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Keywords: Prostatic Neoplasms; Financial Stress; Socioeconomic Factors; Quality of Life; Patient-Reported Outcome Measures; Health Services Accessibility

Abstract

Objective: To characterize financial toxicity among patients with prostate cancer receiving care at a public tertiary center and evaluate its association with socioeconomic characteristics, indirect care-related burden, and patient-reported well-being.

Materials and Methods: We conducted a cross-sectional study of adults with confirmed prostate cancer receiving treatment or follow-up at a public tertiary referral center in Mexico City between January and August 2025. Financial toxicity was assessed using the Spanish version of the Comprehensive Score for Financial Toxicity (FACIT-COST; range, 0–44), with lower scores indicating greater distress. Associations with FACIT-COST score were evaluated using bivariate analyses and multivariable linear regression.

Results: The analytic cohort included 145 patients. Mean FACIT-COST score was 20.8 ± 8.5 , with a median of 21.0 (interquartile range, 15–27). Overall, 102 patients (70.3%) experienced at least mild financial toxicity, including 33 (22.8%) with moderate-to-severe toxicity. FACIT-COST showed high internal consistency (Cronbach $\alpha = 0.883$). In multivariable analysis, each one-level increase in institutional socioeconomic classification was associated with a 1.72-point higher FACIT-COST score (95% CI, 0.51–2.93; $P = .005$), and university or postgraduate education was associated with a 5.59-point higher score versus secondary education or less (95% CI, 1.22–9.95; $P = .012$). Better financial well-being correlated with better physical, emotional, and functional well-being. Greater workdays lost and longer time spent receiving care were associated with worse financial well-being in exploratory analyses.

Conclusions: Financial toxicity was common despite public-sector care. Subsidized medical services alone may be insufficient to provide comprehensive financial protection.

1. Introduction

Financial toxicity is increasingly recognized as a clinically relevant consequence of cancer care. Beyond direct medical expenses, patients may face transportation and lodging costs, income loss, caregiving demands, and other indirect burdens that affect treatment adherence, psychological well-being, and quality of life (1–6).

Prostate cancer is particularly relevant because its management may involve surgery, radiotherapy, systemic treatment, and prolonged surveillance. This extended care trajectory can generate cumulative financial pressure for patients and their families. Previous studies have identified lower income, limited insurance coverage, and employment disruption as important risk factors for financial hardship in prostate cancer (7–10).

Most available evidence has been generated in insured populations and high-income healthcare systems. Less is known about patients receiving care in public or subsidized settings, where direct institutional charges may be reduced but financial protection may remain incomplete. Transportation, food, time away from work, and caregiver responsibilities can still create substantial household-level burden (11,12).

The Comprehensive Score for Financial Toxicity (FACIT-COST) is a validated patient-reported instrument that measures material hardship, perceived financial control, and concern about current and future finances (13,14). Its use in prostate cancer populations receiving public-sector care remains limited.

We therefore evaluated the prevalence and severity of financial toxicity among patients with prostate cancer treated at a public tertiary referral center. We also examined its association with socioeconomic characteristics, clinical factors, indirect care-related burden, and exploratory patient-reported well-being measures.

2. Materials and Methods

2.1 Study Design and Participants

We conducted a cross-sectional analytical study at the Instituto Nacional de Ciencias Médicas y Nutrición Salvador Zubirán, a public tertiary referral center in Mexico City. Adults aged 18 years or older with confirmed prostate cancer receiving treatment or follow-up between January and August 2025 were invited to complete an electronic survey after informed consent.

Potential duplicate responses were identified using medical record number and normalized patient name. When duplicate responses were identified, the most complete FACIT-COST record was retained; if completeness was identical, the most recent response was selected.

The protocol was approved by the institutional Research and Ethics Committees (URO-6039-25-26-1) and followed the Declaration of Helsinki and STROBE recommendations.

2.2 Variables and Patient-Reported Measures

Collected variables included age, educational attainment, institutional socioeconomic classification, institutional cost-waiver status, private health insurance, TNM group, prostatectomy approach, and biochemical recurrence. Institutional socioeconomic classification ranged from 1 to 7, with higher levels indicating greater household resources.

Exploratory items assessed transportation, meals, lodging, paid caregiving, workdays lost, and time spent attending consultations or procedures. Because survey items changed during recruitment, indirect-burden analyses were restricted to responses that could be harmonized across versions.

Selected items derived from the physical, social, emotional, and functional well-being domains of the FACT-G were analyzed exploratorily. These items did not constitute complete validated FACT-G subscales and were therefore interpreted only as exploratory well-being measures.

2.3 FACIT-COST Scoring

Financial toxicity was assessed using the Spanish FACIT-COST, version 2. Eleven of 12 items contribute to the total score. FT1, FT6, FT7, and FT11 were scored directly; FT2–FT5 and FT8–FT10 were reverse-scored. