

# Unmet Supportive Care Needs of Prostate Cancer survivors in China: A Cross-Sectional Study

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**Abstract.** Objectives: To ascertain the prevalence and factors associated with unmet supportive care needs among prostate cancer survivors in China. Methods: We conducted a cross-sectional survey using paper questionnaires comprising demographic data and the Chinese version of the Supportive Care Needs Survey-Short Form (SCNS-SF34). A total of 143 patients from a tertiary hospital participated. Results: The prevalence of unmet supportive care needs varied between 1.43% and 50.00%. The duration since treatment conclusion correlated with the SCNS-SF34 scores, specifically, patients who had completed treatment within the past 6 months reported higher needs than those treated over 6 months prior. The domain of the health system and information emerged as the most pressing need for both groups. Conclusion: Prostate cancer survivors exhibit a clear necessity for sustained supportive care, particularly concerning health system and information. Nurses must prioritize these needs, especially for patients within 6 months post-treatment, and future research should endeavor to expand the avenues of healthcare service provision.

**Keywords:** Prostate cancer survivors; supportive care needs, health education.

## 1. Introduction

Among the most prevalent cancers in males worldwide, prostate cancer ranks second[1]. In China, the incidence of this disease is below the global average[2]. Fortunately, advancements in early detection, surgery, and adjuvant therapy have enabled an increasing number of patients to transition into the convalescence phase and become cancer survivors[3]. However, due to the disease itself and treatment side effects, survivors often experience complications such as urinary incontinence[4,5] sexual dysfunction[6,7], among others. Additionally, concerns over substantial financial burden[8,9] persist. Consequently, it is unsurprising that recovering patients continue to express significant needs in symptoms management, emotional support, and rehabilitation

information[10,11]. To address the needs of prostate cancer survivors and enhance the quality of life, there is growing interest in their supportive care requirements. Supportive care seeks to assist cancer patients and their caregivers in fulfilling multidimensional needs through various methods[12], encompassing physical, emotional, informational, practical, social, and spiritual aspects[13]. Needs that remain unaddressed, necessitating additional support, are identified as unmet needs. However, addressing all unmet needs simultaneously proves challenging due to the limited human resources in healthcare institutions, underscoring the importance of prioritizing care based on the most pressing needs. Despite its importance, few studies have delved into this issue, hence, this study aims to examine the prevalence and risk factors of unmet supportive care needs and identify the most critical care requirements for prostate cancer survivors.

## 2. Methods and Variables

### 2.1 Sample and Setting

This study was undertaken at Chongqing University Cancer Hospital, China, from November 2022 to July 2023. Prior to initiating the survey, we obtained approved from the Institutional Review Board of Chongqing University Cancer Hospital.

Eligible patients, identified during outpatient visits, were briefed on the study's objectives and participant rights. After securing informed consent, we distributed questionnaires to prostate cancer survivors, who were instructed to complete and return them immediately.

Inclusion criteria were as follows: (a) aged 18 years or older; (b) confirmed diagnosis through biopsy; (c) fully informed about their diagnosis and in the rehabilitation phase; (d) proficient in reading and communicating in Chinese.

Exclusion criteria included: (1) unwillingness to participate; (2) presence of other critical organ diseases or mental illness.

### 2.2 Instruments

The questionnaire comprised two sections: demographic/medical characteristics and the Supportive Care Needs Survey-Short Form (SCNS-SF34). Demographic data encompassed age, occupation, educational degree, marital status, and monthly household income (RMB), while medical variables consisted of time since treatment conclusion, pathological stage, treatment method, and whether complications were present. The SCNS-SF34, a widely utilized self-report tool for assessing cancer patients' supportive care needs[14], was employed in its Chinese version, translated by Au, demonstrating high internal consistency and robust psychometric properties[15]. This instrument features five domains: physical and daily living needs (five items), care and support needs (five items), psychological needs (ten items), health system and information needs (eleven items), and sexuality needs (three items). Patients' needs were evaluated using a five-point Likert scale (1 = no need, not applicable; 2 = no need, satisfied; 3 = low need; 4 = moderate need; 5 = high need). Standard scores were computed following provided guidelines[16], with higher scores indicating a greater necessity for supportive care.

