

## RESEARCH ARTICLE

# Systematic Review of Research into the Psychological Aspects of Prostate Cancer in Asia: What do we Know?

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## Abstract

**Background:** To review the peer reviewed literature on the psychological aspects of the prostate cancer experience of men in Asia. **Materials and Methods:** Medline and PsycINFO, CINAHL, ProQuest, and Web of Science (1999 – November Week 4, 2012) were searched. Inclusion criteria were: included men with prostate cancer and/or their partners or caregivers who identify as Asian recruited in an Asian country; and assessed health-related quality of life, psychological and social adjustment relating to prostate cancer and published in English after 1<sup>st</sup> January 1999 and prior to 30<sup>th</sup> November, 2012. Study aims; design; quality; level of evidence, and key results were assessed. **Results:** 43 articles met all inclusion criteria and were retained for initial review. Of these most focussed on health-related QOL with only five evidence Level IV studies from Japan and Taiwan including a specific psychological focus. Of these, one was a cross-sectional case control study; three were cross-sectional descriptive quantitative designs; one was a cross-sectional descriptive qualitative study. From the data available, a substantive sub group of men with prostate cancer (approximately one third) in these countries experience clinically high psychological distress and decision regret. **Conclusions:** Research on the psychological needs of men with the increasingly prevalent condition of prostate cancer in Asian countries is scant with only a small number of low level evidence descriptive studies identified. Future research to underpin the development and evaluation of effective and culturally relevant psychological and supportive care interventions for such men is urgently needed.

**Keywords:** Prostate cancer - systematic review - psychological adjustment - quality of life - Asia

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## Introduction

In Western countries, prostate cancer is highly prevalent such that in Australia, the United States, and the United Kingdom it is now the most common internal male cancer (Baade et al., 2009). This high incidence and prevalence has been attributed to the increasing uptake of PSA testing and a western lifestyle (Baade et al., 2009). The diagnosis of cancer brings with it a psychological burden consistent with a major life stress, and this is the case for prostate cancer as for other cancers (Zabora et al., 2001). Accordingly, psycho-oncology researchers in countries with a high prostate cancer prevalence have over the past decade focussed their efforts in developing a clear understanding of the psychological impact of prostate cancer on men and their partners and finding effective ways to improve psychological outcomes for those affected (Chambers et al., 2011). Research to date suggests that a substantial subgroup of men with

prostate cancer experience ongoing clinically significant psychological distress after prostate cancer, although study limitations include small and non-representative samples; inconsistency in measurement; and few longitudinal studies (Bloch et al., 2007). More recent research has demonstrated that men's psychological responses to prostate cancer are highly heterogeneous, with younger men (especially those with lower incomes and less education) most at risk of poorer outcomes (Chambers et al., 2012a); with psychological factors such as masculine self-esteem (Chambers et al., 2012b) and coping approaches (Roesch et al., 2005) also important. An issue however that has yet to be considered is the extent to which researchers have considered the psychosocial implications of a prostate cancer diagnosis for men in non-Western countries.

Specifically, as PSA testing increases in non-Western countries, lifestyle becomes more influenced by Western trends in diet and physical activity, and life expectancy

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increases, the incidence of prostate cancer in the Asia-Pacific is also increasing (Baade et al., 2012). As examples, in South Korea between 1999 and 2009 prostate cancer incidence rose by 13% per year (the largest increase in the Asia-Pacific) followed closely by Shanghai with an annual increase of 12% between 1988 and 2002. In all, 14% of prostate cancer diagnoses worldwide occur in the Asia Pacific, most often in Japan (32%) and China (28%). On the basis that prostate cancer is now emerging as a cancer control priority area for Asia in the future, the need to understand the impact of prostate cancer on the lives of men and their partners from non-Western cultures will become critical for health services planning.

Accordingly, we undertook a review of the psychological aspects of the prostate cancer experience of men in Asia to describe the level of research activity in this area and key areas of focus and from this provide recommendations for future research.

