Sudan Journal of Medical Sciences
Volume 21, Issue no. 2, https://doi.org/10.18502/sjms.v21i2.19835
Production and Hosting by KnE Publishing

KNE Publishing

Check for updates

Research Article

Unmet Supportive Care Needs and Quality of Life in Jordanian Men with Prostate Cancer: The Predictors and Mediating Role of Coping Strategies and Social Support

Anas N. Alomoush[1], Raya Y. Al-Husban[2], Omar Shamieh[3], Rami A. Ghanem[4], Ghadeer Alarjeh[5], and Noorsuzana Mohd Shariff[1]*

[1]Department of Community Health, Pusat Kanser Tun Abdullah Ahmad Badawi, Advanced Medical and Dental Institute, Universiti Sains Malaysia, 13200 Kepala Batas, Pulau Pinang, Malaysia
[2]Faculty of Nursing, Zarqa University, Zarqa, Jordan
[3]King Hussein Cancer Center (KHCC), Amman, Jordan
[4]Department of Surgery, King Hussein Cancer Center (KHCC), Amman, Jordan
[5]Center for Palliative and Cancer Care in Conflict (CPCCC), King Hussein Cancer Center (KHCC), Amman, Jordan

Corresponding Author:
Noorsuzana Mohd Shariff;
email: suzanashariff@usm.my

Received: 19 September 2025
Accepted: 1 March 2026
Published: 30 June 2026

Production and Hosting by KnE Publishing

Editor-in-Chief:
Prof. Nazik Elmalaika Obaid Seid Ahmed Husain, MD, M.Sc, MHPE, PhD.

Abstract

Background: Prostate cancer is associated with a substantial psychosocial burden, yet evidence regarding unmet supportive care needs in Middle Eastern contexts remains limited. This study aimed to determine the prevalence and predictors of unmet supportive care needs among Jordanian men with prostate cancer and to examine the mediating roles of coping strategies and perceived social support in relation to quality of life.

Methods: A cross-sectional study was conducted between August 2024 and March 2025 among 300 Arabic-speaking men attending two tertiary hospitals in Amman, Jordan. Participants completed validated Arabic versions of the Supportive Care Needs Survey–Short Form (SCNS-SF34), WHOQOL-BREF, Brief COPE Inventory, and the Multidimensional Scale of Perceived Social Support (MSPSS). Data were analyzed using descriptive statistics, multiple linear regression, and structural equation modeling.

Results: Psychological needs emerged as the most prevalent unmet domain, followed by health system and information needs. Higher levels of unmet needs were significantly associated with older age, lower educational attainment, unemployment, and advanced disease stage ($P < 0.001$). Emotion-focused coping strategies were reported more frequently than problem-focused approaches. Overall perceived social support ranged from moderate to high, with family support being the dominant source. Both coping strategies and perceived social support partially mediated the relationship between unmet supportive care needs and quality of life ($P < 0.001$).

Conclusion: Jordanian men with prostate cancer experience considerable unmet psychological and informational needs. Targeted, culturally responsive psychosocial interventions that strengthen adaptive coping and social support networks are essential to improve quality of life in this population.

Keywords: Coping Strategies; Jordan; Perceived Social Support; Prostate Cancer; Quality of Life; Supportive Care Needs

OPEN ACCESS

1. Introduction

Prostate cancer (PC) represents a clinically significant malignancy among men in Jordan, ranking fourth in incidence and accounting for approximately 8.2% of male cancer cases, with nearly 190 new diagnoses reported annually [1, 2]. While early stage disease is often asymptomatic, disease progression frequently leads to urinary complications, functional decline, and long-term treatment-related morbidity. Early detection, particularly when cancer remains localized, is strongly associated with improved survival outcomes [3, 4]. However, in Jordan, limited screening initiatives, delayed diagnosis, and fragmented posttreatment follow-up continue to compromise optimal disease management when compared with high-income settings [5].

Beyond its biological course, PC imposes a substantial psychosocial burden that adversely affects patients' quality of life (QoL). Treatment-related complications, including fatigue, sexual dysfunction, and emotional distress, often persist following curative interventions such as surgery or radiotherapy, while hormonal therapy for advanced disease introduces additional systemic side effects [6–8]. Inadequate supportive care structures may further intensify uncertainty, social withdrawal, and restricted access to psychosocial resources [5, 9]. Consequently, unmet supportive care needs (USCNs) have been consistently associated with heightened anxiety, depressive symptoms, and functional impairment, particularly among younger patients and those living with advanced disease [10, 11].

Globally, PC care has increasingly shifted toward holistic, person-centered models that integrate supportive care into survivorship planning. In contrast, psychosocial support services in Jordan remain underdeveloped, constrained by cultural stigma, gender norms, and the absence of structured supportive care programs [12]. Moreover, the lack of national-level evidence regarding the prevalence and determinants of USCNs limits informed policy development and the implementation of targeted, evidence-based interventions.

This study employed validated Arabic patient-reported outcome measures to capture the multidimensional nature of supportive care experiences among men with PC. These included the Supportive Care Needs Survey Short Form (SCNS-SF34) [13], which identifies patients' perceived unmet needs across key supportive care domains; the World Health Organization Quality of Life-BREF (WHOQOL-BREF) [14], which reflects perceived QoL across physical, psychological, social, and environmental dimensions; the Brief COPE Inventory [15], which assesses coping strategies used to manage cancer-related stress; and the Multidimensional Scale of Perceived Social Support (MSPSS) [16], which evaluates perceived social support from family, friends, and significant others. These instruments were selected for their established psychometric properties in Arabic-speaking populations and their conceptual alignment with Fitch's supportive care framework [17], particularly the SCNS-SF34 [13], which systematically captures the multidimensional domains of unmet needs central to the framework.

Guided by Fitch's supportive care framework, the study addresses these gaps by quantitatively examining USCNs among Jordanian men with PC and exploring the mediating roles of coping strategies and perceived social support in the relationship between USCNs and QoL using structural equation modeling (SEM) [17].

2. Methods

2.1. Study design

A quantitative cross-sectional study design was employed to examine the prevalence of USCNs among Jordanian men diagnosed with PC and their associations with sociodemographic, clinical, and psychosocial factors, including coping strategies, perceived social support, and QoL. Data were collected using validated Arabic versions of standardized oncology instruments. The study was conducted and reported in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines.

2.2. Study setting and participants

Data were collected from two major healthcare institutions in Amman, Jordan, namely the King Hussein Cancer Center (KHCC) and Al-Bashir Hospital, between August 2024 and March 2025. Convenience sampling was employed to recruit eligible participants during routine oncology clinic visits.

