine), brachytherapy and chemotherapy are used to treat cancer (Government of Papua New Guinea, 2015b).

These men did not mention that they were fearful, they referred to their experience as related to a man's issue and did not want to go back to the hospital. From sharing their thoughts, together with their body language, clamping their fist, a firmness of tone and grimacing, they showed their determination. It was possible that undergoing a rectal examination contributed to this reaction. In PNG such examinations would never be discussed or disclosed.



**Figure 5. 2 Thematic map of the themes**

#### **5.4 Unrealistic expectations of treatment:**

This theme describes the way men perceived symptomatic treatment as them having completed medication without going back for the review as per the advice during their first visit.

##### **5.4.1 Believing medicine can cure once doses are given and completed**

The notion of believing medicine can be completely cured once prescribed was a view held deeply by participants. In fact, the participants were given those medicines as prophylaxis and were supposed to go for a review. As Tau (42), expressed in 'Tok Pisin'

Olsem, sampla taim mi belif olsem marasin inap lon helvim [pause] na oslem na mi save go kisim helvim lon hausik. Sopas em sik blon bodi em lon sait blon helt em marasin bai helvim (Tau).

In English I had to split the spoken words into two separate sentences and maintaining the original wording. (*Olsem, sampla taim mi belief olsem marasin inap lon helvim [pause] na oslem na mi save go kisim helvim lon hausik.*) Occasionally, I believe medicine can help [pause] and that is the reason I do go for help in the hospital). (*Sopas em sik blon bodi em lon sait blon helt em marasin bai helvim*). If it is illness relating to the body, then recovery with medication can help (Tau).

Similarly, Ipai (38) had a strong conviction that medicine can help.

*... sopus em sik blon bodi em lon sait blon helt em marasin bai helvim.*

*... If it relates to the illness of the body than medicine will help (Ipai)*

#### 5.4.2 Not going for back to the doctor or hospital for review after completing medicine or prescribed doses

The sub-theme not going for review after completing medicine or prescribed doses is very much related to their first encounter during procedural examination and ties in with their personal value of being a man.

Bosco (30) utter the following words in reply related to not going for the review after completing medication.

*mi save stap tasol na mi no save tokaut lon ol femili na frens).*

*I have never disclosed it to my family and friends.*

*Pasim sem ya em samting blon mipla ol man na why bai ol save em mi daunim score blon mi yet igo duan tru ya, olsem man ya, na mi no go lon ol sekim mi (Bosco).*

*It is disgraceful and humiliating, it belongs to man and why would I disclose this to them for them to know would be like me hitting the bottom line of my life. I will be discriminated against and have not gone back for the review (Bosco)*

Neta (46) had to say this “ol [health workers] tokim mi lon go lo “review” tasol mi no go igo inap nau”. They [health workers] told me to go for my “review” and I have never gone back up until now (Neta).

The statement uttered by Neta (46) was confirmed during an interview with a following question

*Neta, I thought when I complete all my medicine than I am fine.  
Confirm statement: JI. You are telling me you are fine because you  
have completed your medicine and you do not have to go for your  
review, is that correct. Neta – Yep (Neta)*

### 5.5 Long waits, poor communication, poor service delivery

The theme refers to the experience encountered in the clinical setting as a patient where there were waits of hours, with ineffective communication by health professionals, which was viewed by the participants as putting the profession into disrepute. This will be further deliberated in the subsequent sub-themes. Before that, let me share some insights from these three narrations from Toni (46), Max (32) and Jud (36).

Toni (42), expressed himself with a pause as to why he has not gone back as advice for the review.

*I have completed my medicine and I know I am fine, and I have never gone back because I do not want ladies [nurses] to treat me again if I had to go to the hospital again. I preferred service to be from a male health worker for this private male problem (Toni).*

Max (32), had the same view and expressed that anything confidential to man and their welfare had to be kept in secrecy and not be disclosed and going back for review was not something he would like to do.

*([Pause] ol man mipla save laik lon dokta man lon lukim mipla tasol  
taim nogat space em mi painim hat, wankain olsem ol displa man  
ikam go ya tasol mi laik tokim em mi pelim sam liklik lon tokim dokta.  
Mi lukim olsem wei space em stap mi save go na toktok na taim ol tok  
lon kam bek lon displa taim ken em mi no save go bek ken lon hausik.  
Blon wanem space nogat na haw bai mi totkok wei igat ol meri tu stap  
lon lukim dockta o nurse, olsem na mi no laik go bek ken lon hausik)  
(Max).*

*For us man we do like a male doctor to see us and when we find out there is limited or no space to wait and see the doctor we leave because there is no private space to talk about issues pertaining to men. When we as men are advised to go back on that date we do not because limited space and cannot communicate openly about men's issue when you have women there as else waiting to see a doctor or nurse, and that is the reason I never wanted to go again to the hospital (Max)*

Jud (36) had been thinking hard about the illness but had never made an attempt to visit the hospital. To him, a hospital is a place where mostly ladies [nurses] are working.

*Olsem mi tok pinis [pause] em sik ya na bai mi mekim wanem kain em samting wei mi save ting hat lon em na lon go lon hausik em hat tru lon mi lon wokim blon wanem hausik em ples wei plenty lain save stap na tu ol planti meri wok (referring to female nurses).*

*Like I said already [pause] it is an illness and what will I do. It is something that I seriously think about and have not gone to the hospital. It is hard for me knowing well that the hospital is where most of the ladies' work (referring to female nurses) (Jud).*

#### 5.5.1 Long waiting times

The sub-theme long waiting refers to the amount of time they had to wait until they were seen by clinicians, prescribed medication and allowed home.

Rob (46) left home at 7:00 am returned home at 5 pm. Neta (46), also had the same experience.

*Sampla ol bai tok yu sindaun lon sait pastaim mipla lukim displa man bihain bai mipla lukim yu while ol dokta nurse igat displa kain attitude nau lon savim laip blon ol man na taim delay nau. Wat ya em lonpla taim olsem 2 – 3 awa nabaut.*

*Some health workers will tell you to sit down and wait while they attend to others and such attitude makes me do not want to go back because waiting time is always long approximately around 2 – 3 hours (Rob).*

*Sem taim plenty dokta nurse save tok yu wat mipla lukim displa man pastaim bihain mipla lukim yu. Em lon liklik experience mi save go lon hausik lon em na mi yet lukim.*

*On the same note health workers usually say, “wait I am seeing this patient and then we see you later”. Just my personal experience – on long waiting time (Rob)*

*Em “depend” lon ol sopos ol kam hariap ol ino nap kam na toktok ol bai just kam na tok buk blon yu kam na ol bai wok nau na sampla taim ol bai tok yu stap pastaim bai yu wet na kisim marasin. [Pause] It all “depends” on the health workers if they come early to work will be good, but if turn up late they will say “give me your book – health record” and they will see you and at times they will tell you to wait for your medicines when it is prescribed) (Rob)*

Neta (49) after waiting for two to three hours was told to go back the next day to collect the prescribed medication at the hospital pharmacy.

*Inap lon sam taim ol treatim mipla na givim marasin bai mipla wet longpla taim olsem 2 o 3 awas or inap mi stap igo abrusim 2 o 3 awas bai ol givim mipla marasin. Sampla taim mipla ken stap longer taim liklik or nogat bai tokim mipla lon kan ken lon mornin lon kisim marasin.*

*When we are seen and then be treated would be good but then that is not done, and we can wait for 2 to 3 hours or told to come the next morning (Neta).*

Hans (36) expressed himself as follows

*Mi wet lonpla taim na bihain ol ikam lukim mi.*

*I have waited a while before I was attended to) (Hans).*

### 5.5.2 No/limited time for an explanation of the condition

The following sub-themes of there being no/limited time for an explanation of the condition, limited professional interaction and a fragmented approach were expressed by a few men in how they perceived their care and support during their time as a patient. This led to them constructing their own interpretation of the illness.

For Tau (42), Ipai (38) and Rex (31) this meant ascribing it as follows:

*Mi ting olsem em taim mi pilai rugby na kisim displa pan ...*

*I thought when I played rugby and then had this pain ... (Tau)*

*Mi ting olsem em taim mi pundaun lon diwai na kisim displa pan*

*I thought I fell off from the tree and got this pain in me (Ipai)*

*Mi ting olsem taim mi mekim hevi wok lon lonpla taim nau olsem na mi kisim displa pan*

*I thought it is the effect of doing a heavy job for a long period in my life that caused me to have this pain (Rex)*

*Asa (50), expressed there was no explanation given to him about the condition nor treatment.*

*ol ino hariap mi wat lonpla taim, ... planti sik manmeri mipla stap wetwet na bihain ol kisim mipla go insait na ol lukim mipla na makim marasin, nogat toksave blon sik or marasin na bai mi klia (Asa).*

*They [health workers] were not quick to see me, waited for a long while ...there were plenty of patients and we had to wait for a long while before we were called to be served with no explanation on the illness or prescribed medication (Asa).*

### 5.5.3 Limited professional interactions and a fragmented approach

These were expressed by a few men as follows:

*mi gat ol narapla hevi tasol mi no save tokaut na mi save haitim na stap wantaim.*

*I have other health issues and have never disclosed it to anyone at all. (Ipai)*

Rex (36) expressed himself with this statement.

*Mi go em ol busi [pause]ol bai just go kam, go kam na wokim wok blon ol na bihain wanpla bai kam na askim yu gat wankain sik na bai wokim wei blon yu otherwise bai yu wet. Bai yu lukim ol mekim ol narapla ok blon ol istap na yu tu wantaim displa skin pan ya bai yu istap istap. Husait fri lon em bai kam na lukim yu. Tasol nogat toksave olsem wane mol wokim na wanem taim stret bai ol kam lukim mipla na helvim mipla (Rex).*

*I went to the hospital and saw it was busy [pause] they [health workers] were coming and going doing their work and when one of them is finished they [health workers] will come and ask you about how you are feeling and then you will make your way to be seen otherwise it will be a longer waiting time for you without them advising us about what is happening, or how soon we will be attended to (Rex).*

Rob (46) express the same sentiment as Ipai (38) he did not disclose other associated illnesses and kept them to himself even when at the health facility.

*Taim mi go lon aid post lon ples taim em lukim face blon mi, em save mi laikim pan marasin. Em save lukim face blon me na save givim mi marasin Panadol lon siat blon pain. [Pause] Em save helvim mi kwik olsem em save lon mi na sve helvim me kwik. [pause] Mi save olsem em mi gat ol nrapla hevi tasol mi haitim na stap wantaim (Rob)*

*When I go to the aid post in the village, I can be served quickly, knowing I am going for pain killer medication. When he sees my face. He sees my face and gives me the medicine Panadol for pain. He helps me quickly because he knows me. [Pause] I know it is an issue and I have other illnesses I never disclosed it to anyone (Rob)*

## 5.6 Men's self-stigma and denial

This theme is central to the men's status as a man, maintaining an identity within the cultural context in relation to strength, power, wealth and prestige in the community.

### 5.6.1 Illness for men only

Tau (42), had not disclosed the experience of pain, nor seeking medical help and attached the illness to the firmly held value of man being a man in the PNG way.

*Mi save pelim pan (I do experience pain*

*Samting wei mi no save tokaut*

*I do not disclose my pain*

*Mi no save go kisim marasin lon hausik*

*I do not and get medication from hospital*

*Em samting o hevi blon mipla ol man na blon wanem bai mi tokaut,*

*It only relates to men and why disclosing the pain (Tau)*

Leo (34), also expressed the same view as Tau (42)

*Em samtin o sik blon mipla ol man, (It only relates to man and man only), Pasin blon yumi man em ol save laik stap olsem man na ino laik daunim ol yet.*

*It is typical of us men that we want to be a man and do not want to be looked down on (Leo)*

Bosco (30), knew he had the illness but felt there was no need for everyone to know about it. To him that is the way it should be.

*Em mi save olsem mi gat hevi ya tasol em pasin blon yumi. Kain samting em yu no need lon tokim ol man.*

*I know I have a problem/illness and that is our way of doing things. Such an issue is not for everyone to know (Bosco).*

Max (32), pointed out that was one of the reasons he had not gone to the hospital again.

*Em sik blon man na em wanpla samting wei mi save hat lon go lon hausik ken...*

*The illness relates to man and that is the thing that makes it hard for me to go to the hospital again... (Max).*

### 5.6.2 Being in pain

This commonly uttered by the 12 participants. Some experienced pain more than others, as shown in the following:

*Mi save pelim pan...*

*I do feel pain (Tau, Bosco, Hans, & Toni)*

*Em save pan sampla taim*

*I do feel pain occasionally (Ipai, Leo, Rex, & Asa,*

*Mi save pelim pan wanwan taim*

*I do experience pain once in a while (Neta, Max, Jud & Rob)*

## 5.7 The stoicism of PNG men

Participants did not want to be viewed as victims; they felt this would be disgraceful and humiliating. They typically expressed held hard views bounded within a cultural context.

*Sait blon mipla ol Papua Nuigini man, mipla save painim hat lon toktok  
lon sik blon mipla ol man olsem na em hat lon mi toktok.*

*For us PNG men, it is always difficult to talk about such thing openly  
and that is difficult for me to disclose such information (Rex).*

Ipai (38) and Bosco (30), both stated that disease or weakness had to be concealed from others

*Em samting blon mipla ol man ino blon femili o hausik lain lon save*

*It relates to man and belongs to man and is not for family or clinicians  
at the hospital to know (Ipai and Bosco).*

Hans (36) felt there was no need to disclose any personal information about the illness, and explained this in terms of his identity

*Em mi save olsem mi gat hevi ya tasol em pasin blon yumi. Kain  
samting em yu no need lon tokim ol man, wantok o femli*

*] I know I have an issue, but it is our culture. Such an issue you do not  
have to disclose it to anyone, even your relatives or immediate family  
members (Hans).*

### 5.7.1 Crisis identity as a patient

Papua New Guinean men are typically viewed as being strong and aggressive. To maintain this, it was not possible to discuss their illness.

*Meri ol tambu lon askim sik blon ol man em pasin blon yumi PNG.*

*Ladies are not allowed to ask man about our illness as a man. It is  
typical of us PNG (Toni).*

*Meri ol tambu lon askim sik blon ol man em pasin blon yumi PNG, em  
tambu stret.*

*Ladies [nurses] are not allowed to ask a man about his illness that is forbidden in our PNG context, it is a taboo (Hans).*

Rex (31) explained that this would mean he would not get medicine from a hospital

*Em sik blon man na em wanpla samting wei mi save hat lon go lon hausik ken na lon kisim marasin...*

*The illness relates to man and that is something I have never gone to the hospital and even for medicine as well... (Rex).*

Asa (50) would instead get painkillers from the local shop,

*Em pan save kamap na pinis na kamap [pause] so em mi stap wantaim na mi no wari lon marasin or go lon hausik na tu, em mi sem ya. Pan marasin lon stao stap lon baim.*

*The pain or illness comes and then subsides [pause] I am not troubled by that and have not gone to the hospital for medication. To me it is a humiliating thing for me to do. Pain relief medicine is at shops/stores to elief pain (Asa)*

## 5.8 Superstitious beliefs with treatment about cancer

Participants believed that if something happens to someone, especially if they have been sick for a long time, that this is associated with being cursed by spirits or demons. This is based on their belief systems, which involved a combination of belief in God and the supernatural world of spirits, powers, and diseases.