## Materials and Methods

Medline and PsycINFO, CINAHL, ProQuest, and Web of Science (1999 – November Week 4, 2012) were searched and articles related to prostate cancer were extracted. Cited reference and hand searches of retrieved article references lists were also conducted. The following keywords and subject headings were used: Cancer.mp, neoplasm\$.mp, metastasis.mp, malign\$.mp, prostat\$.mp, psychosocial.mp, well-being.mp, coping.mp, anxiety.mp, depression.mp, HRQoL.mp, survivor.mp, pain.mp, fatigue.mp, Asia\$.mp, China.mp, Chinese.mp, Hong Kong.mp, India\$.mp, Indonesia\$.mp, Japan\$.mp, Korea\$.mp, Phillipines.mp, Filipino.mp, Taiwan\$.mp, Thai\$.mp. To enhance the literature search, these terms were used in conjunction with searches aimed at identifying a comprehensive breadth of cancer-based research related to psychological adjustment. For instance, “exp quality of life/”, “exp social adjustment” and “exp psychological adjustment/” were also searched. Potentially relevant articles were identified by examining the title and abstract and then retrieved for more detailed evaluation against the inclusion criteria by two reviewers. Both qualitative and quantitative studies were included. Editorials, books, dissertations, case reports, commentaries, systematic reviews, reviews, and meta-analyses were excluded.

Studies were included if they met the following pre-determined inclusion criteria: Were published in English and included men with prostate cancer and/or their partners or caregivers who identify as Asian (either at least 80% of participants are Asian and had/have prostate cancer or were partners or caregivers of prostate cancer patients or there was an Asian specific sub-group analysis) and were recruited in an Asian context; and Described quality of life, health-related quality of life, or psychological and social adjustment of prostate cancer patients who identify as Asian; OR Compared quality of life, health-related quality of life, or psychological adjustment of prostate cancer patients who identify as Asian against healthy controls who identify as Asian or against non-Asian prostate cancer populations OR Assessed health-related quality of life, psychological and social adjustment

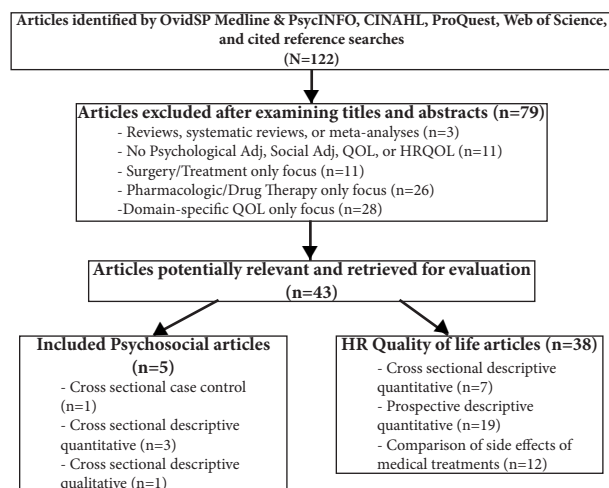
relating to prostate cancer and included an outcome of interest – physical health, mental health, health utility, cancer specific distress; depression/anxiety severity, disability, mobility, physical activity, social activity, and health status. Research articles that focussed principally on domain-specific quality of life (i.e., urinary, bowel, sexual problems) in relation to evaluating treatment effects and that did not include a specific psychological component were excluded. Studies that focussed on health-related quality of life were noted but did not undergo quality assessment or full review.

The methodological quality of the included psychological studies was assessed independently by two reviewers (SC, MH) and differences resolved by consensus with separate criteria for qualitative and quantitative studies. The assessment of the quality of qualitative studies was based on criteria held in the literature to denote high quality (Elliott et al., 1999; Daly et al., 2007; Chwalisz et al., 2008). Criteria included whether: the sampling frame was described, justified, or met; the framework for the study design, methodology and orientation disclosed; interviewer bias was addressed; the method of analysis was described; reliability and validity checks were included; data were clearly presented. To assess the quality of the design of included quantitative cross-sectional studies, criteria from established tools for cohort and case-control studies (NHMRC, 2000) were adapted focussing on representativeness of the study sample (participant selection), measures applied (reliability and validity), attrition bias (participation rates) and evidence of follow up.