### 2.3 Data analysis

Data exhibited a non-normal distribution, hence, the Mann-Whitney test was utilized for dichotomous variables, and the Kruskal–Wallis test was applied for multi-categorical data (variables detailed in Table 1). Multiple linear regression analyzed the relationship between dependent and independent variables. To assess supportive care needs across different periods, data were normalized, and linear mixed models employing maximum-likelihood estimation computed each subscale, factoring in domain, time since treatment completion, and their interaction. Both domain and time post-treatment were integrated as covariates. Analyses were performed using SPSS version 24.0, and p value <0.05 was considered statistically significant.

## 3. Results

### 3.1 The characteristics of participants

Of the 143 patients who received the questionnaires, 140 submissions were viable for analysis, three were excluded due to uniform responses across all items. The selection process is depicted in Figure 1, and participant characteristics are presented in Table 1.

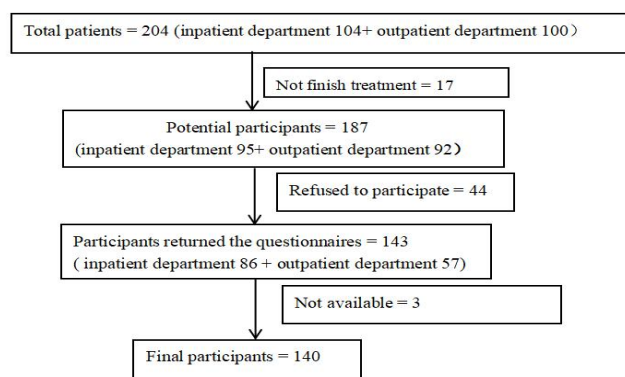


Figure1 Flow chart of patients selection process

Table1. Characteristics of participants (N = 140)

Variable	N	Percentage (%)	P
Age			0.059*
≤60	25	17.86	
61–74	77	55.00	
≥85	38	27.1	
Education degree			0.012**
Primary school or below	83	59.30	
Junior high school	10	7.10	
High school	6	4.30	
Bachelor's degree or above	41	29.30	
Occupation			0.007**
Not employed	43	30.70	
Farmer	32	22.90	
Clerk	17	12.10	
Teacher	9	6.40	
Other occupation	39	27.90	
Marital status			0.467*
Married or partnered	129	92.10	
Other status	11	7.90	
Monthly household income(RMB)			0.333**
<2000	29	20.70	
<3000	77	55.00	

<4000	31	22.20	
≥4000	3	2.10	
The time since ended treatment(month)			0.025*
≤6	121	86.43	
>6	19	13.57	
Recurrence			0.102*
Yes	6	4.30	
No	134	95.70	
Pathological stage			0.019**
Stage I	63	45.00	
Stage II	66	47.10	
Stage III	8	5.80	
Stage IV	3	2.10	
The method of treatment			0.005**
Surgery	53	37.90	
Surgery + chemotherapy	41	29.30	
Chemotherapy + radiotherapy	14	10.00	
Chemotherapy	19	13.50	
Other treatment	13	9.30	
Suffering from complications			0.102*
Yes	86	61.40	
No	54	38.60	

Notes:\* Data were analyzed by Mann-Whitney test, \*\*Data were analyzed by Kruskal–Wallis test.

### 3.2 Unmet supportive care needs

The prevalence of unmet supportive care needs spanned 1.43% to 50.00%, with every survivor indicating at least one unmet need. The five most prominent needs were as follows: “Being informed about your test results quickly”, “Being informed about things you can do to help yourself to get well”, “Being given information (written, diagrams, drawings) about aspects of managing your illness and side-effects at home”, “Being given written information about the important aspects of your care”, “Being informed about cancer which is under control or diminishing”. All these needs fall within the health system and information domain (Table 2 ).