Tau (42), stressed the point that when an illness is believed to be caused by supernatural influences or forces, it would be difficult to establish the exact cause.

*Em hat lon painim [pause] wei lon painim displa em hat tumas em "demonic" pasin na em hat lon painim aut.*

*It is hard to find out [pause] to find out about this is difficult because it is "demonic" possess and will be hard to find the cause (Tau).*

Neta (49), pointed out that if an illness is from the gods who live on land or in heaven, it would be difficult to recover, and the only hope would be to see the pastor to be cured through prayer.

*Em mi tok pisin ya sopos em sik nating em bai isi, sopos nogat em hat lon painim aut [pause] displa mi tok ya em sopos em sik wei ol god blon graun o heven I givim em hat nau. Bai mas go lon pasta lon helvim lon pray.*

*As I have mentioned earlier, if the illness is just an ordinary illness then it would be easy, if not then it would be difficult [pause] what I am referring to is if the illness is from god on the land or heaven then it will be hard. The only help would be from the pastor through prayer) (Neta).*

#### **5.8.1 Relating to spirit house/ rituals**

Rob (46), attached himself strongly to the notion that anything relating to him as an individual was deeply rooted in his upbringing as a man, and also relates to spirits and rituals that were part and parcel of his life.

*... Pasin tubuna em samting blon haus man em blon hausman em tasol.*

*It is our traditions that anything that relates to man is for man and goes back to spirit house and that's all) (Rob).*

Max (32), was of the same opinion, stressing nothing much can be talked about, it relates to spirits and rituals.

*Em pasin blon ples hausman na kustom ya na em na em tasol bai mi tok wanem ken.*

*It relates to relates spirit house, customary beliefs and practice and what else will I say) (Max).*

#### **5.8.2 Conflicting thought about their illness**

At least one had conflicting beliefs about the cause of his illness:

*Mi no klia tu em sik nating o sik blon ples em samting mi no klia tu blon wanem em save kamap na pinis na kamap so em mi no save nau.*

*I am not very sure whether it is an ordinary illness or relates to customary practices and beliefs. It is something I am not very sure about. It comes on and then subsides, so I am not very sure of (Ipai).*

Hans (36) felt that illness could be related to being punished for something you had done.

*Ating taim yu save olsem yu mekim sampla samting ino stret em nau bai yu tingim passim kustom. Sapos nogat em sik nau.*

*Supposedly, in your conscience you know you have done something that is not right then you can think of customary practice. If not, then it is just an illness (Hans).*

Rob (46) from the highland, Neta (49) from the Islands, Ipai (38) and Tau (42) from Southern all expressed the same notion of being punished by spirits. When asked what could be done to alleviate this, two summed up the common viewpoint:

*Sapos em samting blon ples bai yu wokim wanem? Rob, mekim pasin kustom askim ol glas man lon kam lukim sikin na rausim samting lon sikin.*

*What will you do if it is related to customary beliefs/taboo? It is customary to ask a spirit healer to do spells and remove any illness from the body (Rob).*

*opos em samting blon ples bai yu wokim wanem? Ipai, mekim pasin kustom kisim klas man lon lukim na singaut namel lon ples na askim ol glas man lon kam lukim sikin na rausim samting lon sikin. Lead on*

*What will you do if it is related to customary beliefs/taboo?. It is traditional to seek help from a spiritual healer who will shout out in the night in the village about your illness and ask whoever has caused it to let it go (Ipai).*

## 5.9 Use of folk treatment

The final theme “use of folk treatments” is a practice used to relieve pain and discomfort, with the use of medical leaves namely “salat”, use of hot compression and “Panadol”, purchased over the shop counter.

### 5.9.1 Use of hot compression to relief pain

Treating pain with hot compression can be effective for a number of different conditions, such as muscle pain and stiffness and injuries and is easily affordable. For the participants the application of heat was a remedy to relieve muscle pain in the lumbar region.

Asa (50), described using hot compression as a remedial cure to helps ease pain, and had not gone to the hospital for medicine.

*Mi save bolim hot wara na presim presim na stap na pain save pinis na ino save go lon hasusik lon sekim mi yet, em nogat.*

*I boil water and use it as hot compression onto the site pain is coming from and that eases the pain and I have not gone to the hospital to check, not at all (Asa).*

Tau (42), expressed the same sentiment as Asa (50) of using hot compression.

### 5.9.2 Self-treatment/medication with Panadol over the shop counter

Leo (34), had been treating himself with Panadol bought over the counter to relieve pain

*...Pan marasin lon stoa stap em ino samting blon wari ...*

*Pain relief medicine is at shops/stores, there is nothing to worry about... (Leo).*

Jud (36) did the same

*Taim em pan, mi kirap na go lon stoa na baim panadol karim kam lon haus na mi drinkim wantaim wara, bikpla pan em mi save kisim tupla.*

*When the pain comes on, I walk to the store and buy panadol bring it home and have two tablets with water when I experience severe pain (Jud).*

### 5.9.3 Use of medicinal leaves

Medicinal leaves or plants, also called medicinal herbs, have been widely used in traditional medicine since prehistoric times, and is still a common practice for most remote communities in PNG. Medicinal plants are widely used in non-industrialized societies because they are readily available and cheaper than modern medicines.

Neta (49), expressed himself as follows.

*Nau mi wok lon pelim olsem sampla taim mi save stap orait [pause] na sampla taim mi save pelim displa pan bai mi paitim salat lon stopim pan.*

*There is the time I feel better without the pain [pause] and sometimes when the pain comes on, I use a medicinal leaf (salat) to stop the pain and the pain stops (Neta).*

### 5.10 Conclusion

This chapter has presented the finding from the interviews. The themes and associated sub-themes were identified. The themes captured multiple factors associated with men's experience relating to the physical and social environment that influenced the way men had responded to their illness.

The six themes were significant in men's view from unrealistic expectations of treatment, long waits, poor communication and poor service delivery, men's self-stigma and denial, stoicism of PNG men, superstitious belief and use of folk treatments. The next chapter will be a critical discussion of the findings of this study and a comparison with published literature demonstrating how the findings address the broad research question – *What is the experience of men living with untreated PCa in PNG?*

## Chapter 6 Discussion

### 6.1 Introduction

The chapter begins with the broader research question, including the set of interview questions that were used to interview the men. This is followed by a summary of the findings, a discussion about gender, barriers to greater involvement of men in health, and the strengths and limitations of the study. This is followed by a discussion of the implications for health service delivery, medical education and policy. Some recommendations are given, followed by the conclusion.

*What is the experience of men in Papua New Guinea living with untreated PCa?* This was the broad research question. The aim of the study was to explore the experiences of men aged 30 -50 living with untreated PCa in Port Moresby, PNG. The interview questions asked, and the underlying ideas being explored were as follows: What are your experiences of living with untreated PCa? (Explore the experiences of men having to live with untreated PCa); Do you hold any beliefs relating to you having PCa? (Exploring beliefs of men having to live with the condition); What do you think is the cause of your sickness/condition? What does have to live with PCa mean to you? (Explore and describe the meaning of men living with this condition); How do you feel living with PCa? (Explore and describe what it feels like to live with the condition) (Explore in-depth and describe the beliefs and experiences they have with the condition). (Explore and describe in-depth the experiences of men living with the condition); What are your cultural beliefs about PCa? (Explore the cultural beliefs of men living with the condition); What is stopping you from getting the support you need for your condition? (Explore and describe the behaviour and barriers of men avoiding treatment for their condition); What are your experiences, or thoughts of, or reactions to the professional attitude of health workers providing clinical services to you? (Explore men's experiences in relation to health workers' behaviour) and finally, what is your assessment of the level of clinical services provided by the Department of Health to you? (Assess the level of assistance provided by the clinical services of the Health Department to assist patients with the condition).

A qualitative descriptive methodology was employed to address the research question. The method of collecting the data was through semi-structured one-on-one face-to-face interviews with the participants). Data were collected through audio-recording and analysed using an inductive process following a thematic analytical framework outlined by Braun and Clark (2013). The preceding chapter presented the findings. This chapter begins with a summary of the themes and sub-themes, followed by discussing the strengths and limitations of this study.

## **6.2 Summary of the findings**

The 12 participants all lived in peri-urban Port Moresby, with low literacy rates and had been diagnosed with PCa and had never gone back for a hospital review. They were aged between 30 – 50. Out of the 12, 11 were married and one was single.

The first theme focused on their unrealistic expectations of treatment with two sub-themes, believing medicine can cure the condition once a dose is given and completed and not going for the review after completing medicine or prescribed doses. The men believed that medicine can cure once doses were completed after subsequent visits to the hospital. The second sub-theme of not going for review after completing their medicine regimes relates to the notion of being a man and the experience they had at the clinical setting or hospital. This revealed PNG men's attitudes toward masculinity in the PNG context and the threat that the illness posed to their own masculinity.

The second theme was long waits, poor communication and poor service delivery with the sub-themes of a long waiting time with limited explanation of the condition, limited professional interaction and a fragmented approach with respect to the advice given. The theme summarises the experience of men in relation to the way they were attended to at the hospital or clinical setting when they first visited, and the responses were summarised in the sub-themes, indicating the first experience they encountered as men in relation to their illness. This PNG way to facilitate men being treated has to be implemented by creating trust built on mutual understanding. Moreover, establishing partnerships that allow participatory input from, and discussion of matters relating to, men where they can talk freely without fear or intimidation is important.

The third theme, self-stigma and denial, encompassed the answers to the questions asked in relation to their beliefs and experiences of living with PCa. The three sub-themes provided more exact illness for men only, dealing with pain and not getting medical help. The theme defines PNG men's approach in communicating matters concerning men and their private life. As a researcher, I had an opportunity to have first-hand experience with my own father about being a man. The discussion we had as men and a father to a son relating to matters concerning men and how it was communicated to me refers to what I describe as the PNG way.

The fourth theme on "stoicism" emerged from these two questions. The first question, "What are the cultural beliefs about PCa?" The second question was, "What was stopping men from getting the support men needed for their condition?" The intention of the question was to elicit the men's views relating to their health seeking behaviours as signalled in the sub-themes of it being men's business, disgrace and humiliation and the crisis in identity of being a patient as a man. Their experiences signalled the way men in PNG reacted to the societal expectations relating to cultural norms and values. Men are known to be tough, strong and aggressive, and as such they cannot back down on issues that would undermine them as a man and simply put, this was a coping mechanism or strategy used by men.

The fifth theme, superstitious beliefs and treatment, had the following sub-themes: expressing the demonic conceptualisation of illness; relating to the spirit house; rituals and conflicting thought about their illness (related to firmly held beliefs central to the values of faith and culture). The fourth sub-theme, lived experience and treatment, related to the customary belief of going to a forbidden or sacred place and being punished by the spirit.

The final theme, use of folk treatment, emerged from responses to the question about how the men managed pain and discomfort. The sub-themes included discussion about hot compression to relieve pain, self-treatment with over the counter purchased Panadol and use of “salat” medicinal leaves. These were the available paths that men were able to resort to when pain and discomfort was experienced after they had decided not to back to hospital. The theme and the sub-themes provide many points of consideration for improving the standard of care when dealing with men in Papua New Guinea.

The calling is for the government of PNG, Health Ministry and Community Development and Youth and other Non-Government Organisations to partner and re-orient health service delivery meeting men’s health and social needs as a priority for greater involvement of men not only in the social, economic and political sectors, but in the health sector as well. When men are involved, they can take ownership of their well-being and have a positive impact on all fronts of life in nation-building.

From the six themes, it was possible to identify barriers to, and enablers for, the greater involvement of PNG men living in silence with untreated PCa in the community. In the following two sections the barriers and enablers are critically discussed using the social-ecological model. This framework allows us to explain factors which can inhibit greater involvement or inactive behaviour as individuals.

### **6.3 Gender**

While unequal gender relations and norms mean that women as a group are often in a more marginalized and vulnerable position, resulting in disproportionate health outcomes, gender also has a significant effect on men’s health (WHO, 2019).

### **6.3.1 The effect of gender roles and norms on men's health**

Worldwide, men's life expectancy remains lower than that of women, and in PNG, these are 62 years for men and for women 64 years (United Nation, 2018; World Bank, 2018e). Key factors contributing to this include poor health-seeking behaviours of men compared to women, resulting from interplay of factors relating to masculinity that drive men to ignore health issues. In PNG, this poor health seeking behaviour is manifested in lower rates of utilization of disease screening facilities such as simple blood pressure, body mass index test, STIs and HIV checks (WHO, 2014b).

## 6.4 Barriers to greater involvement

### 6.4.1 Individual perspective: Unrealistic expectation of the treatment

Unrealistic expectation of the treatment encompassed features of individual and organisational elements. Participants perceived that medicine would cure once. Men were acutely unaware of the importance of completing the prescribed prophylaxis and going back for their review. This resonates with a study from various geographical locations in Western Australia with 37 Aboriginal people who believed that when their medicine was completed, they had been cured and would live a normal life, and did not go for review (Shahid et al., 2009).

The perceived loss of masculinity associated with being a patient had a significant bearing on the way men accessed health care. In a mixed method study in PNG with 208 participants (147 women and 61 men) men believed that cervical cancer was an issue for women and that PCa was men's business. In the PNG context open discussions are taboos (Kelly-Hanku et al., 2018). The same mixed method study conducted in PNG from three provinces with 61 men provides more evidence of PNG men's sense of losing their male identity (Kelly-Hanku et al., 2018). This resonates with a qualitative study conducted in the United States of America with 16 PCa survivors expressing loss of male identity (Arrington, 2003).

Being silent in the face of adversity was found in two different qualitative studies that were conducted in the UK with men who were newly diagnosed with PCa (Bailey Jr et al., 2007; Kelly, 2009). In Sweden an exploratory study using quantitative methodology with 10 men also highlighted these findings (Klaeson et al., 2012); as does another in the UK by Rivas et al. (2016a).

The lack of culturally appropriate services has been found in a study conducted in the United States of America with 95 men (60 Latinos and 35 African American) (Maliski et al., 2008); and also by Shahid et al. (2009). Men's experiences of the physical examination also have been found to upset their masculine identity and make it hard for them to accept what is not considered normal for them (Maliski et al., 2008). Cecil et al. (2010) stated that support services for men had to be gender sensitive and account for masculine values, address men's concerns and foster positive coping strategies. In a qualitative study of 16 men in United States of America it was stressed that conversations about sex have to be appropriately tailored to avoid apparent clashes between the values of sex and health. It has also been pointed out that sex education has to be culturally appropriate and use the kind of language men are acquainted with and avoid using medical jargon because that may undermine them (Arrington, 2003). Similar findings come from (Shahid et al., 2009) and Heron (Heron, 2001).

#### **6.4.2 Interpersonal Interaction: Long waits, poor communication and poor service delivery**

The second theme, long waits, poor communication and poor service delivery features the elements of organisation and community environment. Any service delivery for better outcomes has to be delivered in a holistic approach towards men's experience of living with PCa in the context of PNG.

According to Shahid et al. (2009) the recommendations expressed by Aboriginal people about cultural, social and biomedical strategies were in terms of dissemination of health education and information sharing in a respectful manner. Another study in the United States with 60 Latinos and 35 African Americans highlighted the importance of having effective communication and clinical service delivery to meet patients' needs during the uncertainty of living with PCa (Bailey Jr et al., 2007).

#### **6.4.3 Interpersonal Interaction to social context: Self stigma and denial**

The third theme relates to interpersonal interactions and is rooted in the societal and cultural context of PNG. Stereotypical views of men equate masculinity with independence (Arrington, 2003). Men are perceived to be dominant, forceful, somewhat violent fighters, known as breadwinners and “sturdy oaks”, “self-contained, self-sufficient pillars of strength who should not appear weak or reliant on others” or either expresses doubt or fears (Wood, 2001, p. 249; 2012). The effect of notions of masculinity on health and social identity also featured in another study on men, who, it was found, tended not to disclose information about their illness and “their sexual problems and having to shift their conceptualisation of masculinity to sustain their self and social identities” (Rivas et al., 2016a, p. 1147).

The notion of men’s self-stigma and denial are succinctly summed up by valuing sexuality and ‘bragging rights’ as part of men’s identity (Rivas et al., 2016). This is well articulated with the following words “the stigmatisation of [prostate] cancer, magnified masculinity issues, and a community-facing culture conspired to silence the men” and is all to do with the societal expectation of what man should be (Rivas et al., p. 1151). The findings in the study resonate with the findings from the research being reported here.

#### **6.4.4 Individual perspective: Being a man**

The fourth theme, stoicism of PNG men, is a strongly held view fabricated into PNG society. The theme in relation to the socio-ecological model cuts across the five elements or fits well into individual perspective, interpersonal, organisation, community environment and society or societal conditions. It has to be acknowledged that men react and relate differently to women about health and illness. Women in general are more likely to take up health care compared to men (Cecil et al., 2010).

Some of the underlying factors that men were not able to disclose as cited by Cecil et al. (2010, p. 507) and Moynihan (2001, p. 25) as a man living with cancer may involve 'disrupted relationships, infertility problems,...and a personal identity crisis'. A study by Arrington (2003) points out that "culture defines masculine sexuality in terms of the ability to engage in penile-vaginal intercourse to fulfil conjugal duties, the ability to procreate, sexual power and potency" and is every man's business everywhere, and defines the male role (p.47). When they develop PCa, men are renegotiating their socio and sexual identity as they have never had to before, and it is a hard thing to do as man (Maliski et al., 2008). Stoicism has been a male defence mechanism of enduring pain or hardship without displaying any kind of feelings and without complaint. Stoicism is a way man can endure any circumstances in life including illness (Arrington, 2003, p. 49). To counteract such stoicism, interventions must be available to men.

#### **6.4.5 Interpersonal Interaction: Belief Systems**

The fifth theme, superstitious beliefs and treatment in the socio-ecological framework, falls under the following factors: individual, interpersonal, organisation (church or faith) and community factors (belief system and treatment).

Shahid has claimed that men should be able to participate in their own care as indigenous people (Shahid et al., 2009), allowing time for decisions to be made regarding the type of treatment and procedures that will take (Arrington, 2003). Not everyone attributes disease to biological processes; some cultures understand causation based in tradition and superstition (Shahid et al., 2009, p. 9). In one study, men had "considered that God gave them cancer as a test or allowed them to survive, precisely so they would set new priorities in life to fulfil their purpose", in educating others about the illness and experience of living with the disease (Rivas et al., 2016a, p. 1151).

#### 6.4.6 Interpersonal Interaction: Local and contemporary treatment

The final theme, use of folk treatment, has been a practice over many years and is passed down from generation to generation for healing or cure of illness and pain or discomfort. Men have resorted to using folk treatments with the use of “salat” medicinal leaf for relieving pain and in some instances, using hot compression and conventional medicine “Panadol” bought from pharmacies. A study done in Australia with the Aboriginal community of Western Australia resonates with the research reported here, with the use of tradition or bush medicine and traditional Aboriginal healing practices. The majority used bush medicine either sequentially or concurrently with western medicines (Shahid et al., 2009).

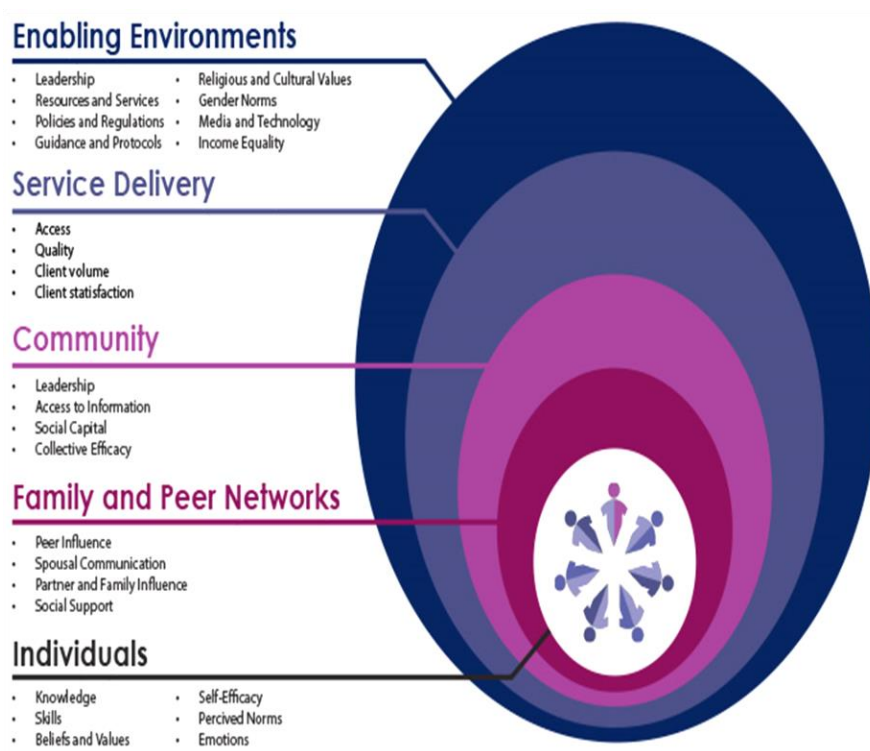
#### 6.4.7 Summary

In summary, the themes that emerge are interlinkages of socio-cultural and sexual health that impede men from full engagement with health care services. Men were acutely unaware that they had sexual and reproductive rights regarding the prevention and management of cancers of the reproductive system including PCa (Starrs et al., 2018). Further, male participation is arguably low in terms of promoting positive attitudes and behaviours, also hindered by limited sexual and reproductive services being available for men, and those that are mainly concentrate on STIs and HIV/AIDS (Government of Papua New Guinea, 2014). “Communities are not well informed about matters concerning men’s health and thus cannot take ownership of decision-making process” (Government of Papua New Guinea, 2014, p. 10).

The social-ecological model, shown in figure 6.1 provides a framework for understanding the many factors that may or may not influence greater involvement as individuals. Those factors may act as either enablers or barriers influencing decision making, underpinned by other elements embedded within an individual in the socio-ecological model—role, education, gender, health beliefs and health behaviour to name a few (see Appendix Q).

The enablers in figure 6.1 highlight the strategic importance of re-orientating sexual and reproductive health services to influence change in relation to those domains as indicated in the Gender Socio-Ecological Model from individual, family and peer networks, community, service delivery and having enabling environments.

Gender, in terms of masculinity has been a barrier as viewed in the literature and also from the study conducted on the experience of men in PNG. Therefore, every effort has to be taken to provide an enabling environment for men for greater involvement in health care delivery or services. The medium through which this notion could be advanced in the health sector is through medical education, gender equality and empowerment, allowing men's issues to be comprehensively discussed and integrated for population and health advancement (Starrs et al, 2018).



**Figure 6. 1 Gender Socio-Ecological Model**

**Source:** SBCC and gender Implementation kit (2017). "Socio Ecological Model."

Retrieved 18.11.2018, from <https://sbccimplementationkits.org/gender/sbcc-gender-models-and-frameworks/>.

## 6.5 Strengths of Study

The study reflected on biological, psychological and social viewpoints that are rarely discussed in PNG. This unique, in depth and complex study explored the issues by eliciting the views of men age 30 to 50 years who were living with untreated PCa in the peri-urban areas of Port Moresby, PNG.

The findings from the study have the potential to provide policymakers with ideas on how to advance men's engagement in that age group, especially, the male population living in urban and rural PNG.

## **6.6 Limitations of Study**

The features this study did not capture were the socio-economic status of the men and use of information technology with gadgets such as mobile phones, tablets and access to Facebook. Furthermore, no rural men were sampled in the study

## **6.7 Implications for health service delivery**

In the PNG Vision 2050 policy document, health is one of the core sectors targeted, with better health translating to having a wise and a healthy nation (Government of Papua New Guinea, 2011d).

### **6.7.1 Male health workers**

To have male health workers in central or densely populated localities would be a way forward to address health issues that have been a challenge in the health sector in PNG. This approach would enable men to become active partners and provide them with time and space and for free open dialogue regarding their health (Abane, 2004). Another viable option that has been used in addressing men's issues or challenges in low resource countries would be a 'Men as Partners Program' (MAP approach), providing social or community-based programs with men reaching out to men to talk or discuss issues relating to them (Peacock & Levack, 2004).

### **6.7.2 Men's support groups**

This could take the form of an alliance of men in a group (in PNG forming a group 'man helvim man' men helping men) to support each other and find solace in discussing any issues pertaining to men and their well-being (Peacock & Levack, 2004).

In the PNG context this would resemble the 'haus man, spirit house' where men meet to discuss and plan for important occasions such as tribal wars, hunting, fishing and initiation ceremonies. The discussion is usually based on participation, consultation and consensus resulting in common good (May, 2013).

### **6.7.3 Men in family health services**

In family health services, male colleagues have to be part of the front-line managers, allowing them to be implementers in influencing policy concerning men's health. Men's voices have to be heard, and family health services not only centred on women and children. Men's only health services would be a 'pilot concept' within the health sector in the PNG context, to specifically address men's health problems. There could be a one-stop-shop to discuss their health problems and other social issues.

## **6.8 Implication for Medical Education**

Medical education in the 21<sup>st</sup> century in PNG must tailor learning towards gender sensitivity and communication that were not common in the 19<sup>th</sup> and 20<sup>th</sup> century for the medical professionals in the school of Health Sciences, Public Health and School of Medicine. This applies to doctors, health extension officers and nurses.

### **6.8.1 Undergraduate health professionals**

Undergraduate health professionals would acquire basic knowledge on the aetiology of different diseases and treatment regimes, gender sensitivity and communication skills and medical interventions either invasive (physical action taken to examine) or non-invasive (use of instruments such as scanners and x-ray).

### **6.8.2 Postgraduate in community health and cancer treatment**

The postgraduate professionals in medical education would undertake advanced learning modules that enable them to deal with issues when they happen, using knowledge and skills acquired through research that helps inform policy or change in health delivery and care required in urban and rural PNG.

## **6.9 Implications for policy**

Policy is the vehicle of moving change required in any service delivery that has to be revamped to address issues that matter the most, and appropriate action to situation never given much thought to before (Hughes & Calder, 2007).

The case that was of specific interest relating to the study undertaken was on men's health, specifically PCa and issues that were identified that needed to be addressed collectively through clauses in the existing policy documents of the PNG government, especially Ministry of Health on sensitivity to gender, mode of communication, monitoring and reporting (see Table 2.4 and 2.6).

#### **6.9.1 Long term follow-up**

Long term follow-up in any health condition comes with a cost and therefore effective programs have to be devised that meet the needs of the local community. Men's Hotlines with a tag 'man helvim man' to address health issues using a mobile phone have been used as part of a medical intervention (Watson, 2012). The use of a telemedicine men's hotline within the health sector in a public or private institution available at all times of day or night would be a bonus to men's health (see Table 2.6).

#### **6.9.2 Mobile application**

Mobile phones have become widely used in Papua New Guinea. Since 2007 mobile phone coverage has extended to towns and rural areas of PNG (Watson, 2012), and this would set a very good platform to provide information in simple English, Tok Pisin or Motu for men. According to Watson (2012) health is the largest sector with an interest in 'Men's Health'.

### **6.10 Health Education: health literacy, education and awareness**

Health literacy materials should be appropriate for, and ideally matched to, the educational and reading levels of particular target audiences and be compatible with their ethnic and cultural backgrounds (*Glanz, Rimer, & Viswanath, 2008, p. 15*).

Health literacy, education and awareness must be a key driver to ensure change in PNG. Agencies such as the Ministry of Health and Community Development and Non-Government Organisations including International Humanitarian agencies and donor agencies could pool resources to achieve the goal - Men's Health.

### **6.10.1 Greater involvement and participation of men – Family Health Services**

Greater involvement of men in family health services and other sexual health programs would be paramount in accelerating progress in sexual and reproductive health including rights for all (Starrs et al., 2018).

The involvement of men has to be centred on the “three Ps” as stipulated in the treaty of Waitangi and these are; partnership, participation and protection (Hayward & Wheen, 2016; School News-New Zealand, October, 25 2018). In local or indigenous culture, the three Ps have a greater value in the socio-cultural context when that is upheld and recognised by service providers or clinicians. In the PNG context this can be applied through ensuring participation, consultation and reaching consensus (May, 2013).

## **6.11 Informative intervention**

### **6.11.1 Male Biology**

Men need to understand the biological changes that may occur in their body when they become ill, and this would be a crucial step to provide effective healthcare for men and boys (C. Lee & Owens, 2002)., reiterated by Smith, Braunack-Mayer, and Wittert (2006).