## Results

### Search results

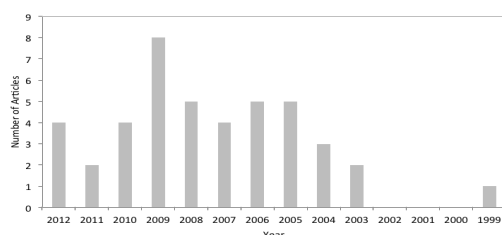
The process of identifying relevant articles for the review is outlined in Figure 1. The combined Medline and PsycINFO, CINAHL, ProQuest, and Web of Science database searches and cited reference searches identified 122 citations. On examination of titles and abstracts, 43 articles that met all inclusion criteria and included Asian participants recruited in an Asian context were retained for



**Figure 1. Final Process of Inclusion and Exclusion of Studies for the Literature Review**

Table 1. Summary of Psychosocial Articles on Prostate Cancer in Asia

Study	Patients	Aim	Variables and corresponding measures	Planned outcomes	Key Results
Kumano 2005 (Japan)	N = 167 men admitted for biopsy of the prostate gland to confirm the diagnosis of prostate cancer between April 2001 and March 2003. 86 were subsequently allocated to the case group (presence of prostate cancer) and 81 to the control group (absence of prostate cancer) Case mean age: 65.8 yrs Control mean age: 64.1 yrs	Investigate whether harmony-seeking personality is related to the occurrence of prostate cancer	History sheet including demographics, PSA level, patient prediction of cancer diagnosis (0-100 Visual Analogue Scale), and family history of prostate cancer within 3rd degree relatives. Food consumption (Food Frequency Questionnaire - FFQ) Harmony seeking - Type 1 personality (The Japanese version of the Short Interpersonal Reactions Inventory - SIRI33) General personality (NEO-FFI) Coping style (The Coping Inventory for Stressful Situations - CISS) Psychological stress response (Profile of Mood States - POMS)	Prostate cancer diagnosis	Family history of prostate cancer, PSA, patient prediction of cancer diagnosis, and Type 1 personality (marginally $p = .018$ ) significantly different between case and control groups. After controlling for patient prediction of cancer diagnosis and PSA, the variables Type 1 personality (OR: 4.2, 95% CI 1.2-14.6) and family history of prostate cancer (presence) (OR: 10.8, 95% CI 1.1-101.9) predicted prostate cancer diagnosis in multiple logistic regression analysis, 66.5% correctly classified, Wald $\chi^2 = 22.6$ (df = 4, $p = .0002$ ).
Namiki 2007 (Japan)	340 men with localized prostate cancer treated with radical prostatectomy (n = 253) or external beam radiation therapy (n = 87). RP patients mean age: 68.9 yrs ERBT patients mean age: 75.7 yrs	Examine the association between psychological distress (anxiety and depression) and health-related quality of life.	General HRQOL emotional and social functions (SF-36) Urinary, bowel and sexual function and bother (UCLA Prostate Cancer Index) Voiding symptoms (International Prostate Symptom Score - IPSS) Depression and anxiety (Hospital Anxiety and Depression Scale - HADS), HADS-Total Score 0-10 categorised as 'non-cases', and scores 11 ≤ were categorised as 'cases'.	Psychological distress (anxiety and depression)	Followed up on average 32 months (RP) and 29 months (ERBT) post-treatment. No statistically significant differences in psychological distress based on type of treatment or sexual bother or sexual function. Younger (70 yrs or below) had higher depression scores than older (over 70 yrs) men. 'Cases' (scoring 11 ≤ on HADS-11 = psychological distress) as compared to 'non-cases' had lower HRQOL overall, and men with higher psychological distress had greater urinary and bowel bother and dysfunction and IPSS scores, than 'non-cases'. Logistic regression showed that greater post-treatment psychological distress was predicted by greater urinary bother (OR: 3.039, 95% CI: 1.49-6.18) and bowel dysfunction (OR: 2.343, 95% CI: 1.26-4.33) and higher IPSS (OR: 3.29, 95% CI: 1.84-5.89) after controlling for type of treatment, age, comorbidities, PSA, time since treatment and adjuvant therapy.
Lin 2011 (Taiwan)	100 men diagnosed with prostate cancer who underwent radical prostatectomy between 2004 and 2010 Mean age: 66.63 yrs	Understand the treatment decision regret experienced by patients after a radical prostatectomy and the factors associated with regret	Demographics including age, marital status, education level, employment status, Disease-related variables including type of radical prostatectomy, number of months after RP, and satisfaction with treatment (lower scores = less satisfied), Disease-specific HRQOL - urinary, bowel and sexual function and bother (UCLA Prostate Cancer Index) Treatment decision regret (modified Clark regret scale, 4-items, 5-point Likert scale scored 0 'none of the time' to 5 'all of the time').	Treatment decision regret	31% regretted undergoing radical prostatectomy. Top two reasons for regret were sexual dysfunction (33%) and urinary incontinence (9%). Stepwise multiple regression showed that significant predictors of treatment decision regret were not choosing to have an RP again, a lack of understanding of the treatment and complications, sexual bother, younger age, and bowel bother.
Lin 2012 (Taiwan)	105 men who underwent radical prostatectomy were recruited approximately 1 month post-treatment and participated in the study approximately 3 months after treatment. Participants were initially selected for either the 'support group' (n = 62 recruited between December 2007 and April 2010; received psychological support in addition to normal care and follow up) or the 'non-support group' (n = 43 recruited between August 2002 and November 2007; received normal care and follow up only). Mean age support group: 65.42 yrs. Mean age non-support group: 68.19 yrs	To compare levels of uncertainty for men who received psychological support compared to those who did not after radical prostatectomy	Perceived uncertainty about illness (Chinese version of the Mishel Uncertainty Illness Scale - MUIS) Background data sheet including age, marital status, education level, employment status, number of months since the RP procedure, occurrence of urinary incontinence, level of understanding of prostate cancer treatment and complications. Psychological support was delivered by a researcher in the hospital pre-discharge, a research assistant by phone, and in-clinic visits after RP (twice during the first month and once after the first month). Psychological support content included: (i) 1hr of education about prostate anatomy, the RP procedure, and associated complications; (ii) strategies to overcome complications; (iii) listening to patient's life experiences after RP; and (iv) questions and answers.	Perceived uncertainty about illness	Significant difference in understanding cancer treatment and complications between support group (82.1% understood) and non-support group (17.9% understood). Participant's uncertainty was lower in the psychological support group compared to the non-support group, $F = 197.25$ , $p < .001$ .
Sato 2012 (Japan)	Narrative interviews were conducted between December 2007 and March 2009 with 42 women with breast cancer and 49 men with prostate cancer (various stages). Men age distribution: (50-59 yrs n = 5; 60-69 yrs n = 18; 70-79 yrs n = 21; 80 ≤ yrs n = 5)	Explored the topic of disclosure of life prognosis	Extracted information from unstructured and structured parts of the interview related to prognostic disclosure including information received from medical professionals, the impact of cancer on life plans, and fears or worries about the future.	n/a	Participants who reported receiving information about life prognosis unexpectedly were shocked by their prognosis, regardless of terminal or early stage. Others sought prognostic information elsewhere (e.g. websites). Others who asked for life prognosis disclosure felt it helped prepare them for end of life Others feared that hearing prognostic information would become a self-fulfilling prophecy. Authors concluded that prognostic information should include not only survival estimates but also treatment implications and 'meaningful use of time', and that this information should be used to empower patients in their decision-making.



**Figure 2. Trend in Number of Asian Psychosocial and HRQOL Prostate Cancer Articles from 1999-2012 (n=43)**

review. Of these articles 38 were from Japan; three from China and two from Korea. Figure 2 shows the trend in number of articles over time. Research in this area began to emerge in 2003 with a clear increase in 2009 that has since declined. In the final search step and in line with the focus of this review on identifying psychological research with men with prostate cancer in Asia, research articles that included a general or health-related quality of life (HR-QOL) aspect but did not include a clearly defined focus on psychological outcomes were excluded (n=38; 7 cross-sectional descriptive quantitative studies; 19 prospective descriptive quantitative studies; and 12 medical treatment intervention efficacy) leaving 5 psychosocial articles.

The excluded HR-QOL articles predominantly described the interaction between domain specific such as urinary and bowel symptoms and HR-QOL, rather than psychological morbidity per se. However, those studies that did report and discuss the mental wellbeing component of QOL (n=13; assessing Japanese patients) tended to report improved function over time for men with localised or low risk prostate cancer (Namiki et al., 2005; 2009; Sugimoto et al., 2008; Wakatsuki et al., 2008) with more interruption to wellbeing when men were receiving androgen deprivation therapy (Namiki et al., 2005; Wakatsuki et al., 2008) or had biochemical recurrence (Namiki et al., 2007).

#### *Study characteristics and outcomes of included psychological studies*

Of the five psychological articles retained, one was a cross-sectional case control study; three were cross-sectional descriptive quantitative studies; one was a cross-sectional descriptive qualitative study (Table 1). All were Level IV evidence (Olver et al., 2012). For the quantitative studies participation rates were acceptable to very good (78-91%); validated and reliable measures were used; however no follow up assessments were undertaken and the samples were not drawn from population based registries.

One cross sectional Japanese study investigated the relationship between personality and prostate cancer by assessing 217 men pre- biopsy and then comparing cases with controls (Kumano et al., 2005). Two variables were found to predict a prostate cancer diagnosis, a family history of prostate cancer (OR=4.2, 1.2-14.6; p<.05) and having a 'harmony seeking' personality (OR=10.8, 1.1-101.9; p<.05). Namiki et al. (2007) assessed 340 Japanese men who had been treated for localised prostate cancer by radical prostatectomy or radiation therapy and found

substantive subgroups with high psychological distress with 15% of patients reaching caseness for anxiety and 46% reaching caseness for depression. Men who reached caseness for overall psychological distress (34%) had poorer HR-QOL compared to those who were not distressed.

Lin (2012) in a cross sectional study in Taiwan assessed illness uncertainty in two cohorts: one in which the men had received a radical prostatectomy (n=62) and received treatment education and empathic listening from the researcher and a second in which the men did not receive this support (n=43). Men who had received support had lower uncertainty however, as the study only included one post-test assessment, it is not possible to draw firm conclusions from these results. The same author assessed treatment regret in 100 Taiwanese men who had undergone radical prostatectomy and found 31% to report regret about their treatment decision with bothersome adverse sexual and bowel side effects, with not understanding the treatment and its complications predicting greater regret (Lin, 2011).

Finally, Sato et al. (2012) undertook a qualitative narrative analysis of 42 Japanese breast and 49 prostate cancer patient experiences of being told their cancer prognosis and their preferences for how this should be done. While some men sought prognostic information and saw this as a means of maintaining control over their lives, others found this information shocking. A reason given for not wanting prognostic information was to maintain hope; and there was evidence of people not understanding this information when it was given. Study quality was good: a convenience sample was used and a sample size rationale was provided, as were a clear qualitative framework and data analysis with objective measurement and presentation. However, checks for data credibility were not well described.

## **Discussion**

To date there has been scant research on the psychological needs of men with prostate cancer in Asian countries. Specifically, only a small number of low evidence descriptive studies were found with study limitations evident with regards to sampling frames and cross sectional designs. Hence, from work to date it is not possible to draw clear conclusions about how prostate cancer impacts the psychological health of Asian men with prostate cancer and what factors lead to poorer outcomes, and this has implications for both research and practice. There are well described differences in how different cultural groups present with regards to psychological distress. For example, somatic symptoms of distress may be more commonly reported in Chinese populations compared to Western groups (Parker et al., 2001), and Chinese approaches to coping that are influenced by Eastern philosophy and cultural beliefs may be more focussed on maintaining internal control and acceptance (Cheng and Chio, 2010). With regards to beliefs about cancer, in Japanese Americans, compared to Caucasians, there is a greater association of cancer with death and less optimism about the curability of cancer that, at least

in part, reflects differing cultural meanings about cancer (Long and Long, 1982; Gotay et al., 2004). Given such cultural differences, the knowledge gap about predictors, mediators and prevalence of negative psychological outcomes for Asian men after a prostate cancer diagnosis makes designing well targeted psychological support interventions for this setting problematic. From this we conclude that developing an evidence base on how men in Asia react to and cope with a prostate cancer diagnosis, and from this how to best provide support, must be considered a research priority.

It is concerning that there does not appear to be a consistent increase in the research effort since 2005, not only for studies addressing the psychological morbidity associated with prostate cancer in Asian men but also for quality of life studies. As well, the research undertaken appears concentrated in only a few countries, particularly Japan. This is a concerning gap, especially given the increasing prevalence of prostate cancer in China. We suggest that this lack of research cannot be explained only by a lower prevalence of prostate cancer compared with other cancers and other countries. Historically, there has been a gender bias in psychosocial cancer survivorship studies with men less represented compared to women, although men's involvement in such research internationally appears to have increased substantially over the past fifteen years (Hoyt and Rubin, 2012). It may be that as psycho-oncology research in Asia further develops the same trend will occur in the decades to come, however this may not happen without adequate resourcing. The resources that are needed to undertake well designed psychological research with Asian men with prostate cancer include valid and reliable assessment measures that are culturally relevant; researchers skilled in psycho-oncology and QOL research; prioritising of this research by health care funders and service providers; and a willingness of men to participate. Efforts to stimulate and support the development of this capacity seem warranted.

The research identified in this review does however suggest that as many as one third of men with prostate cancer in at least one Asian country (Japan) experience clinically high psychological distress after prostate cancer (Namiki et al., 2007). Estimates of distress in Western populations vary (Bloch et al., 2007) and this may relate at least in part to differences in sampling frames and measurement approaches. In our previous research, and by comparison, we have found approximately 10% of Australian men with prostate cancer to experience clinically levels of anxiety, depression and cancer-specific distress (Chambers et al., 2013; Steginga et al., 2004); other authors have suggested that men with prostate cancer experience increased psychological distress in the first twelve months after diagnosis with men with advanced disease experiencing greatest distress (Couper et al., 2006). Australian studies further suggest that between a third and a half of men with prostate cancer experience high levels of unmet needs for psychological help and unmet information and support needs for sexuality concerns (Steinga et al., 2001; Smith et al., 2007). Thus there may be some comparability between the distress experiences of patients from at least these two contexts,

although again more research is needed.

It is of note that one Taiwanese study found evidence of decision regret and uncertainty after prostate cancer treatment, a finding that has been observed elsewhere (Steinga et al., 2004). Decision support for men with prostate cancer has been a specific area of research focus in Western countries for some time where men newly diagnosed with prostate cancer will frequently be offered a range of different prostate cancer treatment modalities (e.g., radical or robotic surgery; external radiation therapy; brachytherapy; adjuvant androgen ablation), all with differing side effect profiles, from which they much choose a 'best fit' treatment option that matches their personal preferences and values (Chambers et al., 2011; 2012; Steginga et al., 2008). This also presents as a key area for potential focus for future research in Asian patient populations.

In conclusion, the limited research to date suggests that a diagnosis of and treatment for prostate cancer has a substantive negative effect on the psychological wellbeing of men in Asia, as it does in Western countries. There is a body of knowledge already developed in Western countries that lays a foundation from which new research with an Asian focus could be developed, taking note of lessons already learned and ensuring cultural relevance to the populations concerned. The development of a research capacity and focussed agenda that ultimately can underpin the development of effective and culturally relevant psychological and decision support interventions for men with prostate cancer in Asia, and their partners and families, is needed.

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