Table 2. Unmet supportive care needs of prostate cancer survivors

Item	The degree of help needed			
	No need	Low need	Moderate	High need

	percentage N(%)	percentage N(%)	need percentage N(%)	percentage N(%)
Physical and daily living needs				
Pain	118(84.29)	16(11.43)	2(1.43)	4(2.86)
Lack of energy	87(62.14)	46(32.86)	6(4.29)	1(0.71)
Feeling unwell	96(68.57)	32(22.86)	6(4.29)	6(4.29)
Needing help to finish housework	121(86.43)	11(7.86)	4(2.86)	4(2.86)
Not being able to do the things you used to do	113(80.71)	18(12.86)	3(2.14)	6(4.29)
Psychological needs				
Anxiety	110(78.57)	22(15.71)	6(4.29)	2(1.43)
Feeling down or depressed	113(80.71)	20(14.29)	5(3.57)	2(1.43)
Feelings of sadness	126(90.00)	11(7.86)	1(0.71)	2(1.43)
Fears about the cancer spreading	102(72.86)	31(22.14)	1(0.71)	6(4.29)
Worry about the results of treatment	113(80.71)	21(15.00)	5(3.57)	1(0.71)
Uncertainty about the future	130(92.86)	9(6.43)	1(0.71)	0(0.00)
Learning to feel in control of your situation	124(88.57)	14(10.00)	1(0.71)	1(0.71)
Keeping a positive outlook	118(84.29)	18(12.86)	2(1.43)	2(1.43)
Fears about death	109(77.86)	25(17.86)	3(2.14)	3(2.14)
Concerns about the worries of those close to you	122(87.14)	17(12.14)	1(0.71)	0(0.00)
Sexuality needs				
Changes in sexual feelings	136(97.14)	2(1.43)	1(0.71)	1(0.71)
Changes in sexual relationships	136(97.14)	2(1.43)	1(0.71)	1(0.71)
To be given information about sexual relationships	108(77.14)	26(18.57)	4(2.86)	2(1.43)
Patient care and support needs				
More choice about which cancer specialist you see	121(86.43)	9(6.43)	1(0.71)	9(6.43)
More choice about which hospital you attend	137(97.86)	2(1.43)	0(0.00)	1(0.71)
Reassurance by medical staff that the way you feel is normal	126(90.00)	11(7.86)	0(0.00)	3(2.14)
Hospital staff to attend promptly to your physical needs	138(98.57)	1(0.71)	0(0.00)	1(0.71)
Hospital staff to acknowledge, and show sensitivity to, your feelings and emotional needs	133(95.00)	6(4.29)	0(0.00)	1(0.71)
Health system and information needs				
To be given written information about the important aspects of your care	74(52.86)	38(27.14)	9(6.42)	19(13.57)
To be given information (written, diagrams, drawings) about aspects of managing your illness and side-effects at home	73(52.14)	36(25.71)	11(7.86)	20(14.29)
To be given explanations of those tests for which you would like explanations	91(65.00)	38(27.14)	4(2.86)	7(5.00)
To be adequately informed about the benefits and side-effects of treatments before you choose to have them	112(80.00)	17(12.14)	4(2.86)	7(5.00)
To be informed about your test results as soon as feasible	70(50.00)	48(34.29)	5(3.57)	17(12.14)

To be informed about cancer which is under control or diminishing	83(59.29)	18(12.86)	4(2.86)	35(25.00)
To be informed about things you can do to help yourself get well	73(52.14)	23(16.43)	11(7.86)	33(23.57)
To have access to professional counselling (eg, psychologist, social worker, counsellor, nurse specialist) if you/family/friends need it	122(87.14)	10 (7.14)	5(3.57)	3(2.14)
To be treated like a person, not just as a case	114(81.43)	13(9.29)	1(0.71)	12(8.57)
To be treated in a hospital or clinic that is as physically pleasant as possible	117(83.57)	11(7.86)	2(1.43)	10(7.14)
To have one member of hospital staff with whom you can talk to about all aspects of your condition, treatment and follow -up	100(71.43)	16(11.43)	1(0.71)	23(16.43)