### **6.11.2 Confronting Meaning**

Health care professionals or clinicians must explicitly acknowledge that stoicism by men should be accounted for in health care planning (Glanz et al., 2008; Resnicow et al., 2002). Efforts that fail to consider self-stigma and denial; stoicism and superstitious belief may lead to worse outcomes for men and exacerbate disparities in relation to men’s health (GAMH, 2018; Glanz et al., 2008; Resnicow et al., 2002).

### **6.11.3 Friendlier/ Men-friendly health services**

Men (and boys) need to be aware of where they can obtain health or social services they need and be both able and willing to do so when needed. Greater community participation in the health services is needed by different groups in the community (GAMH, 2018; Glanz et al., 2008; Resnicow et al., 2002).

#### **6.11.4 Men's only health services**

The notion of 'man being a man' is a struggle. Men do want to seek help and will engage in treatment (Starrs et al., 2018) if they are given the type of help tailored to their needs. It takes a great effort to get a man to seek help, it makes sense we expend as much time ensuring they get something they want (Heron, 2001). Such an action-orientated approach would minimise self-stigmatisation as a persistent barrier to health service uptake by men (Starrs et al., 2018). In addition to considering how gender roles and norms in a cultural societal view affect men's health, it is also important to consider the role of language and how men are perceived by different actors. The actions and discourse of health service providers, managers, policy makers, and researchers, for example, can negatively affect men. Because we often fall into the trap of talking about women as victims who are acted upon, and men as agents who act, we often fail to recognize that the social forces that expose women to health risks (patriarchal gender norms that limit the possibilities for women's agency) act equally on men, and equally constrain their choices. Even when the effect on these forces on men is recognized, the discourse fails to reflect it (Starrs et al., 2018).

#### **6.12 Concluding Statement**

This study explored the perception of men aged 30 to 50 through elicitation about their experience of living with untreated PCa in Port Moresby, PNG.

The six themes identified from the participant's interview were: unrealistic expectation on treatment, long wait, poor communication, poor service delivery, lived experience versus bio-medical expectations, men's self-stigma and denial, the stoicism of PNG men, superstitious beliefs about cancer and the use of folk treatments.

It is not an easy task to improve men's health, especially dealing with local norms that have been the fabric of the society for years, passed down from one generation to the next. The study identified issues specifically to PNG men but on the broader scale were representative of men worldwide. The experiences from this study show the barriers that prevent men's greater involvement in healthcare, and help identify the enablers as options for action by policymakers: health education, health literacy and awareness, greater involvement and participation of man in family health services, friendly health services and men's only health services.

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## Glossary

AIDS: Acquired Immuno Disease Syndrome

AUTEC: Auckland University of Technology

GAHM: Global Action on Men's Health

HIV: Human Immuno Virus

ILO: International Labour Organisation

MRAC: Medical Research Advisory Committee

MTDP: Medium Term Development Plan

n.d: No Date

NZAID: New Zealand AID

NHP: National Health Plan

NHSS: National Health Service Standards

PNG: Papua New Guinea

WHO: World Health Organisation

PSA: Protein Specific Antigen

SDGs: Sustainable Development Goals

Salat: Medicinal leaf

STI: Sexual Transmitted Infection

TPA: Tourism Promotion Authority

UNESCO: United Nation Educational, Scientific and Cultural Organization

## Appendix A: AUTECH Approval Letter

The AUTECH logo is located in the top right corner of the page. It consists of the word "AUTECH" in a white, sans-serif font, set against a black rectangular background. The background of the entire page header features a teal and blue geometric pattern of triangles.

9 May 2018

Jed Montayre  
Faculty of Health and Environmental Sciences

Dear Jed

Re Ethics Application: **18/132 Men's experiences living with untreated PCa in Papua New Guinea**

Thank you for providing evidence as requested, which satisfies the points raised by the Auckland University of Technology Ethics Committee (AUTECH).

Your ethics application has been approved for three years until 9 May 2021.

### Non-Standard Conditions of Approval

1. Inclusion of AUTECH contact in the pidgin version of the Information Sheet;
2. Removal of the reference to house-based interviews in the privacy section of the Information Sheet.

Non-standard conditions must be completed before commencing your study. Non-standard conditions do not need to be submitted to or reviewed by AUTECH before commencing your study.

### Standard Conditions of Approval

1. A progress report is due annually on the anniversary of the approval date, using form EA2, which is available online through <http://www.aut.ac.nz/researchethics>.
2. A final report is due at the expiration of the approval period, or, upon completion of project, using form EA3, which is available online through <http://www.aut.ac.nz/researchethics>.
3. Any amendments to the project must be approved by AUTECH prior to being implemented. Amendments can be requested using the EA2 form: <http://www.aut.ac.nz/researchethics>.
4. Any serious or unexpected adverse events must be reported to AUTECH Secretariat as a matter of priority.
5. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the AUTECH Secretariat as a matter of priority.

Please quote the application number and title on all future correspondence related to this project.

AUTECH grants ethical approval only. If you require management approval for access for your research from another institution or organisation, then you are responsible for obtaining it. If the research is undertaken outside New Zealand, you need to meet all locality legal and ethical obligations and requirements. You are reminded that it is your responsibility to ensure that the spelling and grammar of documents being provided to participants or external organisations is of a high standard.

For any enquiries, please contact [ethics@aut.ac.nz](mailto:ethics@aut.ac.nz)

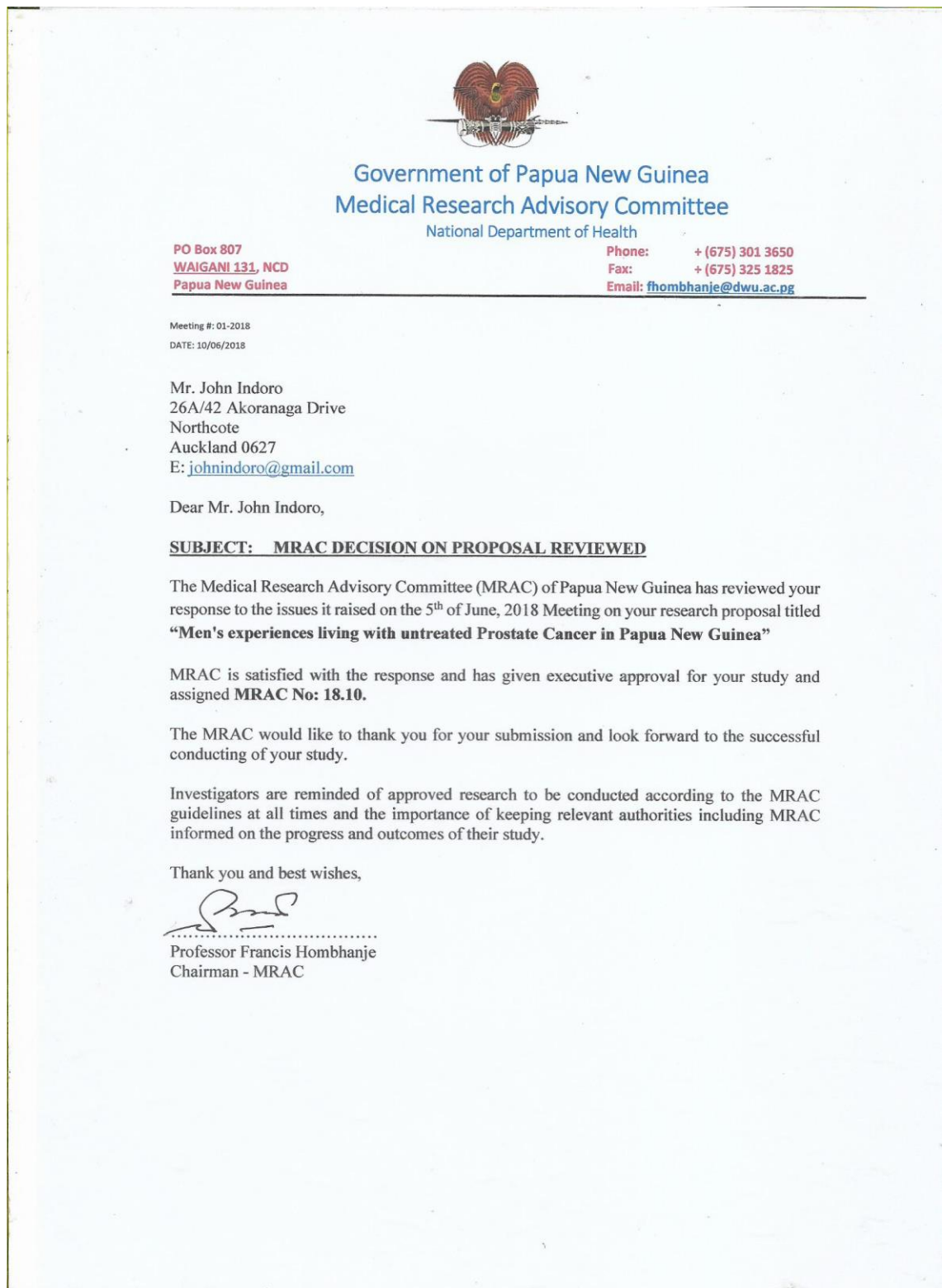
Yours sincerely,

A handwritten signature in black ink, appearing to read "Kate O'Connor", is positioned above the printed name and title.

Kate O'Connor  
Executive Manager  
**Auckland University of Technology Ethics Committee**

Cc: [johnnindoro@gmail.com](mailto:johnnindoro@gmail.com); [fvn8906@autuni.ac.nz](mailto:fvn8906@autuni.ac.nz); Eleanor Holroyd

## Appendix B: MRAC Approval Letter



## Appendix C: Participation Information Sheet (PSI) – English Version



### Participant Information Sheet

Date Information Sheet Produced: 28/02/2018

#### Project Title:

Experience of men living with untreated PCa in Papuan New Guinea.

#### An Invitation:

Hello! I am John Indoro and I am doing my research towards achieving my postgraduate degree at Auckland University of Technology in New Zealand. You are cordially invited to take part in a research project exploring how men in PNG perceive having to live with PCa. Your participation in this project is entirely voluntary (your choice). You can choose to withdraw at any time, and this will not affect your future health services in any way.

#### What is the purpose of this research?

The expected ultimate long term outcome is threefold (1) Participant: Aim at reducing late stage admission on PCa and increase health seeking behavior such as going for medical advice or medical check early and provide voice for the unheard or marginalized (example, giving voice to men who live with PCa in Papua New Guinea); (2) Researcher: Academic achievement towards Master of Health Sciences at AUT and (3) Community: Aim to reduce late stage admission on PCa that can prevent death; save cost and time for family and government (where there is no time wastes and financial burden on family and government).

The research primary aim is to explore PNG men's experience of living with untreated PCa between the ages of 30 – 50 years living in Port Moresby. This will be a cultural context meeting with men. In PNG, socialising and getting to know the participants sets an important scene for effective communication and participation and therefore coffee shop in Port Moresby will be use in introducing the research topic of interest. If the participants agree to be part of the study, then a we would schedule a date, time and place for the meeting. This is when the information from the participant information sheet will be shared verbal for them. Knowing well that men in PNG do not talk openly about their sexuality and maleness openly or in public and before inviting the participants to be part of the study. Each of the participants will be invited to a place they feel comfortable for discussion about their willingness, timing and place of conducting interview that will be free of noise, is not crowded and no family pressure as it will have done in isolation away from home.

#### **How was I identified and why am I being invited to participate in this research?**

You responded to my advertisement on radio, television, church meeting/service or the notice placed in health facility looking for men with untreated PCa. The initial contacting of you as a potential participant was done through having flyers and invitational notices place on the public notice board in each health facility for public who may be interested, including use of radio, television and churches using the invitational notice and flyers in Pidgin version.

#### **How do I agree to participate in this research?**

When we first talk, and I have given you information on the study, you agree then or think and I will call back in 1 or 2 weeks to confirm your participation. Your participation in this research is voluntary (it is your choice) and whether you choose to participate will neither advantage nor disadvantage you. You can withdraw from the study at any time. If you choose to withdraw from the study, then you will be offered the choice between having any data that is identifiable as belonging to you removed or allowing it to continue to be used. However, once the findings have been produced, removal of your data may not be possible.

#### **What will happen in this research?**

First I will introduce myself and this research and invite you participate, giving you information and answering any questions you may have. If you agree to participate, I will record your consent, and then arrange to interview you about your experience with PCa.

The information we get from you as participants and the results of this study will be used to describe the process of decision making about seeking early medical help and being able to talk openly about having PCa and any other health issues affecting men with PCa. The report of the findings will be written up as the dissertation for my master's Degree. We would also hope to publish the group results of the study in a relevant health journal and at conferences or seminars. You will not be identified individually as a participant in the study in any of the reports.

**The response will be audio recorded, and then be transcribed by me. Participants' checking will be done through two options:**

Option A: For participants who have time to agree meeting in person.

- Researcher will contact the participants and ask whether they have time to meet face-to-face for checking the transcriptions and listening again the audio recorder.
- Should participant have time and agree to meet, then a meeting will be organised in a private, not noisy and not crowded place.

Option B: For participants who do not wish to meet face to face because they are busy or traveling outside Port Moresby.

- Researcher will send the transcribed version and the audio record or arrange another skype call/WhatsApp call then read through the transcription and in the same time listening to audio record.

During this process [either Option A or B], researcher will explain the purpose of this participants member checking as well as mention that participants are free and have the right to interrupt, add or making new comments, as well as delete any information that not suit them.

Upon the completion of the transcription of the interviews, a copy through verbal disclosure will be used to see if they agree (member checking) with the transcription. This is done to check for any discrepancy or inconsistencies relating to the transcription.

### **What are the discomforts and risks?**

Because this is your private issue where you are sharing your personal lived experience a difficult topic, there is a possibility that you may feel uncomfortable talking about your experiences during the interview. You can choose not to talk about subjects that you find distressing or withdraw from the interview and/or the study at any time. In addition, if you would like it, referral can be made to a counsellor (Life-line PNG) to discuss any concerns following the interview.

### **How will these discomforts and risks be alleviated?**

No huge discomfort or risk is anticipated in this research project, however when that does occur to any participants ask them to stop and continue later or withdraw and be referred to Life Line PNG counselling centre at Waigani, Port Moresby will be free of charge (FOC) as it is in accordance with PNG government's 'health free policy'.

The services deal with physiological, psychological and social aspect relating to stress can be arranged and referred for expert help.

- Nearest health clinic that provide psychological and mental health support services will be identified.
- The telephone numbers of the identified clinic will be kept and used should any of the participants required the services.

### **What are the benefits?**

There are no immediate benefits to you for taking part in this study. However, you will be contributing to information that could provide better services for men in PNG living with PCa to be open about their condition and not to shy away in the future. For me as a researcher it will go towards my academic achievement to obtain master's degree. In addition, some people find that being interviewed about what they have been through is an enjoyable and/or interesting experience.

### **How will my privacy be protected?**

Having confirmed about the participation in the research, the researcher will invite the participant to have a courtesy meeting in a coffee shop. As part of my ethnographic approach, it is a costume/ culture in PNG to offer drink and light snack when meeting a new person in order to build relationship and trust. During this meeting, the researcher and participant will agree to meet on a private place where it is not crowded and noisy; as well as agree on a time that suits both.

The interviews will be face-to-face conducted in Port Moresby at the homes or private office space where it is not crowded and noisy and where they feel comfortable to have an interview conducted in each suburb. The interview will be a verbal interview for 60 minutes for each participant.

Participant's privacy and confidentiality will be maintained throughout the research project without any disclosure of participant information through anonymization. Anonymization of data means processing it with the aim of irreversibly preventing the identification of the individual to whom it relates. Data can be considered anonymised when it does not allow identification of the individuals to whom it relates, and it is not possible that any individual could be identified from the data by any further processing of that data or by processing it together with other information which is available or likely to be available. Example, use of black outing some values such as local area or post code, and name. The study is sensitive to the local context and therefore as a researcher every information collected is to be protected and will be used for the intended purpose only.

### **What are the costs of participating in this research?**

No cost, however, if any it will be contribution towards the costs incurred.

What opportunity do I have to consider this invitation?

The participants are allowed at least one to two weeks to response before the beginning of the interview.

### **Will I receive feedback on the results of this research?**

A digital audio of an oral presentation of research summary will be provided to each participant and they will not be part of the organised seminar. The distribution of the digitalized seminar in a memory stick will be distributed to the participants after actual presentation in a public seminar arranged through PNG Cancer Foundation—as a medium of driving public awareness on cancer in PNG.

### **What do I do if I have concerns about this research?**

Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor,

Dr. Jed Montayre, jed.montayre@aut.ac.nz, and a work phone +64 9219999 (Ext: 6056).

Concerns regarding the conduct of the research should be notified to the Executive Secretary of AUTECH, Kate O'Connor, *ethics@aut.ac.nz*, 921 9999 ext 6038.

### **Whom do I contact for further information about this research?**

Please keep this Information Sheet and a copy of the Consent Form for your future reference. You are also able to contact the research team as follows:

Professor Eleanor Holroyd, eleanor.holroyd@aut.ac.nz and a work phone +64 9219999 (Ext: 6056).

### **Researcher Contact Details:**

John Indoro, e-mail: johnindoro@gmail.com Mobile: +640226716270.

### **Project Supervisor Contact Details:**

Dr. Jed Montayre, jed.montayre@aut.ac.nz, and a work phone +64 9219999 (Ext: 6056).

Approved by the Auckland University of Technology Ethics Committee on 9 May 2018, AUTECH Reference number 18/132.

## Appendix D: Participation Information Sheet (PSI) – Pidgin Version



**Pepa blon:** Tok Olrait fom: Toksave or tingting blon wok painim aut

**Dei blon kamapim toksave**

28/02/2018

**Ass tingting blon wok painim aut**

Painim tingting blon Papua Nuigini man husait isave les lon go kisim helvim or marasin lon sik prostat kensa.

**Toksav mi husait**

Halo! Nem blon mi John Indoro na mi laik mekim wok painim aut lon skul wok blon mi lon kisim pepa blon bikpla skul lon Auklan Univesti blon Teknologi insait lon Nui Zealan. Mipla askim yu sapos yu gat laik lon kamap wanpla ol man insait lon PNG husait mipla ken kisim tingting blon yu lon sik prostat blon man. Mipla laik tosav tu olsem em laik blon yu yet; mipla ino nap tokim yu olsem yu mas stap na pinisim olgeta wok painim aut. Sapos yu laik lusim em mipla ino nap stopim yu na em laik blon yu yet. Nogat tambu lon displa.

**Wanem ass tingting blon displa wok painim aut?**

Bikpla ass tingting blon wok painim aut:

Ol lain bai stap insait lon displa wok painim:

- Ass tingting blon displa wok painim aut em lon helvim mipla long save blon wanem ol man ino save go lon kisim na askim helvim na tu ol ino save tok aut stret taim ol igat displa sik.
- Mipla ting olsem displa wok painim aut inap lon helvim mipla lon save gut blon wanem ol man wok lon mekim olsem na ino save go kik lon ksim helvim lon sik prostat kensa.

**Man, igo pas lon wok painim aut:**

- Displa wok painim aut bai helvim mi lo save moa lon sik prostat kensa skul na wok blon mi. Na tu em lon kisim bikpla pepa blon skull on AUT masta lon skul blon helt sains na lon wok blon mi bihaim lon pisin skul.

**Komuniti:**

- Ass tingting lon daunim pasin blon go lat lon hausik lon kisim helvim na marasin. Na tu lon daunim dai, helvim femili lon sait blon moni na ol narapla hatwok.
- Displa wok painim aut tu inap helvim lon kamapim gutpla helt polisi blon man insait lon Papua Niugini.

Bikpla ass tingting blon displa wok painin aut insait lon Papua Niugini lon pasin blon ol man husait igat sik prostat kensa lon krismas blon 30 igo lon 50 istap lon Pot Mosbi. Displa bung ol pasin tubuna blon mipla wantaim ol nuipla lain man. Mipla save gut olsem ol man lon PNG ino save tokaut lon pasin hait blon ol man na tu lon sik hait blon ol tu. Pastaim lon askim ol man lon stap insait lon displa wok painim aut. Mipla bai askim ol lon wanem hap ol pelim orait lon ol lon sindau na toktok wantaim ol. Displa hap mas nogat nois na nogat plenti lain man/meri stap lon em na tu ino lon haus wei femili stap lon em.

**Ating yu bai askim hau ol i kisim mi lon displa wok painim na wanem samting bai kamap lon displa wok painim aut?**

Mipla laik tokave lon yu olsem. Mipla i putim toksave lon pepa, rediou na televisin lon husait man igat sik prostat kensa istap lon kominiti blon mipla I wanbel lon stap istap lon displa wok painim aut.

Ol toktok mipla kisim lon displa wok painim aut bai helvim mipla lon kamapim sampla tinting blon yupla ol man lon displa sik prostat kensa na helvim yupla tu lon go kisim helvim kik lon hausik; na ino sam lon toktok lon sik prostat kensa na ol arapla sik wei save kamap lon ol man. Displa wok painim aut bai helvim mi tu lon raitim pepa blon skul lon kisim masta dikri. Mipla tingting tu olsem bai mipla putim displa wok painim aut lon ol bikpla save pepa na tokaut lon konferans na semina. Mipla laik toksave olsem mipla ino nap kolim nem blon yu insait lon displa wok painim aut.

**Ol toktok blon yu bai mipla rekotim na bihian bai mipla raitim na tu bai mipla sekim lon tuple rot:**

Numba 1: Lon ol lain igat taim lon sindaun wantaim na toktok.

- Man go pas bai kolim y una askim yu sapos yu gat tain lon sindaun wantaim lon sekim toktok na harim wanem mi raitim
- Yu wanbel long displa bai mipla painim hap blon sindaun na toktok wei nogat nois na plenti man/meri isatp lon em.

Numba 2: Lon ol lain wei ino laik lon sindaun na toktok blon wanem ol l besi na raun autsait lon Pot Mosbi.

Man go pas bai salim toktok lon telephone na redim toktok wei raitim na harim toktok wei rekotim lon em.

Lon displa taim [Numba 1 o 2] tingting blon wok painim aut. Mipla bai tokim yu lon as tingting blon sekim toktok mipla raitim na harim totok mipla rekotim. Na tu yu gat rait lon lusim sapos yu no laik na tu makin senis na rausim toktok raitim lon em o yu harim lon em ino kam stret lon tingting blon yu.

Bihain lon pinis blon dispal wok painim aut lon toktok. Mipla bai askim yu lon sekim olsem olgeta toktok raitim na rekotim em stret olsem yu tokim mipla lon em. Displa em mipla mekim lon luksave olsem wanem yu tokim mipla em stret na ino tingting blon mipla yet.

**Wanem samting bai kamap lon displa wok painim aut?**

Displa wok painim aut bai askim yu lon ol askim blon sik prostat kensa wei yu ino save toktok lon em bipo. Sapos yu laik stap insait lon displa wok apinim aut bai mipla askim yu lon kisim olsem wanpla o tuple awa blon yu lon askim ol dsipla askim. Na tu bai mipla rekotim stori blon yu na raitim sampla samting yu tokim lon displa wok painim aut.

### **Wanem sampla samting i ken kamap wei yu ino nap likim o yu ken painim birua?**

Mipla save olsem displa em wanpla bikpla samting lon laip blon yu. Olsem na mipla bai traim lon wok wantaim yu lon displa wok painim aut. Mipla save olsem bai yu ino nap pelim orait tumas lon toktok na tu em bai i ken mekim yu painim hat lon toktok. Sapos yu laik lusim mipla ino nap stopim laik blon yu.

### **Olsem wanem nau mipla i ken abrusim displa tingting blon ino laik lon toktok lon displa wok painim aut?**

Sapos yu ino laik lon toktok lon displa wok painim aut, yu ken lusim, em laik blon yu. Na tu sapos yu pelim olsem displa askim em hevi tumas na yu no wanbel mipla ken helvim yu lon go lukim ol kounsela lon kounselin sevis (Life-line PNG). Displa ol lain save helvim ol lain wei igat hevi lon pasin tingting wei istap lon sait blon gutpla sindaun.

- Bai mipla helvim yu lon go lon displa ol hap lon kisim helvim;
- Telefone numba blon ol displa hap blon kisim helvim istap na mipla bai helvim yu sapos yu laikim helvim.

### **Wanem gutpla samting lon displa wok painim aut?**

Mipla laik toksave olsem nogat wanpla bikpla samting bai kamap lon sait blon luksave pasin o makmak, tasol mipla gat stronpla tingting olsem wanem yu tokim lon displa wok painim aut bai helvim ol narapla man na tu mipla ting olsem em bai helvim yu yet tu lon helvim ol arapla man bekos displa wok painim aut em ken mekim yu stron. Na tu em bai helvim mi lon kisim skul papa blon mi (master's degree).

### **Olsem wanem bai mi no nap kamap ples kilia lon displa wok painim aut?**

Mipla laik toksave olsem. Olgeta stori yu givim em bai stap namel lon mipla na yu. Na tu yu ino nap kamap ples kilia insait lon displa wok painim aut lon sait blon mipla lon repot o bikpla save pepa. Olgeta toktok yu wokim em blon yumi yet na yu inonap kam ples klia taim mipla raitim displa pepa.

### **Wanem luksave istap insait lon displa wok painim aut taim mi stap wantaim yupla?**

Mipla laik tokim yu olsem; luksave pasin bai stap lon taim blon wok painim aut. Wei mipla bai lukautim yu lon toktok yu tokim na wanem samting mipla harim na raitim bai mipla olgeta taim sek wantaim yu olsem, em ol toktok blon yu yet nay u wanbel. Sapos yu laik stap insait lon displa wok painim aut bai yu givim olsem wan (1) o tu (2) awa taim blon yu. Man, i go pas lon displa wok painim aut bai bungim yu lon hap yu makim.

### **Wanem sampla gutpla samting mi ken kisim insait lon displa wok painim aut?**

Mipla askim yu. Sapos yu gat laik lon stap insait lon displa wok painim aut; mipla bai tok tenk yu lon yu wantaim pepa blon kisim kaikai lon stoa olsem pasin tenk yu lon taim blon yu.

### **Wanem rot istap lon mi kisim sampla toksave ken bihain lon displa wok painim aut askim?**

Yu gat olsem wanpla o tuple wik to toksave ken lon mipla bihain lon wok painim aut istat.

### **Bai mi kisim sampla toksave ken bihain lon displa wok painim aut?**

Yu ken tok lon kisim sampla toksave lon displa wok painim aut. Taim displa toksave em redi, yu ken askim mipla lon salim kam lon yu lon wanpla pepa kopi wei igat piksa o bai rekotim na salim kam lon yu lon harim na lukim. Yu bai kisim olgeta displa toksave blon displa wok painim aut.

### **Bai mi mekim wanem sapos mi gat wari lon displa wok apinim aut?**

Sapos yu gat wari lon dispal work painim aut yu ken toksave lon hed lain blon mi, Nem na adres blon ol hed lain em:

Dokta. Jed Montayre [jed.montayre@aut.ac.nz](mailto:jed.montayre@aut.ac.nz) +64 9 921 9999 (Ext: 6056) or

Sapos yu gat wari lon displa wok painim aut yu ken toksave lon husait em i lukautim pepa wok blon skul lon wok painim aut lon Univesiti. Kate O'Connor, *ethics@aut.ac.nz*, 921 9999 ext 6038

**Husait ken bai mi askim sapos mi laik save moa lon displa wok apinim aut?**

Lukautim gut toksave pepa na pepa blon tok olriat lon istap insait lon displa wok painim aut. Na tu sapos yu laik save moa yu ken painim aut ken wantaim narapla het meri blon displa wok painim aut:

Profesa Eleanor Holroyd, *eleanor\_holroyd@aut.ac.nz* +64 9 921 9999 (Ext: 5298)

**Adres blon husait go pas lon displa wok painim aut:**

Nem na adres: John Indoro, *johnindoro@gmail.com* +640226716270

**Adres blon ol hed man lon wok painim aut:**

Nem blon hed man na adres.

Dr. Jed Montayre; *jed.montayre@aut.ac.nz* +64 9 9219999 (Ext: 6056)

Approved by the Auckland University of Technology Ethics Committee on 9 May 2018, AUTEK Reference number 18/132.

## Appendix E: Consent Form – English Version



### Consent Form (English Version)

For use when interviews are involved.

**Project title:** *Men's experience living with untreated cancer in Papua New Guinea*

**Project Supervisor:** *Dr. Jed Montayre*

**Researcher:** *John Indoro*

- ☐ I have heard and understood the information provided about this research project in the Information Sheet dated 16 May 2018.
- ☐ The interviews will be face-to-face conducted in Port Moresby at the homes or private office space where it is not crowded and noisy. The interview will be conducted where they feel comfortable in each of the suburb in Port Moresby. The interview will be a verbal interview for 60 minutes for each participant.
- ☐ I have had an opportunity to ask questions and to have them answered.
- ☐ I understand that notes will be taken during the interviews and that they will also be audio-taped and transcribed.
- ☐ I understand that taking part in this study is voluntary (my choice) and that I may withdraw from the study at any time without being disadvantaged in any way.
- ☐ I understand that if I withdraw from the study then I will be offered the choice between having any data that is identifiable as belonging to me removed or allowing it to continue to be used. However, once the findings have been produced, removal of my data may not be possible.
- ☐ I agree to take part in this research.
- ☐ I wish to receive a summary of the research findings (please tick one):  
Yes ☐ No ☐

Participants signature/Thumb print : .....