During the study period, 360 men diagnosed with PC were identified as eligible for participation. Of these, 320 patients were approached (approach rate ≈ 89%), and 300 consented to participate and were included in the final analysis (consent rate ≈ 94%). Based on the total number of eligible patients, the overall response rate was therefore 83.3% (300/360). Twenty patients were excluded due to refusal to participate or failure to meet the inclusion criteria.

A nonresponse analysis was conducted to assess potential selection bias. Comparisons between respondents (n = 300) and nonrespondents (n = 20) across key sociodemographic and clinical variables, including age, marital status, education level, employment status, treatment type, duration since diagnosis, cancer stage, hospital type, and major comorbidities, revealed no statistically significant differences (all $P > 0.05$).

Eligible participants were Arabic-speaking men aged 18 years or older with a confirmed diagnosis of PC at any stage, who were cognitively and physically able to complete the study questionnaires. Patients receiving end-of-life palliative care or experiencing severe clinical deterioration were excluded.

The target sample size was determined using G*Power to ensure adequate statistical power for multivariate analyses (power = 0.80, α = 0.05) with medium effect sizes. In addition, sample size adequacy for SEM was evaluated based on established methodological recommendations. The final sample of 300 participants exceeded these requirements, ensuring sufficient statistical power for all planned analyses.

2.3. Data collection instruments

Data were collected using validated Arabic versions of standardized self-administered instruments, in addition to a structured questionnaire designed to capture key sociodemographic and clinical characteristics, including age, marital status, education level, employment status, cancer stage, time since diagnosis, and treatment modality. To enhance data accuracy, questionnaire responses were cross-verified against participants' medical records.

USCNs were assessed using the Supportive Care Needs Survey–Short Form, SCNS-SF34 [13]. Coping strategies were measured using the Brief COPE Inventory [15]. QoL was evaluated using the World Health Organization Quality of Life–BREF, WHOQOL-BREF [14], and perceived social support

was assessed using the MSPSS [16]. All instruments have demonstrated validity and reliability in Arabic-speaking populations.

2.4. Data collection procedures

Eligible participants were identified through hospital records and approached during routine oncology clinic visits. Following the provision of written informed consent, participants completed a questionnaire package that included a sociodemographic and clinical data form, the SCNS-SF34, the WHOQOL-BREF, the Brief COPE, and the MSPSS.

To enhance accessibility and reduce participation barriers, data were collected using three modes: face-to-face administration, researcher-assisted completion for participants with literacy or physical limitations, and self-administered online surveys delivered via a secure Google Form. Each participant was assigned a unique identification code to ensure confidentiality and anonymity throughout data collection, handling, and analysis.

2.5. Statistical analysis

Quantitative data were analyzed using IBM SPSS Statistics (version 26), while SEM was conducted using AMOS (version 24). Descriptive statistics were used to summarize sociodemographic and clinical characteristics, supportive care needs, coping strategies, perceived social support, and QoL. Continuous variables were reported as means and standard deviations, whereas categorical variables were presented as frequencies and percentages.

Multiple linear regression analyses were performed to identify sociodemographic, clinical, and psychosocial predictors of USCNs. Model assumptions, including normality, linearity, homoscedasticity, and multicollinearity, were examined and found to be met.

SEM was applied to examine whether coping strategies and perceived social support mediated the relationship between USCNs and QoL. The SEM consisted of a measurement model specifying the latent constructs and a structural model testing the hypothesized mediation pathways. Model fit was evaluated using standard goodness-of-fit indices, including the comparative fit index (CFI), Tucker–Lewis index (TLI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR). Statistical significance was set at $P < 0.05$.

The dataset contained minimal missing data (<5%), which were assumed to be missing completely at random. To assess potential mode and site effects, key sociodemographic and clinical variables were compared across data collection modes (face-to-face, assisted, and online) and recruitment sites (KHCC and Al-Bashir Hospital). Data collection mode and site were subsequently included as covariates in both regression and SEM analyses to account for potential imbalances.

3. Results

3.1. Sample characteristics

The study included 300 men diagnosed with PC. Nearly half of the participants were aged 71–80 years (49.0%), followed by those aged 60–70 years (45.7%), while 5.3% were aged 81–90 years. Most participants were married (77.0%), retired (82.3%), and had attained tertiary education (50.0%).

Regarding clinical characteristics, radiation therapy (31.0%) and hormonal therapy (22.3%) were the most frequently reported treatment modalities. Almost half of the participants had been diagnosed for 2–5 years (48.7%). More than half received care at public hospitals (56.7%). The majority of patients were diagnosed with stage II (43.7%) or

stage III disease (51.3%). Two-thirds reported no comorbid conditions (65.7%), while hypertension was the most common comorbidity (16.3%). Table **1** summarizes the sociodemographic and clinical characteristics of the sample.

Table 1: Participants' sociodemographic and clinical profile (*N* = 300).

Variable	Category	Frequency *N* (%)
Sociodemographic characteristics		
Age group	60–70	137 (45.7)
	71–80	147 (49.0)
	81–90	16 (5.3)
Marital status	Married	231 (77.0)
	Widower	69 (23.0)
Education	Basic	41 (13.7)
	Secondary	109 (36.3)
	Tertiary (Bachelor/Master/PhD)	150 (50.0)
Employment status	Employed	25 (8.3)
	Unemployed	28 (9.3)
	Retired	247 (82.3)
Clinical characteristics		
Treatment type	Chemotherapy	39 (13.0)
	Hormonal therapy	67 (22.3)
	Radiation therapy	93 (31.0)
	Surgery	65 (21.7)
	Combination (Surgery + Chemotherapy)	7 (2.3)
	Combination (Surgery + Radiation)	9 (3.0)
	Combination (Chemotherapy + Radiation)	20 (6.7)
Duration since diagnosis (year)	<1	45 (15.0)
	2–5	146 (48.7)
	>6	109 (36.3)
Hospital type	Public	170 (56.7)
	Private	130 (43.3)
Cancer stage	Stage I	15 (5.0)
	Stage II	131 (43.7)
	Stage III	154 (51.3)
Medical history	No comorbidities	197 (65.7)
	Hypertension	49 (16.3)
	Heart disease	28 (9.3)
	Chronic lung/kidney disease	16 (5.3)
	Diabetes mellitus	10 (3.3)

3.2. Mode and site analyses

Comparisons across data collection modes (in-person, interviewer-assisted, and online) and recruitment sites (KHCC and Al-Bashir Hospital) showed no statistically significant differences in key sociodemographic or clinical characteristics, including age, marital status, education level, cancer stage, treatment type, and duration since diagnosis (all $P > 0.05$).

When data collection mode and recruitment site were included as covariates in the multiple regression and structural equation models, the estimates for the primary associations remained unchanged.