The Mann-Whitney test results indicated that prostate cancer survivors who concluded treatment within 6 months ( $p=0.025$ ) manifested a greater need for supportive care. Additionally, the Kruskal–Wallis test revealed significant effects of occupation ( $p=0.007$ ), education degree ( $p=0.012$ ), pathological stage ( $p=0.019$ ), and treatment method ( $p=0.005$ ) on the total SCNS-SF34 scores (Table 1). Multiple linear regression analyses demonstrated an association between the time elapsed since treatment completion and the total SCNS-SF34 scores, with patients who had concluded treatment within 6 months expressing a higher degree of unmet supportive care needs compared to those who had ended treatment over 6 months prior (Table 3) .

Table 3. Results of multiple linear regression

Variable	$\beta$	95%CI	P value
Education degree (ref: Primary school or below)			
Junior high school	-5.145	(-37.880,27.590)	0.756
High school	4.928	(-36.753,46.608)	0.815
Bachelor's degree or above	14.929	(-16.169,46.028)	0.344
Occupation (ref: Not employed)			
Farmer	8.272	(-13.006,29.550)	0.443
Clerk	8.376	(-27.862,44.614)	0.648
Teacher	35.726	(-4.383,75.834)	0.080
Other occupation	5.603	(-16.453,27.659)	0.616
Pathological stage (ref: Stage I)			
Stage II	19.569	(-0.522,39.660)	0.056
Stage III	25.122	(-10.708,60.952)	0.168

Stage IV	6.282	(-49.818,62.381)	0.825
The time since ended treatment (ref: ≤6 months)			
>6	-23.082	(-45.302,-0.863)	0.042
The method of treatment (ref: Surgery)			
Surgery and chemotherapy	21.824	(-0.294,43.942)	0.053
Chemotherapy	5.110	(-23.604,33.824)	0.725
Radiotherapy and chemotherapy	-8.048	(-36.705,20.609)	0.579
Other ways	28.826	(-3.543,61.194)	0.080

Linear mixed models of fixed effects further confirmed that the duration since treatment conclusion correlated with SCNS-SF34 scores (Table 4). Scores of patients who finished treatment more than 6 months prior decreased by 10.90 points, underscoring that patients within the 6-month post-treatment interval reported elevated levels of unmet supportive care needs. Despite variations, health system and informational needs remained paramount for both groups (Table 5). Although scores in other domains also declined, the decrease in sexuality needs was marginal at 1 point. The result of pairwise comparisons showed that the score between health system and information and psychological needs ( $P=0.007$ ), patient care and support needs ( $P<0.001$ ), sexuality needs ( $P<0.001$ ) was different, The interaction time  $\times$  group was not significant for any of the dimensions.

Table 4. Linear mixed models' results of fixed effects

Source	Numerator df	Denominator df	F	P
Intercept	1	137.000	167.556	<0.001
Each domain	4	137	30.948	<0.001
The time since finished treatment	1	137.000	4.908	0.028
Domain * Time	4	137	0.808	0.522

Notes: Dependent Variable: score

Table 5. Supportive care needs course in different convalescence period and different domain

	T1 (≤6 months)	T2 (>6months)
Physical and daily living needs	(23.75±1.46)	(19.21±3.67)
Care and support needs	(7.79±0.92)	(3.95±2.32)
Psychological needs	(16.55±1.25)	(11.32±3.15)
Health system and information needs	(31.48±1.95)	(20.58±4.90)
Sexuality needs	(8.12±1.22)	(7.02±3.08)

#### 4. Summary

Previous studies[17,18] have confirmed that prostate cancer patients reported unmet supportive care needs. However, to our knowledge, few studies have addressed these needs during the convalescence phase. Our study underscores that prostate cancer survivors continue to require supportive care, with some items identified as moderate or high need. Hui's study[19] suggested that satisfying supportive care needs positively impacts quality of life, highlighting the necessity for clinical nurses and researchers to prioritize these needs in prostate cancer survivors.

Additionally, our results indicate that health systems and information constitute the most critical support for prostate cancer survivors, aligning with Pan's findings[20]. This consistency reinforces that, in the face of limited human resources, health system and information needs should take precedence. Our findings further pinpointed "getting test results quickly" as the paramount need within the health system and information category. This urgency may be attributed to the survey's context within a tertiary hospital setting. Tertiary hospitals, renowned for their distinguished doctors[21], attract a large patient base, consequently extending the duration spent awaiting tests and results[22,23]. Alleviating the patient load in tertiary hospitals emerges as a viable solution to this challenge. Thus, the China National Health Commission mandates doctors from tertiary institutions to serve in counterpart assistance hospitals for periods exceeding six months. This strategy encourages patients to opt for counterpart assistance hospitals, thereby reducing the strain on tertiary facilities.

Contrary to our expectations, the score for sexuality needs decreased by only one point, indicating that the guidance or information patients received on sexuality needs did not significantly increase over time. This stagnation may be attributable to China's traditional culture, which maintains conservative attitudes toward sexuality, often deeming it a topic not for open discussion. This cultural backdrop may lead some patients to avoid communication with their spouses or seeking help from doctors[24]. Research [25,26] suggests that enhancing the quality of sexuality life is beneficial for cancer patients in regaining a sense of self-worth. Therefore, healthcare professionals should offer guidance to patients and their spouses to promote a safety and fulfilling sexual life.

Patients who completed treatment within six months exhibited a higher demand for supportive care needs. During this period, prostate cancer survivors must manage their own care, but with potentially diminished energy and limited self-care knowledge, they often find it challenging to navigate their circumstances during this vulnerable phase. Therefore, nurses should pay more attention to the needs of patients who finished treatment within 6 months in time, and offer some resources for them when they need. While face-to-face interactions may be constrained by logistical barriers, the convenience and accessibility of online communication offer a viable alternative. Existing research supports the feasibility of mobile medical technology in meeting patient needs[27], as evidenced by initiatives like mobile applications designed to manage daily exercises for breast cancer survivors[28]. However, mere exercise guidance is insufficient. A more holistic supportive care approach is warranted. Nurses might consider developing a platform integrating scientific rehabilitation information, emotional regulation techniques, and other essential resources. Registered users could access content tailored to their needs, and healthcare professionals could use the platform to assess recovery progress and offer personalized advice.

This study revealed that prostate cancer survivors continue to report unmet supportive care needs, with health system and information identified as their most critical needs. However, other requirements, such as those related to sexuality, should not be overlooked by healthcare professionals. Patients who concluded their treatment within a six-month period exhibited a heightened demand for supportive care. In clinical settings, medical staff must focus increased attention on these patients, providing enhanced individualized health education. In terms of further research, there is a necessity for the exploration of more streamlined and effective methods to enhance consultation services and expand patients' avenues for information acquisition. Following the COVID-19 epidemic, mobile healthcare has assumed a significant role in patient management[29], and one study's findings[30] indicated its potential to bolster Quality of Life



(QOL) and self-efficacy, while mitigating anxiety, depression, and distress among adult cancer survivors. Consequently, subsequent studies should endeavor to leverage this modality to fulfill the health system and information requisites of prostate cancer survivors.

It is imperative to note that this research encompasses several constraints: first, its cross-sectional nature. In reality, a longitudinal study would be more adept at probing the supportive care needs of patients across varying timeframes, although we have attempted to curtail errors through the employment of linear mixed models with maximum-likelihood estimation. Furthermore, due to financial and temporal constraints, this investigation was confined to a single center in Chongqing, China, potentially impinging upon the generalizability of the findings. Hence, future research should contemplate the execution of a multi-center study with a larger sample size to substantiate the outcomes of our investigation.

The discovery of a substantial prevalence of unmet supportive care needs underscores the necessity for heightened attention to prostate cancer patients in their convalescence phase. It is imperative that additional studies be conducted to unearth more efficacious strategies to satisfy patients' health systems and information needs, particularly those of patients who have completed treatment within the past six months.

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