Participants Name : .....

Participants Contact Details (if appropriate) :

.....  
.....

Date :

**Approved by the Auckland University of Technology Ethics Committee on 9 May 2018, AUTEC Reference number 18/132.**

*Note: The Participant should retain a copy of this form.*

## Appendix E: Consent Form – Pidgin Version



### Tok Orait Fom (Pidgin Version: Consent Form)

**Projek titol:** *Painim tingting blon Papua Nuigini man husait isave les lon go kisim helvim or marasin lon sik prostat kensa.*

**Hed Man:** *Dokta Jed Montayre*

**Man, igo pas:** *John Indoro*

- ☐ Mi harim na klia lon ol toktok istap insait lon displa wok painim aut toksave pepa lon dei dei mun yia.
- ☐ Displa wok painim aut bai kamap lon Pot Mosbi we mipla bai sindau wantaim na toktok igo kam lon haus o wanpla ofis ples wei nogat plenti lain nae m ino gat nois. Displa wok painim aut bai kamap lon hap wei yu pelim ol olrait wantaim yu insait lon hap yu stap lon em. Displa wok painim aut bai kisim olsem wan awa blon yu.
- ☐ Mi bin igat taim lon askim ol askim na kisim bek ol ansa blon ol askim.
- ☐ Mi klia olsem bai ol i kisim toktok mi tokim na raitim lon pepa, bai ol rekotim na raitim gut ken bihain.
- ☐ Mi klia olsem mi stap insait lon displa wok painim aut lon laik blon mi yet na mi ken lusim sapos mi no laik, na tu bai nogat hevi lon mi taim mi lusim.
- ☐ Mi klia olsem sapos mi lusim displa wok painim aut bai ol askim mi lon tinting blon mi wantaim ol toktok mi bin givim lon sait blon displa wok painim aut lon rausim o lusim stap na ol i ken wok wantaim. Arapla samting em sapos yu no mekim wanpla toktok lon displa em bai hat lon rausim taim pepa wok em pinis na redi.
- ☐ Mi tok orait lon stap insait lon displa wok painim aut.
- ☐ Mi bai hamamas lon kisim repot blon displa wok painim aut (plis makim wanpla): Yes ☐ No ☐

Putim mak blon yu/mak blon bikpla finkar :

.....

Putim nem blon yu : .....

Putim adres blon yu (Sapos yu laik) :

.....

.....

.....

Dei :

**Approved by the Auckland University of Technology Ethics Committee on 9 May 2018, AUTEK Reference number 18/132.**



## Open Invitation to MAN age 30 to 50.

This is an open invitation request to all MAN between the age of 30 to 50 years in our suburb who have been affected by ill health of having to live with PCa and have not received any medical intervention.

Those interested in this study can contact me in person by phone on this cell number: 70262067 or leave your contact (Name, phone number/Section & Allotment Number) in the locked box provided with a health worker at the front desk.

Contact Person: **John Indoro**, Master's Student in Health Sciences, **Auckland University of Technology; AUCKLAND**, New Zealand.

Port Moresby Residential Area: Talai Settlement; Badili, Moresby South NCD.



## TOKSAVE: Lon ol MAN krismas blon ol 30

### igo lon 50.

Dispela TOKSAVE igo lon ol man krismas blon yupela i mak lon 30 igo lon 50 husait istap insait long komuniti blon yumi husait igat sik prostet kensa na ino kisim helivim or marasin lon hausik.

Husait yu laik stap insait long dispel wok painim aut iken kolim mi lon displa telefone numba: 70262067 o lusim nem, telefone numba/hap yu stap lon em insait lon box istap lon tebal blon wokman/meri blon hausik.

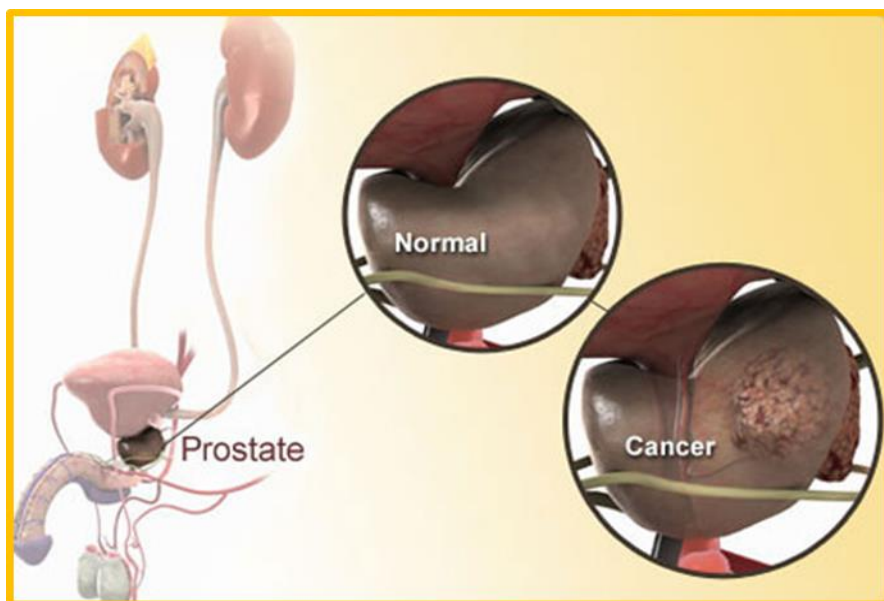
Man, yu ken toktok sapos yu laik save moa em: **John Indoro**, Mastas Sumatin – Skul blon Health Sciences, **Auckland University of Technology**; **AUCKLAND**, New Zealand.

## Appendix H: PCa Flyer – English Version

### PCa

**PCa** is the development of cancer cells in the prostate gland (a gland that produces fluid for semen). It is the most common cancer in men; some cancers grow very slowly while others are very aggressive and spread quickly to other organs. Prostate is a walnut shape organ lying behind the bladder. PCa is cancer that occurs in a man's prostate — a small walnut-shaped gland that produces the seminal fluid that nourishes and transports sperm. PCa is one of the most common types of cancer in men.

A common condition in men that is part of the normal aging process is benign prostatic hypertrophy (BPH or enlarged prostate). The urethra is a tube that passes through the prostate and drains the bladder. A man with an enlarged prostate (BPH) often has difficulty emptying the bladder because the urethra is being compressed by prostatic tissue.



Visual image of prostate gland in the Urinary System: Showing **normal prostate** and when it **becomes cancerous**.

#### Symptoms:

Symptoms of PCa are variable; some men have no symptoms until the cancer develops over years. However, symptoms that can develop include the following:

- Urinary frequency (visiting the wash room often to pee)
- Difficulty starting or stopping urination
- Interrupted or weak or slow urinary stream
- Blood in urine or in semen
- Discomfort (pain or burning sensation with urination or ejaculation)

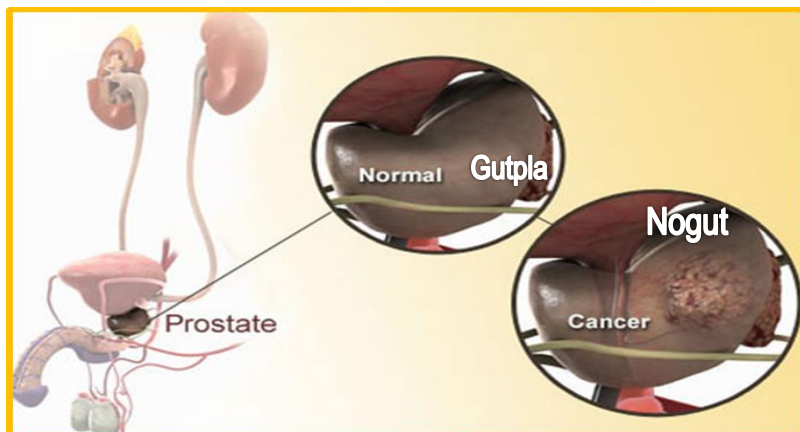
Intense pain in the lower back/hips, or thighs (National Cancer Institute, n.d; PCa Health Center, n.d.).

## Appendix I: PCa Flyer – Pidgin Version

### Prostat Kensa

Prostat kensa save kamap insait lon wanpela banis blong bodi wei save kamapim wara blon helvim lon kamapim pikinini lon man. Displa kensa em bikpla tru lon ol man; lon sampla man em save kamap isi-isi na lon ol narapla em save kamap hariap tru na ken kamap lon ol narapla hap lon bodi. Prostat em wanpla liklik hap blon bodi istap insait lon rot blon pispis na lukluk blon em wankain olsem sid blon bin wei stap beksait lon bilum blon pispis. Prostat kensa save kamap lon displa hap wei em luk olsem sid blon bin na em bikpla tru lon ol man.

Displa kensa em bikpla lon man na em save kamap taim man i save go lapun. Rop blon pispis save go tru lon displa hap bodi olsem sid blon bin taim man save pispis. Taim displa hap bodi olsem sid blon bin em solap man save painim hat lon pispis.



*Piksa makim displa hap bodi olsem bin sid insait lon rot blon pispis na tu em makim gutpla na nogut:  
**Gutpla** - taim nogat kensa na **Nogat** - taim kensa kamap.*

#### Mak:

Mak wei ken kamap na yu bai save olsem em prostat kensa na tu em bai ino inap wankain lon olgeta man; sampla bai igat ol displa mak na ol narapla bai nogat inap istap lonpla taim bihain na displa ol mak bai kamap. Ol displa mak em:

- Pispis klostu, klostu tumas
- Painim hat lon pispis na lon taim blon stopim pispis tu
- Ino inap lon pispis o pispis em kam isi-isi stret
- Blut insait lon pispis o wara blon helvim lon kamapim pikinini
- Pan lon taim blon pispis

Stronpla pan lon beksait, bikpla bon beksait lon ass o bikpla bon lon lek (National Cancer Institute, n.d; PCa Health Center, n.d.).

## Appendix J: Presentation Institutional Feedback – UPNG

### Q & A: Feedback from Presentation\_2018; University of PNG

**Date:** 15 August 2018

**Time:** 13:00 – 14: 00 Hrs.

**Venue:** University of Papua New Guinea – School of Public Health

**Topic:** Research Journey – *Men's experience of living with untreated PCa in PNG.*

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#### Summary on Q & A

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#### **Q1.** What was the main objective of the study?

To explore the experience of men living with untreated PCa in PNG; hard to reach population because of the sensitive of the study relating to cultural perspective.

#### **Q2.** Why did you choose the sample you have?

The sample chosen was from personal experiencing working in a clinical setting and from literature review that indicates this group of men age 30 – 50 years are becoming vulnerable to PCa and additionally, PNG men's life expectancy is 64. There were total of 12 men who were interviewed on the bases of first come first serve and are hard to reach due to specific health needs (Convenience sampling).

#### **Q3.** What was the inclusion criteria and why choosing this sample?

Inclusion criteria include semi-literate in this case refers to men who have completed grade 8 education or left school from grades one to eight or who have completed lower grade primary education residing in those suburbs. Participants will speak and read 'tok Pisin', the Papua New Guinea national or official language spoken by the primary researcher.

#### **Q4.** How did you confirm that those were participants who have gone to the hospital and have never gone again for treatment?

By advising them to bring their clinical or health record book when they come for an introductory conversation about the process involve relating to the research and if they are willing to be part of the research project when they give their consent.

## Appendix K: Presentation Institutional Feedback – AUT

**Q & A:** Feedback from Presentation\_2018; Auckland University of Technology

**Date:** 20 September 2018

**Time:** 15:00 – 16: 00 Hrs.

**Venue:** AUT – NZAID & ASEAN Scholars (Room: WU 524 – City Campus)

**Topic:** Research Journey – *Men’s experience of living with untreated PCa in PNG.*

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### Summary on Q & A

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**Q1.** Why was the sampling of man age 30 – 50?

The question relates again to what was asked in PNG by the public health students (**Q2.** Why did you choose the sample you have?)

The sample chosen was from personal experiencing working in a clinical setting and from literature review or studies indicates this group of men age 30 – 50 years are becoming vulnerable to PCa and additionally, PNG men’s life expectancy is 64. There were total of 12 men who were interviewed on the bases of first come first serve and are hard to reach due to specific health needs (Convenience sampling).

**Q2.** How is cancer rating in the past and present?

Increasing at steadily over that last 10 years (from 2002 -2012) according to GLOBOCON a WHO database for all forms of cancer globally.

**Q3.** Why was economic status not included in the demographic data?

Most men reside in peri-urban region of Port Moresby, capital city of PNG who have migrated or born to parents who migrated into Port Moresby and is regarded a sensitive issue because of the socio-economic status of those men and perhaps another study is required on socio-economic status, i.e., socio-economic status and PCa.



# SAMPLE: Interview Schedule (English)

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**Hello! What is your name, and can you tell me little bit about yourself? Thank you**

1. What are your experiences of living with untreated PCa? (Explore the experiences of men having to live with untreated PCa).
2. Is there any belief relating to you having PCa? (Exploring beliefs of men having to live with the condition).
3. What do you think is the cause of your sickness/condition?
4. What does have to live with PCa mean to you? (Explore and describe the beliefs and experiences of men living with this condition). (Explore and describe what it feels like to live with the condition)
5. How do you feel living with PCa? (Explore in-depth and describe the beliefs and experiences they have with the condition). (Explore and describe in-depth the experiences of men living with the condition)
6. What are your cultural beliefs about PCa? (Explore the cultural beliefs of men living with the condition)
7. What is stopping you from getting the support you need for your condition? (Explore and describe the behaviour of men seeking treatment for their condition)
8. What are your experiences with the professional attitude of health workers providing clinical services to you? (Explore men's experiences in relation to health workers' behaviour)
9. What is your assessment of the level of clinical services provided by the Department of Health to you? (Assess the level of assistance provided by the clinical services of the Health Department to assist patients with the condition).

**N.B** – Question 9 had to be omitted from participant 5 – 12.



### Wok Painim Aut Askim (Interview Schedule)

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Halo! Wanem nem blon yu na inap yu stori likilik lon yu yet? Tenk yu.

1. Wanem sampla samting yu inap tokim lon stap wantaim sik prostat kensa wei yu no kisim marasin? (Painim aut sampla samting ol man igat prostat kensa istap wantaim)
2. Wanem belif blon yu lon stap wantaim sik prostat kensa? (Painim aut and tok klia lon belif ol igat lon sik prostat kensa).
3. Wanem yu ting em mekim yu kisim displa sik? (Painim aut tintin blon ol lon displa sik prostat kensa)
4. Yu save pilim olsem wanem lon stap wantaim displa sik prostat kensa? (Painim aut tintin blon ol lon displa sik prostat kensa)
5. Olsem wanem taim yu yet save stap na skelim olsem yu stap wantaim sik prostat kensa?
6. Wanem ol pasim tubuna belif istap wantaim displa sik prostat kensa? (Painim aut pasim tubuna belif istap wantaim displa sik prostat kensa).
7. Wanem samtin stopim yu lon kisim helivim yu nap lon kisim wantaim displa sik prostat kensa?
8. Wanem sampla samting yu save painim lon pasin blon ol woklain lon hausik lon taim yu go lon kisim helvim? (Painim aut pasin blon ol woklain lon hausik)
9. Wanem sampla samting yu inap tokim mi lon taim yu go painim helivim lon hausik? (Painim aut and tok klia lon sampla samting yu inap tokim lon taim yu go painim helivim lon hausik).

## Appendix N: Literature Review – Reports on PCa - Statistics

### Patterns of burdens

#### Challenges in disease burden

- Difference geographically
- Difference in gender

#### Challenges in managing disease burden

- Poor reporting mechanism
- Poor health information and awareness

### Selection Criteria

#### Inclusion criteria

- Reports that are published by who and academic, peer-reviewed journals from 2000 to 2018
- Published in English and fully retrieval from online
- Reports are focused on other types of cancer including prostate.

#### Exclusion criteria

- Any reports published before year 1999
- Reports that involved socio-economic status (i.e., HDI)
- Any reports not in English (publication version)

## Literature Review – Reports

STUDY NO.	Author, Year, Country	Research Purpose	Methodology, Methods	Participants and Sample size	Major Findings
					Specific to PCa experience
1	Gulavita, Sinnott, Setliff, and Sellick (2000), Ontario, Canada	To identify initial expectation of man with PCa to assist with development package of patient information	Quantitative approach using survey	142 men, no older than 80 years	<ol style="list-style-type: none"> <li>1. Most men with PCa want a lot information as soon as they are diagnosed with the condition.</li> <li>2. Age and treatment received did not affect preference regarding information.</li> <li>3. Health professionals should be prepared to provide men with information about PCa early in their care.</li> </ol>
2	Grönberg (2003), Sweden	PCa epidemiology and knowledge about and prevention of the disease is important	Systemic review from Pub Med on articles (journal)	From the 1960s to 2002 with PCa, epidemiology, risk factors, diet, genetics and chemo-prevention	<ol style="list-style-type: none"> <li>1. Established risk factors for PCa; ethnic origin, age, family history, Insulin Growth Factor.</li> <li>2. Dietary intake high in calcium, fats and red meat increase the risk of PCa.</li> <li>3. Chemo-prevention trails using selenium and vitamin E.</li> </ol>
3	Plowden, John, Vasquez, and Kimani (2006), Baltimore, USA	To explore social factors influencing a decision to participate in PCa screening among urban African-American men	Qualitative study: using individual ethnographic interviews	<ul style="list-style-type: none"> <li>• 12 key informants and;</li> <li>• 24 general informants. From men age 40 and over (40 – 79 years)</li> </ul>	<ol style="list-style-type: none"> <li>1. Lack of information regarding screening as a health intervention</li> <li>2. Literacy level below sixth grade has contributed towards advance PCa</li> <li>3. Myth about African-American men as “hard to reach group”</li> <li>4. Any PCa strategies must be culturally appropriate; outreach activity should strive to create culturally appropriate environment that reduces barriers (participate in screening activities)</li> </ol>

4	Kilbridge et al. (2009), Boston, USA	To assess comprehension of common medical terms, use in PCa materials to obtain consent and measure outcomes after PCa treatment	Qualitative and Quantitative face-to-face interviews	<ul style="list-style-type: none"> <li>105 mostly African-American men;</li> <li>Age more than or less than 40 years from two low- income clinics</li> </ul>	<ol style="list-style-type: none"> <li>Limited comprehension of PCa terms</li> <li>Low literacy creates or becomes a barrier. Median literacy level for men finishing fourth to sixth grade.</li> </ol>
5	Parkin, Bray, Ferlay, and Pisani (2005), United Kingdom (UK)	Investigating change in the incidence of cancer over 16 years (1991 -2006) in Kampala, Uganda	Kampala Cancer Registry collected data from different sources and used CANREG system to extrapolate data	16,093 cases (f/8,826 and m/7,267) to inform or check for internal constituency between the variables (female, male and different cancers)	<ol style="list-style-type: none"> <li>In males over the period in terms of ASRs PCa has an increase of incidence rate of 4.5% annually on average</li> <li>In females most, frequent cancer over the period was cancer of the cervix uteri at 52.4 per 100 000</li> </ol>
6	Jedy-Agba et al. (2012), Nigeria	To unearth incidence of cancer including PCa in Nigeria from population-based cancer registries	Data analysis of two population-based cancer registry	From 2009 – 2010 in Ibadan and Abuja, Nigeria	<ol style="list-style-type: none"> <li>PCa was the overall the most common in both registries.</li> <li>Hypothetic assumption of Ibadan having the highest incident due to lower-socio-economic status.</li> </ol>
7	Parkin, Bray, Ferlay, and Jemal (2014) United Kingdom (UK)	To provide incidence rates of cancer in Africa using GLOBOCAN data (2012)	Systemic review of data on estimated burden of different common cancers	On the most recent GLOBOCAN estimates of incidence and mortality for 2012 that includes PCa	<ol style="list-style-type: none"> <li>PCa is the fourth common cancer diagnosed after lung, liver and bladder in North Africa and is the third common neoplasm overall both in Africa as a whole and in Sub-Saharan Africa.</li> <li>Risk in developing PCa before the age of 75 is 3.4% that is 1 in every 30 men.</li> </ol>
8	Jemal et al. (2012) USA	To provide incidence and mortality rates in Africa and opportunities for prevention	Systemic review of cancer registry – International Agency for Research on Cancer	Data from GLOBOCAN 2008	<ol style="list-style-type: none"> <li>Cancer has become a public health concern in Africa with 715,00 new cases and 542,000 deaths that has occurred in 2008.</li> <li>Cancers such as lung, breast, prostate are emerging in high frequencies unlike in the past and is due to changes with lifestyle (urbanisation and economic development)</li> <li>Limited health facility and expertise to carter for emerging cancers</li> </ol>

9	Morhason-Bello et al. (2013), South Africa	Investigative approach to understanding challenges and opportunities in cancer control in Africa	Systemic review of online database	Using extensive search on PubMed and Medline, African Journal Online and other policy related documents and reports in English	<ol style="list-style-type: none"> <li>1. The study covers all other cancers and its incidence rates; for PCa it is a leading in terms of incidences and cause of deaths.</li> <li>2. For deaths in West Africa is 6.6 - 11.6 per 100 000 population per year, East is 11.7 per 100 000 per year, South at 6.3 - 45.7 per 100 000 and in the North 3.3 per 100, 000.</li> <li>3. The study identified challenges that has to be addressing to strengthen cancer care in Sub-Saharan Africa on Cancer awareness, advocacy, strengthen health system, multi-discipline research and training and education.</li> </ol>
10	Ferlay et al. (2015)	To provide global estimates on incidences and mortality rates for 27 major cancers	Systemic review on International Agency for Research on Cancer (IARC)	Data on estimated burden of different common cancers on the most recent GLOBOCAN estimates of incidence and mortality for 2012 that includes PCa; from GLOBOCAN	<ol style="list-style-type: none"> <li>1. Providing brief description of key results by cancer site of the 20 larges 'areas 'of the world.</li> <li>2. New cases (14.1 million) and deaths (8.2 million) from 2012 statistics (data from IARC)</li> <li>3. Common cancers diagnosed as per IARC database; lung (1.82 million), breast (1.67 million), and colorectal (1.36 million).</li> <li>4. Common deaths from cancers; lung cancer (1.6 million deaths), liver cancer (745,000), and stomach cancer (723,000)</li> </ol>
11	Khazaei et al. (2016), Iran	To unravel whether there was a correlation between incidence, mortality and Human Development Index (HDI) parameters with PCa globally	Data extrapolation for PCa relating to incidence and mortality rates	From GLOBCAN projection of 2012 and HDI from World Bank database	<ol style="list-style-type: none"> <li>1. PCa is one of leading cause of death, especially in developed countries.</li> <li>2. Positive significant correlation detected between the incidence rates of PCa and the HDI and its dimensions including life expectancy at birth, education, income, urbanization level and obesity.</li> <li>3. Noted negative correlation between the standardized mortality rates and the life expectancy, income and HDI.</li> </ol>
12	Adeloye et al. (2016), USA	The study was conducted to investigate the incidence of PCa noting there is disproportion with African	A systemic review and meta-analysis	Were done on 9,766 with 40 studies spreading across African countries meeting the selection criteria	<ol style="list-style-type: none"> <li>1. Estimated pooled PCa incidence rate of 22.0 per 100 000 population and median rate of 19.5per 100, 000 population</li> <li>2. Increased trend in PCa is advancing with age</li> </ol>

		men as compared to men in other countries			
<b>13</b>	WHO (12 September 2018)  Geneva, Switzerland	Worldwide analysis on different types of cancers using GLOBOCAN database, 2018.	Worldwide analysis on different types of cancers	Using GLOBOCAN database of 2012 to 2018.	<ol style="list-style-type: none"> <li>1. Cancer is a global issue it has increased to 18.1 million new cases and 9,6 million deaths in 2018.</li> <li>2. Five major types of cancers in terms of prevalence and mortality (lung, breast, colorectal, prostate and stomach).</li> <li>3. Cancer is fuelled by disparity in the level of human development index (between developed and developing countries)</li> <li>4. Worldwide cancer has increase in both sexes (male/female) and is becoming a worrying issue for women worldwide with the lung cancer as leading cause of deaths in 28 countries.</li> </ol>
<b>14</b>	GLOBOCAN (2018)  Geneva, Switzerland	Statistical mapping of cancer today (2018).	On five top cancers causing increased in prevalence (incidence) and mortality rates worldwide	Using GLOBOCAN database of 2012 to 2018	<ol style="list-style-type: none"> <li>1. Incidence (new cases) for top five: lung, breast, colorectal, prostate and stomach.</li> <li>2. Mortality (deaths) five top are: lung, colorectal, stomach, liver and breast.</li> </ol>

## Appendix O: Literature Review – Experiences of Men – PCa

### Selection Criteria

Inclusion criteria	Exclusion criteria
<ul style="list-style-type: none"> <li>Published academic, peer-reviewed journals from 2003 to 2018</li> <li>Published in English and fully retrieval from online</li> <li>Reports are focused on other types of cancer including prostate</li> </ul>	<ul style="list-style-type: none"> <li>Any reports published before year 2000</li> <li>Reports that involved socio-economic status (i.e., HDI)</li> <li>Any reports not in English (publication version)</li> </ul>

### Themes regarding experiences

Challenges in experiences	Challenges in managing the experiences
<ul style="list-style-type: none"> <li>Loss of male identity</li> <li>Differing roles</li> <li>Silence in adversity</li> </ul>	<ul style="list-style-type: none"> <li>Services: culturally sensitive</li> <li>Services: gender sensitive</li> <li>Services: using appropriate language</li> </ul>

## Literature Review – Experience of Men – PCa

Study no.	Author, Year, Country	Research Purpose	Methodology, Methods	Participants and Sample size	Major Findings
					Specific to experience on PCa
1	Arrington (2003), USA	This paper explores the ways in which PCa survivors constructed stories of their illness experiences and the consequences for their sexual identities	Qualitative study using survivors accounts through narrative analysis	Narratives taken from PCa survivors: <ul style="list-style-type: none"> <li>sixteen individual interviews with</li> <li>members of a branch of the Man-to-Man PCa support group.</li> </ul>	<ol style="list-style-type: none"> <li>Although some research on illness narratives exists, men with PCa and, consequently, with the potential for learning from their unique stories and experiences have been overlooked.</li> <li>The observations suggest implications related to (a) masculine identity, (b) sex among the elderly, (c) the social construction of sexuality, (d) defining and redefining sexuality, (e) physician-patient interaction, (f) sex talk among social support group members, and (g) the apparent clash between the values of sex and health.</li> </ol>
2	Bailey Jr, Wallace, and Mishel (2007), USA	To explore the problems and uncertainty through watchful waiting or active surveillance of older men with localised PCa	Qualitative descriptive study using open ended interview	10 men who are newly diagnosed with PCa over 70 years old	<ol style="list-style-type: none"> <li>Three identified domains in the study were uncertainty, appraisal of danger and appraisal of opportunity were supported by participants experience – watchful waiting or active surveillance.</li> <li>Propose that findings in the study may be used to enhance or expand Uncertainty Illness Model and develop interventions for men undergoing watchful waiting – PCa.</li> </ol>
3	Kelly (2008), UK	To explore experience of men with PCa underpinned by uncertainty of biomedical and psychological paradigms	Qualitative study using ethnographic approach	Descriptive analysis of 14 male	<ol style="list-style-type: none"> <li>Findings suggest that cancer was experienced sequentially, beginning at the time of diagnosis with the problematizing of the normally “silent” male body.</li> <li>Emphasize the importance placed on treatment side effects, embodied vulnerability, and the impact of the cancer on men’s “embodied” lives.</li> </ol>