3.3. Prevalence of unmet needs

Table **2** shows the distribution of USCNs among men with PC across the five SCNS-SF34 domains. The table presents the percentage of respondents reporting no need, as well as low, moderate, or high levels of need, together with the mean ± SD for each domain and the total score. The psychological, health system, and information domains recorded the highest mean scores (27.52 ± 8.39 and 24.02 ± 8.45), while the sexuality domain recorded the lowest mean score (7.50 ± 4.56). The mean total SCNS-SF34 score was 93.23 ± 21.13.

Table 2: Summary of participants' supportive care needs by domain with frequencies (%) for each level of need and corresponding mean (±SD) SCNS-SF34 scores.

Domain	Items	No need		Some need		
		Not applicable *N* (%)	Satisfied *N* (%)	Low need *N* (%)	Moderate need *N* (%)	High need *N* (%)
Physical and daily living needs	Mean ± SD	13.94 ± 4.61				
	SCNS1	77 (25.7)	115 (38.3)	45 (15)	63 (21)	0 (0)
	SCNS2	35 (11.7)	71 (23.7)	65 (21.7)	108 (36)	21 (7)
	SCNS3	45 (15)	65 (21.7)	107 (35.7)	70 (23.3)	13 (4.3)
	SCNS4	45 (15)	61 (20.3)	103 (34.3)	79 (26.3)	12 (4)
	SCNS5	35 (11.7)	69 (23)	83 (27.7)	101 (33.7)	12 (4)
Psychological needs	Mean ± SD	27.52 ± 8.39				
	SCNS6	28 (9.3)	88 (29.3)	80 (26.7)	84 (28)	20 (6.7)
	SCNS7	35 (11.7)	75 (25)	82 (27.3)	56 (18.7)	52 (17.3)
	SCNS8	44 (14.7)	71 (23.7)	80 (26.7)	75 (25)	30 (10)
	SCNS9	13 (4.3)	133 (44.3)	50 (16.7)	77 (25.7)	27 (9)
	SCNS10	14 (4.7)	165 (55)	22 (7.3)	88 (29.3)	11 (3.7)
	SCNS11	23 (7.7)	216 (72)	15 (5)	46 (15.3)	0 (0)
	SCNS12	17 (5.7)	149 (49.7)	49 (16.3)	61 (20.3)	24 (8)
	SCNS13	17 (5.7)	139 (46.3)	62 (20.7)	59 (19.7)	23 (7.7)
	SCNS14	33 (11)	219 (73)	16 (5.3)	32 (10.7)	0 (0)
	SCNS17	12 (4)	129 (43)	38 (12.7)	82 (27.3)	39 (13)
Sexuality needs	Mean ± SD	7.50 ± 4.56				
	SCNS15	139 (46.3)	66 (22)	0 (0)	27 (9)	68 (22.7)
	SCNS16	116 (38.7)	76 (25.3)	9 (3)	23 (7.7)	76 (25.3)
	SCNS31	116 (38.7)	76 (25.3)	10 (3.3)	23 (7.7)	75 (25)

Table 2: Continued.

Domain	Items	No need		Some need		
		Not applicable *N* (%)	Satisfied *N* (%)	Low need *N* (%)	Moderate need *N* (%)	High need *N* (%)
Patient care and support needs	Mean ± SD	20.25 ± 7.56				
	SCNS18	4 (1.3)	185 (61.7)	17 (5.7)	46 (15.3)	48 (16)
	SCNS19	4 (1.3)	181 (60.3)	16 (5.3)	47 (15.7)	52 (17.3)
	SCNS20	3 (1)	174 (58)	16 (5.3)	54 (18)	53 (17.7)
	SCNS21	4 (1.3)	174 (58)	15 (5)	48 (16)	59 (19.7)
	SCNS22	3 (1)	182 (60.7)	15 (5)	45 (15)	55 (18.3)
	SCNS32	7 (2.3)	176 (58.7)	17 (5.7)	47 (15.7)	53 (17.7)
	SCNS33	5 (1.7)	177 (59)	16 (5.3)	47 (15.7)	55 (18.3)
Health system and information needs	Mean ± SD	24.02 ± 8.45				
	SCNS23	40 (13.3)	155 (51.7)	46 (15.3)	10 (3.3)	49 (16.3)
	SCNS24	54 (18)	139 (46.3)	31 (10.3)	38 (12.7)	38 (12.7)
	SCNS25	5 (1.7)	203 (67.7)	28 (9.3)	31 (10.3)	33 (11)
	SCNS26	16 (5.3)	178 (59.3)	28 (9.3)	41 (13.7)	37 (12.3)
	SCNS27	0 (0)	171 (57)	43 (14.3)	27 (9)	59 (19.7)
	SCNS28	50 (16.7)	137 (45.7)	32 (10.7)	37 (12.3)	44 (14.7)
	SCNS29	10 (3.3)	181 (60.3)	48 (16)	40 (13.3)	21 (7)
	SCNS30	32 (10.7)	165 (55)	45 (15)	29 (9.7)	29 (9.7)
	SCNS34	21 (7)	157 (52.3)	10 (3.3)	49 (16.3)	63 (21)
	SCNS-34 Total	Mean ± SD	93.23 ± 21.13			

3.4. Coping strategies (Brief COPE Inventory)

Table **3** shows the mean (± SD) scores for the Brief COPE domains. Problem-focused coping had a mean item score of 2.56 ± 0.93 (total score: 16.08 ± 5.07), emotion-focused coping averaged 2.69 ± 0.78 (total score: 32.22 ± 9.33), and avoidant or maladaptive coping averaged 2.68 ± 0.85 (total score: 25.57 ± 9.29). The cumulative Brief COPE score was 73.87 ± 18.27.

Table 3: Coping behaviors of participants assessed by the Brief COPE Inventory (*N* = 300).

Coping domain/Sub-scale	Mean ± SD (per item)	Total domain score (Mean ± SD)
Problem-focused coping	2.56 ± 0.93	16.08 ± 5.07
Active Coping (Cope2 + Cope7)	2.66 ± 0.88	–
Use of Informational Support (Cope10 + Cope23)	2.69 ± 0.87	–
Planning (Cope14 + Cope25)	2.69 ± 0.89	–
Positive Reframing (Cope12 + Cope17)	2.68 ± 0.81	–
Emotion-focused coping	2.69 ± 0.78	32.22 ± 9.33
Venting (Cope9 + Cope21)	2.71 ± 0.83	–
Use of Emotional Support (Cope5 + Cope15)	2.68 ± 0.81	–
Humor (Cope18 + Cope28)	2.67 ± 0.78	–

Table 3: Continued.

Coping domain/Sub-scale	Mean ± SD (per item)	Total domain score (Mean ± SD)
Acceptance (Cope20 + Cope24)	2.68 ± 0.82	–
Self-Blame (Cope13 + Cope26)	2.53 ± 0.95	–
Religion (Cope22 + Cope27)	2.70 ± 0.81	–
Avoidant/Maladaptive coping	2.68 ± 0.85	25.57 ± 9.29
Denial (Cope3 + Cope8)	2.58 ± 1.05	–
Substance Use (Cope4 + Cope11)	2.60 ± 0.99	–
Behavioral Disengagement (Cope6 + Cope16)	2.49 ± 0.93	–
Self-Distraction (Cope1 + Cope19)	2.58 ± 0.92	–
Total Brief COPE Score	–	73.87 ± 18.27

3.5. Perceived social support (MSPSS)

Table **4** shows that family support had the highest mean score (20.38 ± 3.47), followed by support from a significant other (19.45 ± 6.06) and friends (16.94 ± 6.68). The mean total MSPSS score was 56.77 ± 11.33.

Table 4: Mean and standard deviation of the scores of the total perceived social support (MSPSS).

Domain	Mean (Standard Deviation)
Family Support	20.38 ± 3.47
Friends Support	16.94 ± 6.68
Significant Other Support	19.45 ± 6.06
Total score of perceived social support (MSPSS)	56.77 ± 11.33

3.6. Quality of life (QoL) among patients with prostate cancer (PC)

Table **5** presents the transformed WHOQOL-BREF domain scores following conversion from the original 1–5 response scale to the recommended 4–20 and 0–100 metrics. Among the four domains, Social Relationships recorded the highest mean QoL score (approximately 68.8 on the 0–100 scale), followed by Psychological Well-being (approximately 50.0). The Physical Health and Environment domains showed similar, comparatively lower scores (approximately 43.8 each).

Table 5: Mean WHOQOL-BREF domain scores presented on the original 1–5-item scale, after transformation to the 4–20 scale, and finally on the standard 0–100 scale.

Domain	Mean ± SD (1–5 scale)	Mean (4–20 scale)	Mean (0–100 scale)
Physical Health	2.83 ± 0.94	11.0	43.8
Psychological Well-being	2.88 ± 1.30	12.0	50.0
Social Relationships	3.67 ± 1.16	15.0	68.8
Environment	2.73 ± 0.63	11.0	43.8

Values on the 4–20 scale were obtained by multiplying the item mean (1–5 scale) by 4. Values on the 0–100 scale were then calculated using the WHOQOL-BREF standard formula: (4–20 score – 4) × 6.25. All transformed values fall within the expected ranges of 4–20 and 0–100.

3.7. Determinants of USCNs

Table **6** presents the results of multiple linear regression analyses examining determinants of USCNs across domains. Poorer physical health was significantly associated with higher unmet needs in the Health System and Information (HSI) domain (β = −0.30, $P < 0.001$) and the Physical/Sexual (P) domain (β = −0.23, $P < 0.001$). Lower psychological well-being was associated with higher unmet needs in the Psychological and Daily Living (PDL; β = −0.13, $P < 0.01$), Patient Care and Support (PCS; β = −0.18, $P < 0.01$), and HSI (β = −0.17, $P < 0.01$) domains. Environmental quality was negatively associated with unmet needs in the PDL (β = −0.20, $P < 0.001$) and P (β = −0.32, $P < 0.001$) domains.

Coping strategies were also associated with unmet needs. Maladaptive coping was positively associated with unmet PCS (β = 0.22, $P < 0.001$) and HSI (β = 0.25, $P < 0.001$) needs. Emotion-focused coping was associated with higher unmet HSI needs (β = 0.19, $P < 0.001$), while problem-focused coping was associated with unmet needs in the P domain (β = 0.10, $P < 0.01$).

Perceived social support showed significant associations across domains. Lower support from friends was associated with higher unmet PCS (β = −0.19, $P < 0.001$) and HSI (β = −0.11, $P < 0.05$) needs. Lower family support was associated with higher unmet HSI needs (β = −0.20, $P < 0.001$).

Demographic and clinical factors were also significant predictors. Age was positively associated with unmet Sexual needs (β = 0.29, $P < 0.001$) and negatively associated with unmet PDL (β = −0.13, $P < 0.001$), P (β = −0.13, $P < 0.001$), and HSI (β = −0.19, $P < 0.001$) needs. Lower educational attainment was associated with higher unmet Sexual (β = 0.28, $P < 0.001$) and HSI (β = −0.17, $P < 0.01$) needs, while unemployment was associated with higher unmet PDL needs (β = −0.27, $P < 0.001$). Advanced cancer stage was most strongly associated with unmet Sexual needs (β = −0.48, $P < 0.001$).

The regression models explained the greatest proportion of variance in the P (R^2 = 0.58) and PDL (R^2 = 0.52) domains.

3.8. Mediation model findings

Table **7** presents the results of the SEM analyses for the two mediation frameworks, including unstandardized coefficients (B), standardized estimates (β), standard errors (SE), and *P*-values.

The final structural equation model showed good fit to the data (χ^2/df = 2.9, CFI = 0.924, TLI = 0.956, RMSEA = 0.031; 90% CI 0.018–0.041, SRMR = 0.056). For the coping pathway, USCNs were associated with coping strategies (β = −0.260, $P < 0.001$), coping strategies were associated with QoL (β = 0.492, $P < 0.001$), and USCNs were directly associated with QoL (β = −0.447, $P < 0.001$). The indirect effect of USCNs on QoL through coping strategies was statistically significant (β = −0.128, $P < 0.001$).

For the social support pathway, USCNs were associated with perceived social support (β = −0.488, $P < 0.001$), perceived social support was associated with QoL (β = 0.225, $P < 0.001$), and USCNs were directly associated with QoL (β = −0.465, $P < 0.001$). The indirect effect of USCNs on QoL through perceived social support was statistically significant (β = −0.110, $P < 0.001$). Indirect effects were evaluated using bootstrapped 95% confidence intervals based on 5000 resamples.

Table 6: Multiple linear regression model examining the associations between SCNS-SF34-M domains and WHOQOL-BREF, Brief COPE Inventory, MSPSS, and demographic and clinical variables.

Independent variable	PDL			P			Sexual			PCS			HSI		
	β	SE	VIF	β	SE	VIF	β	SE	VIF	β	SE	VIF	β	SE	VIF
Quality of life															
Physical Health	–0.13**	0.05	1.82	–0.23***	0.05	1.82	–0.21**	0.11	1.82	–0.18**	0.08	1.82	–0.30***	0.06	1.82
Psychological Well-being	–0.13**	0.04	1.4	–0.13**	0.03	1.4	–0.10*	0.07	1.4	–0.18**	0.05	1.4	–0.17**	0.04	1.4
Social Relationships	0.05	0.04	1.35	–0.04	0.03	1.35	–0.01	0.08	1.35	–0.17**	0.05	1.35	–0.14**	0.04	1.35
Environment	–0.20***	0.08	1.78	–0.32***	0.07	1.8	0.07	0.16	1.8	–0.20**	0.12	1.8	–0.07	0.09	1.8
Coping strategies															
Problem-focused Coping	0.01	0.05	1.57	0.10**	0.04	1.59	–0.13**	0.1	1.59	0.02	0.07	1.59	0.01	0.06	1.59
Emotion-focused Coping	0	0.06	1.602	–0.04	0.05	1.6	0.07	0.12	1.6	–0.11*	0.09	1.6	0.19***	0.07	1.6
Avoidant/Maladaptive Coping	0.05	0.06	1.613	0.06	0.05	1.61	0.09	0.11	1.61	0.22***	0.08	1.61	0.25***	0.07	1.61
Perceived social support															
Family Support	0.02	0.05	1.434	0.05	0.05	1.43	–0.04	0.1	1.43	0.03	0.08	1.43	–0.20***	0.06	1.43
Friends Support	0.01	0.03	1.406	–0.08*	0.02	1.41	–0.05	0.05	1.41	–0.19***	0.04	1.41	–0.11*	0.03	1.41
Significant Other Support	–0.03	0.03	1.336	–0.02	0.03	1.34	0.04	0.06	1.34	–0.10*	0.04	1.34	–0.13**	0.03	1.34
Demographics & clinical															
Age	–0.13***	0.01	1.294	–0.13***	0.01	1.29	0.29***	0.02	1.29	0.07	0.01	1.29	–0.19***	0.01	1.29
Marital status	–0.15***	0.1	1.319	–0.02	0.09	1.32	-0.03	0.2	1.32	–0.083	0.15	1.32	–0.14**	0.12	1.32
Education	–0.04	0.07	1.718	0.08*	0.06	1.72	0.28***	0.14	1.72	–0.01	0.1	1.72	–0.17**	0.08	1.72
Employment	–0.27***	0.08	1.544	0	0.07	1.54	0.01	0.15	1.54	0	0.11	1.54	–0.14**	0.09	1.54
Stage	–0.05	0.09	1.897	–0.10*	0.08	1.9	–0.48***	0.17	1.9	0.01	0.13	1.9	0.09	0.1	1.9
F-Statistic	16.77***			21.61			7.57***			6.57***			9.79***		
R-Square	0.52			0.58			0.33			0.3			0.39		
Durbin-Watson	1.57			1.75			1.65			1.98			1.85		

Note: *$P < 0.05$; **$P < 0.01$; ***$P < 0.001$; Multiple linear regression was performed.

Table 7: Indirect effects of coping and social support on the relationship between USCNs and QoL (*N* = 300).

Mediator	Path	B	β	SE	*P*-value	Results
Coping Strategies (Brief COPE)	USCNs→ QoL	–0.487	–0.447	0.043	$P < 0.001^{***}$	Significant
	USCNs → Coping	–0.275	–0.260	0.059	$P < 0.001^{****}$	Significant
	Coping QoL	0.507	0.492	0.041	$P < 0.001^{***}$	Significant
	USCNs→ Coping → QoL	–0.139	–0.128	0.031	$P < 0.001^{***}$	Significant
Perceived Social Support (MSPSS)	USCNs → QoL	–0.507	–0.465	0.057	$P < 0.001^{***}$	Significant
	USCNs → Social Support	-0.747	-0.488	0.077	$P < 0.001^{***}$	Significant
	Social Support → QoL	0.160	0.225	0.037	$P < 0.001^{***}$	Significant
	USCNs → Social Support → QoL	-0.120	-0.110	0.030	$P < 0.001^{***}$	Significant

$^{*}P < 0.05$; $^{**}P < 0.01$; $^{***}P < 0.001$; QoL, quality of life; SCNs, supportive care needs.

3.9. Coping as a mediator

As shown in Figure **1**, USCNs (SCNS-SF34) were directly associated with QoL (B = –0.487, β = –0.447, $P < 0.001$). USCNs were also associated with coping capacity (B = –0.275, β = –0.260, $P < 0.001$), and coping capacity was associated with QoL (B = 0.507, β = 0.492, $P < 0.001$). The indirect effect of USCNs on QoL through coping was statistically significant (B = –0.139, β = –0.128, $P < 0.001$).

3.10. Social support as a mediator

As shown in Figure **2**, USCNs were directly associated with QoL (B = –0.507, β = –0.465, $P < 0.001$) and with perceived social support (B = –0.747, β = –0.488, $P < 0.001$). Perceived social support was also associated with QoL (B = 0.160, β = 0.225, $P < 0.001$). The indirect effect of USCNs on QoL through perceived social support was statistically significant (B = –0.120, β = –0.110, $P < 0.001$).

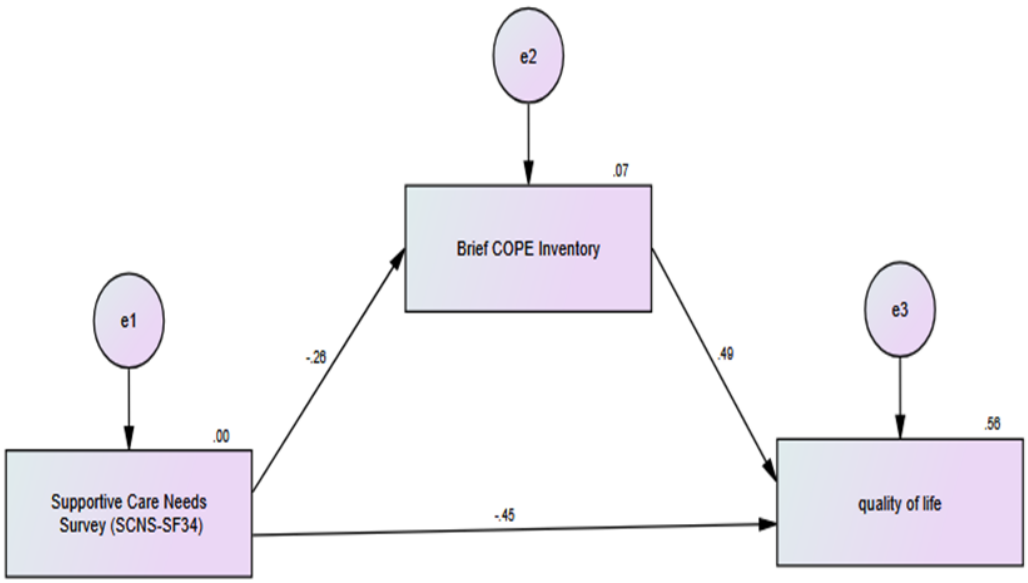

Figure 1: Structural model of the relationships between USCNs, coping strategies, and QoL.

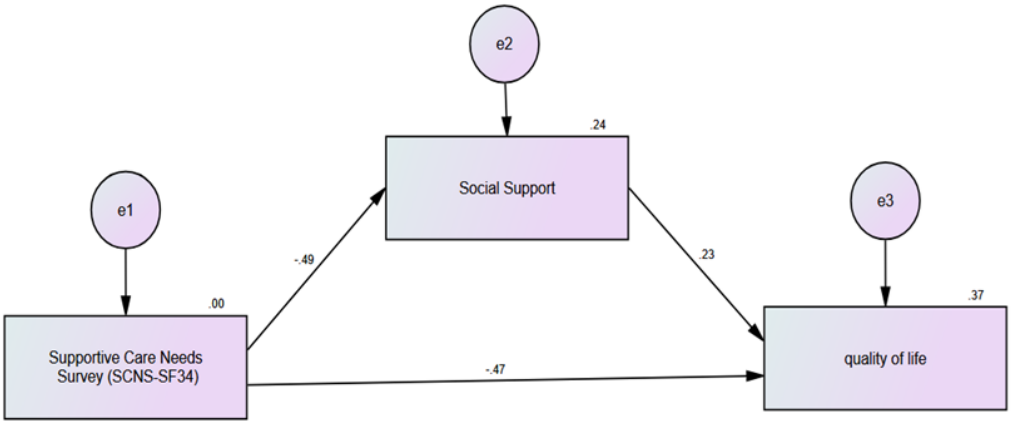

Figure 2: Structural model of the relationships between USCNs, social support, and QoL.

Coping strategies and perceived social support were modeled as parallel mediators of the association between USCNs and QoL. Indirect effects were estimated using bootstrapped SEM in AMOS (5000 resamples).

4. Discussion

This study provides robust evidence of substantial USCNs among men with PC in Jordan, with psychological needs emerging as the most prominent domain. Participants frequently reported emotional distress, uncertainty about the future, concerns related to body image and sexual functioning, and a perceived need for professional psychological support. These findings are consistent with international literature indicating that psychological morbidity remains one of the most persistent and under-addressed components of PC care across diverse healthcare systems [18–20]. The prominence of psychological needs observed in the present study underscores the importance of integrating psychosocial care into routine oncology services, particularly in settings where access to formal mental health support is limited.

Within the Physical and Daily Living domain, fatigue and difficulties in performing routine activities were commonly reported by participants. This pattern aligns with global evidence identifying fatigue as a central survivorship challenge in PC, often intertwined with emotional distress and functional decline [18, 19, 21].

The relatively high burden of physical and daily living difficulties observed in this Jordanian cohort may reflect differences in disease stage at diagnosis, cumulative treatment exposure, and the availability of rehabilitative and supportive services when compared with populations in higher-income settings.

Needs related to the HSI domain were also highly prevalent. Participants emphasized gaps in communication, limited access to clear and timely information, and insufficient emotional engagement from healthcare professionals. Importantly, this pattern is not unique to Jordan. Local evidence from Jordanian cancer populations indicates that informational and psychological needs remain among the most frequently unmet domains, even within comprehensive cancer care settings [22]. Similarly, Jordanian patients with colorectal cancer have reported high levels of unmet informational

and psychological needs, suggesting that these gaps reflect broader systemic challenges within the national oncology context rather than disease-specific issues alone [23].

Beyond Jordan, comparable regional patterns have been documented. A recent study conducted in Palestinian government hospitals found that psychological, HSI, and physical and daily living needs were among the most prominent unmet supportive care domains among cancer patients, underscoring shared challenges across Arab healthcare systems [24]. Evidence from the Gulf region further indicates that oncologists may underestimate their patients' psychosocial supportive care needs, particularly psychological distress, highlighting a disconnect between clinical perceptions and patients' lived experiences of unmet needs, including in PC-related contexts [13]. In addition, multisite evidence from sub-Saharan Africa demonstrates that USCNs among cancer patients consistently span psychological, informational, physical, and patient-support domains, reflecting persistent challenges within resource-limited healthcare settings across the African region [25]. Collectively, these regional findings situate the present results within a clear Middle Eastern and broader African context and strengthen the comparative interpretation of USCNs across resource-constrained healthcare settings.

Sociodemographic and clinical factors also played an important role in shaping USCNs. In the present study, older age, lower educational attainment, unemployment, and advanced disease stage were associated with higher unmet needs in selected domains. These findings are consistent with regional evidence indicating that social vulnerability and disease severity amplify supportive care gaps among cancer patients [22, 23]. Such patterns highlight the importance of targeted supportive care strategies that prioritize individuals with fewer socioeconomic resources and more advanced clinical profiles.

In terms of coping, emotion-focused coping strategies were most frequently employed, whereas problem-focused coping was less commonly reported. This pattern may reflect culturally embedded adaptive responses within Jordanian society, including acceptance, faith-based coping, and reliance on close family networks. Importantly, the mediation analyses demonstrated that coping strategies partially explained the association between USCNs and QoL. Higher levels of unmet needs were associated with reduced coping efficacy, while more effective coping was linked to better QoL. These findings align with survivorship literature emphasizing coping as a key intrapersonal resource that can mitigate distress and support psychological adjustment among men with PC [18, 19, 26].

Perceived social support also emerged as a significant partial mediator. Participants reporting greater USCNs tended to report lower levels of perceived support, while stronger social support was associated with better QoL. This finding supports the buffering hypothesis and reinforces the central role of interpersonal resources in mitigating the negative impact of unmet needs. Regional studies similarly emphasize the importance of family and social networks in Arab cultural contexts, while also noting that informal support may not fully compensate for deficiencies in formal psychosocial and informational services [23, 24]. Together, these findings highlight the complementary roles of intrapersonal and interpersonal resources in shaping survivorship outcomes.

International comparisons further contextualize the present findings. A recent study among PC survivors in China reported that HSI needs were among the most prominent unmet domains, reflecting common survivorship challenges related to navigating follow-up care and managing treatment-related side effects [21]. In contrast to the Chinese cohort, where health system and informational needs were most prominent, psychological needs were more salient in the present Jordanian sample. This divergence may reflect differences in navigating the healthcare system, cultural norms around emotional disclosure, and the relative availability of formal psychosocial support services.

When considered alongside global systematic evidence demonstrating persistent psychological, informational, and intimacy-related unmet needs among men living with and beyond PC, the present results reinforce the universality of these challenges across healthcare systems, albeit with contextual variation in their expression and management [19].

In summary, this study highlights substantial USCNs among Jordanian men with PC, particularly in psychological and HSI domains. The findings demonstrate that both coping strategies and perceived social support are statistically meaningful mechanisms linked to QoL, underscoring the importance of integrated and culturally responsive supportive care models. By situating these findings within local, regional, and global evidence, the study provides a coherent multilevel interpretation and strengthens the rationale for survivorship-oriented interventions aimed at enhancing psychosocial well-being and QoL, while acknowledging that causal inference requires confirmation through longitudinal research.

From a clinical perspective, these findings underscore the urgent need to embed routine psychosocial screening, counseling, and culturally tailored supportive services within oncology care pathways to mitigate distress and enhance patient resilience. Although the cross-sectional design precludes causal inference, the present evidence provides a robust foundation for future longitudinal and interventional research aimed at advancing equitable and effective survivorship care in resource-constrained settings.

4.1. Strengths and limitations

A key strength of this study lies in its originality, as it represents the first comprehensive investigation in Jordan to examine the prevalence of USCNs and their psychosocial determinants among men with PC. The use of advanced statistical techniques, including multiple regression and SEM, enabled the examination of both direct and indirect relationships among unmet needs, coping strategies, perceived social support, and QoL. Furthermore, recruitment from two major cancer centers enhanced the clinical diversity of the sample and strengthened the relevance of the findings to the broader oncology context in Jordan.

Despite its strengths, this study has several limitations. The use of convenience sampling may have introduced selection bias, as men receiving care in private or rural healthcare settings, who may face different supportive care challenges, were underrepresented. Reliance on self-reported measures may also have introduced recall bias or socially desirable responding, particularly for culturally sensitive issues such as emotional distress, sexuality, and coping behaviors. Although the instruments were culturally adapted, certain

context-specific factors, including spiritual coping practices, masculine identity, and family honor, may not have been fully captured. Finally, the cross-sectional design precludes causal inference, highlighting the need for longitudinal and qualitative studies to further explore the cultural and psychosocial dimensions of supportive care needs.

5. Conclusion

This study provides a comprehensive examination of USCNs among Jordanian men with PC using culturally validated Arabic instruments. The findings indicate that psychological needs were the most prominent unmet domain, followed by HSI needs and PCS needs, with many participants reporting concerns related to fatigue, emotional distress, and uncertainty about the future. Higher levels of unmet needs were significantly associated with older age, lower education, unemployment, advanced disease stage, and poorer physical and psychological QoL. Notably, coping strategies and perceived social support partially mediated the relationship between USCNs and QoL, suggesting their important role in survivorship outcomes. Overall, these findings highlight the need for culturally appropriate supportive care services, routine psychosocial assessment, and stronger support systems to improve the well-being and QoL of men with PC in Jordan and similar contexts.

5.1. Recommendations

The findings of this study point to several priority actions to strengthen supportive care services for men with PC in Jordan. Psychosocial care should be systematically integrated into routine oncology pathways to address the high burden of unmet psychological and informational needs identified in this population. This integration may include structured psychological screening, referral mechanisms, and the availability of counseling services within oncology settings.

The development of culturally sensitive educational materials is also warranted to ensure that patients receive clear, accessible, and relevant information regarding diagnosis, treatment options, symptom management, and survivorship. In parallel, targeted training programs for healthcare professionals, particularly oncology nurses and social workers, should emphasize supportive communication skills and the early identification of psychosocial concerns.

In addition, peer support initiatives and community-based programs may play an important role in reducing social isolation by providing culturally appropriate spaces for shared experiences and mutual support. Routine clinical assessments should incorporate standardized evaluations of supportive care needs and psychological distress to facilitate timely referrals and individualized care planning. At the policy level, national cancer control strategies should increasingly adopt survivorship-oriented care models that prioritize QoL alongside traditional disease-focused outcomes.

In parallel with clinical and policy implications, future research should build on these findings in several directions. Longitudinal studies are needed to examine how supportive care needs evolve across different phases of the PC trajectory, from diagnosis through long-term survivorship. Qualitative research approaches may further elucidate the sociocultural and spiritual factors that shape coping strategies, help-seeking behaviors, and perceptions of support among Jordanian men.

In addition, interventional studies are required to evaluate the effectiveness of tailored psychosocial interventions, including coping skills training, culturally sensitive counseling, and structured peer support programs. Such research would provide robust evidence to inform the design and implementation of supportive care services that are responsive to both clinical and cultural contexts.

Declarations

Acknowledgements

The authors would like to express their sincere appreciation to the participating patients and the clinical staff at King Hussein Cancer Center (KHCC) and Al-Bashir Hospital for their valuable cooperation and support during data collection.

Ethical Considerations

This study was conducted in accordance with international ethical standards for research involving human participants. Ethical approval was obtained from the King Hussein Cancer Center Institutional Review Board (Approval ID: NO 23 KHCC 209 SP; November 3, 2024), the Ethics Committee of Al-Bashir Hospital under the Jordanian Ministry of Health (Approval ID: Education/Information 9498; July 18, 2024), and the Universiti Sains Malaysia Human Research Ethics Committee (Approval ID: USM/JEPeM/PP/23120922; May 31, 2024). All participants were provided with comprehensive verbal and written information regarding the study objectives, procedures, potential benefits, and associated risks. Participation was entirely voluntary, and written informed consent was obtained prior to data collection. Participant confidentiality was strictly maintained. All data were de-identified and securely stored with access restricted to authorized members of the research team, and findings were reported in aggregate form to prevent individual identification. Formal permission was obtained to use the validated Arabic versions of the SCNS-SF34, WHOQOL-BREF, Brief COPE, and MSPSS.

Competing Interests

None.

Availability of Data and Materials

The datasets generated and analyzed during the current study are not publicly available due to participant confidentiality and institutional data protection policies, but are available from the corresponding author on reasonable request.

Funding

None.

Abbreviations and Symbols

AMOS: Analysis of Moment Structures

B: Unstandardized coefficient

β: Standardized coefficient

CFI: Comparative Fit Index

CI: Confidence Interval

G*Power: General Power Analysis Program

HSI: Health System and Information Needs (SCNS domain)

IRB: Institutional Review Board

JEPeM: Jawatankuasa Etika Penyelidikan Manusia (Human Research Ethics Committee, Universiti Sains Malaysia)

KHCC: King Hussein Cancer Center

MSPSS: Multidimensional Scale of Perceived Social Support

PDL: Physical and Daily Living Needs (SCNS domain)

PCS: Patient Care and Support Needs (SCNS domain)

P: Psychological Needs (SCNS domain)

PC: Prostate cancer

QoL: Quality of life

R^2: Coefficient of determination

RMSEA: Root Mean Square Error of Approximation

S:Sexuality needs (SCNS domain)

SD: Standard deviation

SE: Standard error

SEM: Structural equation modeling

SPSS: Statistical Package for the Social Sciences

SRMR: Standardized Root Mean Square Residual

STROBE: Strengthening the Reporting of Observational Studies in Epidemiology

SCNS-SF34: Supportive Care Needs Survey, Short Form 34

TLI: Tucker Lewis Index

USCNs: Unmet Supportive Care Needs

VIF: Variance Inflation Factor

χ^2/df: Chi-square divided by degrees of freedom

AI Use Disclosure

The authors confirm that no generative artificial intelligence tools were used in the study design, data collection, statistical analysis, or interpretation of the results. AI-assisted tools were used only for minor language refinement and grammatical editing to improve clarity and readability, without influencing the scientific content or conclusions of the manuscript.

Author Contributions

Study concepts and literature review: ANA, RYA; Data acquisition, data analysis, statistical analysis: ANA, NMS, OS, RAG, GA; Manuscript review and editing: ANA, RYA, NMS, OS, RAG, GA; Final approval and accountability for all aspects of the work: ANA, RYA, NMS, OS, RAG, GA.

References

[1] Ayyad M, Ayaad O, Qaddumi B, Al-Rawashdeh S, Alkhatatbeh H, Al-Baimani K, et al. Epidemiological analysis of prostatic cancer: incidence, prevalence, mortality, and disability burden in Middle Eastern countries. Asian Pacific Journal of Cancer Biology. 2025;10(2):393–400.

[2] Cancer IAfRo. Cancer today – World: Prostate cancer fact sheet 2022. https://gco.iarc.fr/today/data/factsheets/cancers/27-Prostate-fact-sheet.pdf

[3] Hasanain A. Exploring prostate cancer experiences among Jordanian Muslim men. Victoria University of Wellington; 2021.

[4] Alorjani MS, Al Bashir S, Al-Zaareer B, Al-Khatib S, Al-Zoubi RM, Al-Trad B, et al. Prevalence of SPOP and IDH gene mutations in prostate cancer in a Jordanian population. Biochem Genet. 2025;63(6):5258–5272.

[5] Prashar J, Schartau P, Murray E. Supportive care needs of men with prostate cancer: A systematic review update. Eur J Cancer Care (Engl). 2022;31(2):e13541.

[6] Mainwaring JM, Walker LM, Robinson JW, Wassersug RJ, Wibowo E. The psychosocial consequences of prostate cancer treatments on body image, sexuality, and relationships. Front Psychol. 2021;12:765315.

[7] Xiang J, Dai L, Tan L, Lv D, Chen Y, Tang L, et al. Psychosocial experiences of prostate cancer survivors after treatment: A systematic review of qualitative studies. Front Public Health. 2025;13:1625611.

[8] Al-Ghazawi M, Salameh H, Amo-Afful S, Khasawneh S, Ghanem R. An in-depth look into the epidemiological and etiological aspects of prostate cancer: a literature review. Cureus. 2023;15(11):e48252.

[9] Paterson C, Kata SG, Nandwani G, Das Chaudhury D, Nabi G. Unmet supportive care needs of men with locally advanced and metastatic prostate cancer on hormonal treatment: A mixed methods study. Cancer Nurs. 2017;40(6):497–507.

[10] Abu-Odah H, Molassiotis A, Yat Wa Liu J. Analysis of the unmet needs of Palestinian advanced cancer patients and their relationship to emotional distress:

Results from a cross-sectional study. BMC Palliat Care. 2022;21(1):72.

[11] Alnajar MK, Abdalrahim MS, Mosleh SM, Farhan M, Amro K, Darawad MW. The need of patients living with cancer for palliative care. Int J Palliat Nurs. 2023;29(5):236–245.

[12] Roberts NA, Esler R, Pearce A, Wyld D, Smith M, Woollett K, et al. Exploring unmet needs in prostate cancer care: a cross-sectional descriptive study. Eur Urol Open Sci. 2024;62:36–42.

[13] Nair SC, Jaafar H, Jaloudi M, Qawasmeh K, AlMarar A, Ibrahim H. Supportive care needs of multicultural patients with cancer in the United Arab Emirates. Ecancermedicalscience. 2018;12:838.

[14] Dalky HF, Meininger JC, Al-Ali NM. The reliability and validity of the Arabic World Health Organization quality of life-BREF instrument among family caregivers of relatives with psychiatric illnesses in Jordan. J Nurs Res. 2017;25(3):224–230.

[15] Alghamdi M. Cross-cultural validation and psychometric properties of the Arabic Brief COPE in Saudi population. Med J Malaysia. 2020;75(5):502–509.

[16] Fekih-Romdhane F, Fawaz M, Hallit R, Sawma T, Obeid S, Hallit S. Psychometric properties of an Arabic translation of the multidimensional social support scale (MSPSS) in a community sample of adults. BMC Psychiatry. 2023;23(1):432.

[17] Fitch M. Supportive care framework. Can Oncol Nurs J/Revue canadienne de soins infirmiers en oncologie. 2008;18(1):6–14.

[18] Calvo-Schimmel A, Newman SD, Sterba KR, Mueller M, Miaskowski C, Qanungo S. Unmet supportive care needs in prostate cancer survivors with advanced disease: A mixed-methods exploration. Can Oncol Nurs J. 2022;32(4):512–525.

[19] Paterson C, Robertson A, Smith A, Nabi G. Identifying the unmet supportive care needs of men living with and beyond prostate cancer: A systematic review. Eur J Oncol Nurs. 2015;19(4):405–418.

[20] Xiao H, Baxter GD, Liu L, Hoeta T, Wibowo E. The landscape of supportive care needs among prostate cancer patients in New Zealand: A cross-ethnic analysis. Psychooncology. 2025;34(2):e70110.

[21] Zhang Y, Zhang H, Cai H. Unmet supportive care needs of prostate cancer survivors in China: A cross-sectional study. ASSEHR. 2023;8(1):229.

[22] Al-Omari A, Al-Rawashdeh N, Damsees R, Ammar K, Alananzeh I, Inserat B, et al. Supportive care needs assessment for cancer survivors at a comprehensive cancer center in the Middle East: Mending the gap. Cancers (Basel). 2022;14(4):1002.

[23] Al-Husban RY, Obeidat R, Shamieh O. Unmet supportive care needs of Jordanian patients with colorectal cancer: A cross-sectional survey. Asia Pac J Oncol Nurs. 2021;8(5):565–572.

[24] Titi I, El Sharif N. Factors associated with supportive care needs among Palestinian women with breast cancer in the West Bank: A cross-sectional study. Cancers (Basel). 2024;16(21):3663.

[25] Bore MG, Dadi AF, Ahmed KY, Hassen TA, Kibret GD, Kassa ZY, et al. Unmet supportive care needs among cancer patients in Sub-Saharan African countries: A mixed-method systematic review and meta-analysis. J Pain Symptom Manage. 2024;67(3):e211–227.

[26] Guan T, Santacroce SJ, Chen DG, Song L. Illness uncertainty, coping, and quality of life among patients with prostate cancer. Psychooncology. 2020;29(6):1019–1025.