					<ol style="list-style-type: none"> <li>3. The final phase of the illness experience and illustrate how the men confronted existential threat alongside physical changes, and the way each change resulted in a new outlook on life and its priorities following cancer.</li> </ol>
4	Maliski, Rivera, Connor and Lopez (2008), USA	To explore the experience of lo-income Latino and African American men with PCa	Qualitative study; using interviews (semi-structured guide)	Total of 60 Latino and African American were 35.	<ol style="list-style-type: none"> <li>1. Early experience influence and constructed their masculine identity and that makes it hard at accept what is not considered normal for them in treatment and other health care needs</li> <li>2. Recommended that any intervention to facilitate health care has to be culturally appropriate for such group of people.</li> </ol>
5	Shahid, Finn, Bessarab, and Thompson (2009), Australia	Examine or understand Aboriginal people's beliefs and perspectives about cancer and its impact on access to cancer services	Qualitative study using interviews (audio-taped).	Total of 37 Aboriginal people from various geographical areas in Western Australia	<ol style="list-style-type: none"> <li>1. Outcomes indicated misunderstanding, fear of death, fatalism, shame, preference for traditional healing, beliefs such as cancer is contagious and other spiritual issues affected their decisions around accessing services.</li> <li>2. The findings provide multi-level approach from cultural, social and biomedical, health education and information sharing in a layman's language.</li> </ol>
6	Cecil, Mc Caughan, and Parahoo (2010), United Kingdom (UK)	Exploratory study in understanding the experience of man with the history of PCa no longer being actively treated	Small qualitative	Study (pilot) with 8 men	<ol style="list-style-type: none"> <li>1. Sociological issues pertaining to masculinity and maleness with men in Belfast, Northern Island. Differing expectation about gendered behaviour.</li> <li>2. Economic concern being major issues for men, changing role in the family, friends and colleagues and changes to their body and body image.</li> <li>3. Cancer support services need to be gender sensitive and any intervention must account for masculine values that addresses men's concerns and foster positive coping strategies</li> </ol>
7	Klaeson, Sandell, and Berterö (2012), Sweden	Exploratory study on "having the elixir of life stolen" essentially constituting four factors	Qualitative study	Using in-depth interviews with 10 men	<ol style="list-style-type: none"> <li>1. Sexual dysfunction was an obstacle to the body, expressed by the men as a single phenomenon that threatened their existence</li> <li>2. Medical examination per rectal was connected with emotions of shame and powerlessness</li> </ol>

		related to maleness, “something that no longer exist,” “the treat to manhood”, “intimacy”, and “staged manhood” in context of PCa			<ol style="list-style-type: none"> <li>3. Maintaining their social identity through masking or having self-perception that nothing really has happen to their lives</li> <li>4. Social stigma relating to their roles and responsibility is something these men attest to and cannot let go</li> </ol>
8	Rivas et al. (2016) United Kingdom (UK)	The study conducted to find black and minority ethnic (BME) patients and partners experience of PCa	A qualitative systemic meta-synthesis study using modified version of Noblit and Hare’s “meta-ethnography”	Approach used by searching 7 different databases from 2000-2015	<ol style="list-style-type: none"> <li>1. BME patients sees good relationship with health providers as a bonus with having spiritual alliance with God.</li> <li>2. Surviving for others and legacy after death, reflection of time and survival by re-evaluating priorities of life and warning others about the disease</li> <li>3. Cultural pressures to maintain a social front that conceals the truth and disclosing selective information to relatives or immediate networks</li> <li>4. Loss of self-identity as a man due to sexual dysfunction.</li> </ol>

## Appendix P: Morbidity of PCa in PNG

### Morbidity by Specified Disease - Cancer prostate

FOR YEAR 2008

HEALTH_FACILITY	M_1_28DA YS	M_1_11M ONTHS	M_1_4YEA RS	M_5_9YEA RS	M_10_14YE ARS	M_15_24YE ARS	M_25_44YE ARS	M_45_ABO VE	M_ALL_AG ES	F_1_28DAY S	F_1_11MD NTHS	F_1_4YEA S	F_5_9YEA S	F_10_14YE ARS	F_15_24YE ARS	F_25_44YE ARS	F_45_ABO VE	F_ALL_AG S	TOTAL_CA SES
WESTERN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GULF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CENTRAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NAT. CAPITAL DIST.	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	4
MILNEBAY	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
ORO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN HIGHLANDS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ENGA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WESTERN HIGHLANDS	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	2
SIMBU	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	4
EASTERN HIGHLANDS	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
MOROBE	0	0	0	0	0	0	0	3	6	0	0	0	0	0	0	0	0	0	6
MADANG	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	2
EAST SEPIK	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	4
WEST SEPIK	0	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	2
MANUS	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
NEW IRELAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EAST NEW BRITAIN	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
WEST NEW BRITAIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BOUGAINVILLE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	Male										28								

### Morbidity by Specified Disease - Cancer prostate

FOR YEAR 2007

HEALTH_FACILITY	M_1_28DA YS	M_1_11M ONTHS	M_1_4YEA RS	M_5_9YEA RS	M_10_14YE ARS	M_15_24YE ARS	M_25_44YE ARS	M_45_ABO VE	M_ALL_AG ES	F_1_28DAY S	F_1_11MD NTHS	F_1_4YEA S	F_5_9YEA S	F_10_14YE ARS	F_15_24YE ARS	F_25_44YE ARS	F_45_ABO VE	F_ALL_AG S	TOTAL_CA SES
WESTERN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GULF	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
CENTRAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NAT. CAPITAL DIST.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MILNEBAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ORO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN HIGHLANDS	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
ENGA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WESTERN HIGHLANDS	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1
SIMBU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EASTERN HIGHLANDS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MOROBE	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	2
MADANG	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	2
EAST SEPIK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEST SEPIK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MANUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NEW IRELAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EAST NEW BRITAIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEST NEW BRITAIN	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	2
BOUGAINVILLE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	Male										9								

**Morbidity by Specified Disease - Cancer prostate**
**FOR YEAR 2009**

HEALTH_FACILITY	M_1_28DA YS	M_1_11M ONTHS	M_1_4YEA RS	M_5_9YEA RS	M_10_14YE ARS	M_15_24YE ARS	M_25_44YE ARS	M_45_ABO VE	M_ALL_AG ES	F_1_28DAY S	F_1_11MO NTHS	F_1_4YEAR S	F_5_9YEAR S	F_10_14YE ARS	F_15_24YE ARS	F_25_44YE ARS	F_45_ABO VE	F_ALL_AG S	TOTAL_CA SES
WESTERN	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
GULF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CENTRAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NAT. CAPITAL DIST.	0	0	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	3
MILNE BAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ORO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN HIGHLANDS	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
ENGA	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1
WESTERN HIGHLANDS	0	0	0	0	0	1	0	1	2	0	0	0	0	0	0	0	0	0	2
SIMBU	0	0	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	3
EASTERN HIGHLANDS	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	2
MOROBE	0	0	0	0	0	0	1	2	3	0	0	0	0	0	0	0	0	0	3
MADANG	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
EAST SEPIK	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	4
WEST SEPIK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MANUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NEW IRELAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EAST NEW BRITAIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEST NEW BRITAIN	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
BOUGANVILLE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>Male</b>									<b>22</b>									

**Morbidity by Specified Disease - Cancer prostate**
**FOR YEAR 2010**

HEALTH_FACILITY	M_1_28DA YS	M_1_11M ONTHS	M_1_4YEA RS	M_5_9YEA RS	M_10_14YE ARS	M_15_24YE ARS	M_25_44YE ARS	M_45_ABO VE	M_ALL_AG ES	F_1_28DAY S	F_1_11MO NTHS	F_1_4YEAR S	F_5_9YEAR S	F_10_14YE ARS	F_15_24YE ARS	F_25_44YE ARS	F_45_ABO VE	F_ALL_AG S	TOTAL_CA SES
WESTERN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GULF	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
CENTRAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NAT. CAPITAL DIST.	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	4
MILNE BAY	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
ORO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN HIGHLANDS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ENGA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WESTERN HIGHLANDS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SIMBU	0	0	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	3
EASTERN HIGHLANDS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MOROBE	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	2
MADANG	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	2
EAST SEPIK	0	0	0	0	0	1	0	1	2	0	0	0	0	0	0	0	0	0	2
WEST SEPIK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MANUS	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	4
NEW IRELAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EAST NEW BRITAIN	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	4
WEST NEW BRITAIN	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
BOUGANVILLE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>Male</b>									<b>24</b>									

**Morbidity by Specified Disease - Cancer prostate**
**FOR YEAR 2012**

HEALTH_FACILITY	M_1_28DA YS	M_1_11M ONTHS	M_1_4YEA RS	M_5_9YEA RS	M_10_14YE ARS	M_15_24YE ARS	M_25_44YE ARS	M_45_ABO VE	M_ALL_AG ES	F_1_28DAY S	F_1_11MO NTHS	F_1_4YEAR S	F_5_9YEAR S	F_10_14YE ARS	F_15_24YE ARS	F_25_44YE ARS	F_45_ABO VE	F_ALL_AGE S	TOTAL_CA SES
WESTERN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GULF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CENTRAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NAT. CAPITAL DIST.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MILNE BAY	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1
ORO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN HIGHLANDS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ENGA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WESTERN HIGHLANDS	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
SIMBU	0	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	2
EASTERN HIGHLANDS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MOROBE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MADANG	0	0	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	3
EAST SEPIK	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
WEST SEPIK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MANUS	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1
NEW IRELAND	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
EAST NEW BRITAIN	0	0	0	0	0	0	1	4	5	0	0	0	0	0	0	0	0	0	5
WEST NEW BRITAIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BOUGANVILLE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>Male</b>									<b>15</b>									

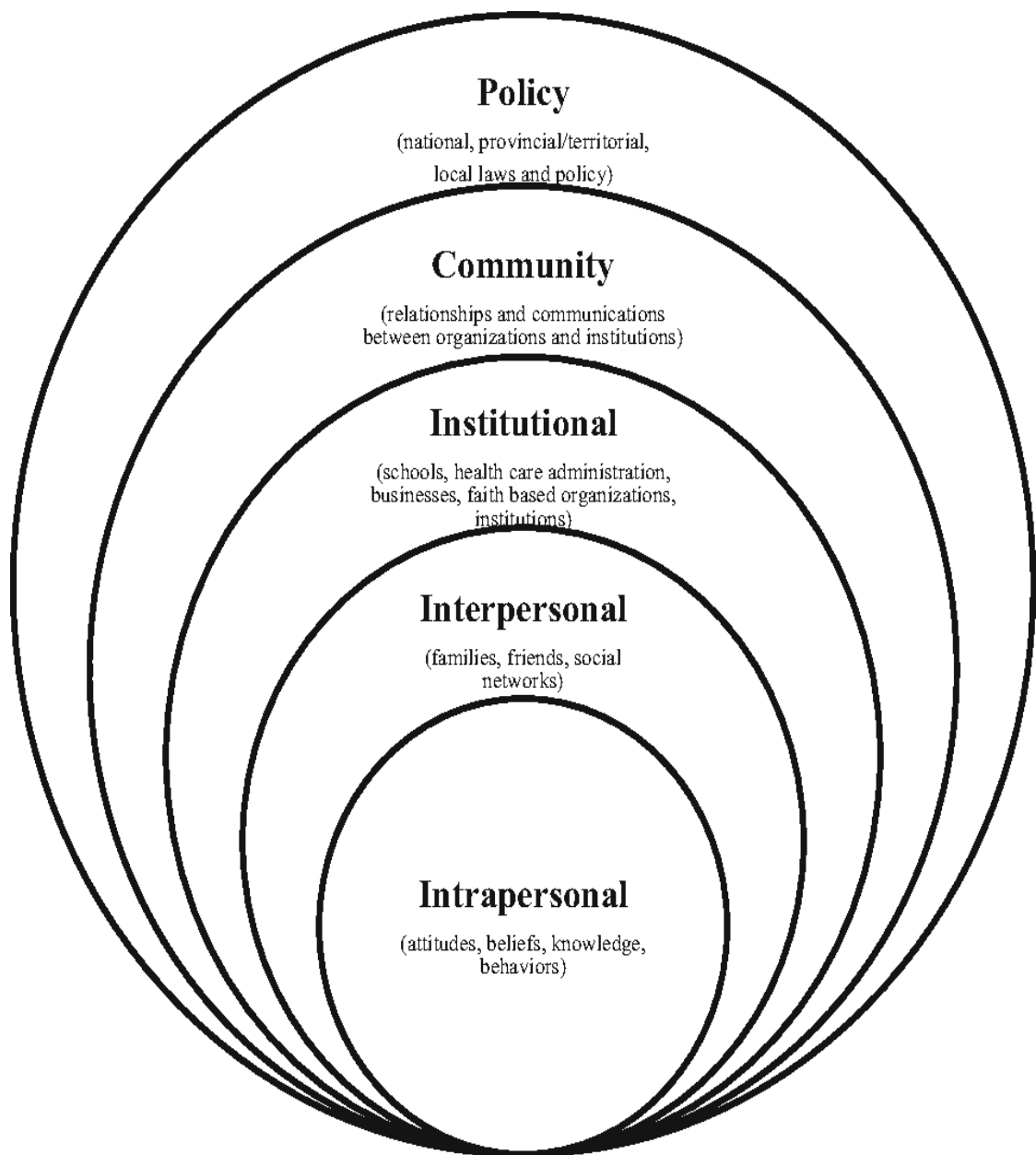
**Morbidity by Specified Disease - Cancer prostate**
**FOR YEAR 2011**

HEALTH_FACILITY	M_1_28DA YS	M_1_11M ONTHS	M_1_4YEA RS	M_5_9YEA RS	M_10_14YE ARS	M_15_24YE ARS	M_25_44YE ARS	M_45_ABO VE	M_ALL_AG ES	F_1_28DAY S	F_1_11MO NTHS	F_1_4YEAR S	F_5_9YEAR S	F_10_14YE ARS	F_15_24YE ARS	F_25_44YE ARS	F_45_ABO VE	F_ALL_AGE S	TOTAL_CA SES
WESTERN	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	2
GULF	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
CENTRAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NAT. CAPITAL DIST.	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
MILNE BAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ORO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTHERN HIGHLANDS	0	0	0	1	0	0	1	1	3	0	0	0	0	0	0	0	0	0	3
ENGA	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
WESTERN HIGHLANDS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SIMBU	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	2
EASTERN HIGHLANDS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MOROBE	0	0	0	1	0	0	0	6	7	0	0	0	0	0	0	0	0	0	7
MADANG	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
EAST SEPIK	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	2
WEST SEPIK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MANUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NEW IRELAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EAST NEW BRITAIN	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
WEST NEW BRITAIN	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
BOUGANVILLE	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	2
<b>Total</b>	<b>Male</b>									<b>24</b>									

**Morbidity by Specified Disease - Cancer prostate**
**FOR YEAR 2013**

HEALTH_FACILITY	M_1_28DA YS	M_1_11M ONTHS	M_1_4YEA RS	M_5_9YEA RS	M_10_14YE ARS	M_15_24YE ARS	M_25_44YE ARS	M_45_ABO VE	M_ALL_AG ES	F_1_28DAY S	F_1_11MO NTHS	F_1_4YEAR S	F_5_9YEAR S	F_10_14YE ARS	F_15_24YE ARS	F_25_44YE ARS	F_45_ABO VE	F_ALL_AG ES	TOTAL_CA SES
WESTERN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GULF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CENTRAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NAT. CAPITAL DIST.	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
MILNE BAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ORO	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
SOUTHERN HIGHLANDS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ENGA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WESTERN HIGHLANDS	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
SIMBU	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	4
EASTERN HIGHLANDS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MOROBE	0	0	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	3
MADANG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EAST SEPIK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEST SEPIK	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
MANUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NEW IRELAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EAST NEW BRITAIN	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	2
WEST NEW BRITAIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BOUGANVILLE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>Male</b>									<b>13</b>									

## Appendix Q: Socio-Ecological Model



Source: Cited in Ma, Chan, and Loke (2017) as adapted from the Centers for Disease Control and Prevention (CDC), The Social Ecological Model, <https://www.cdc.gov/nccdphp/dnpao/state-local-programs/health-equity/framing-the-issue.html>. (Retrieved December 13, 2016).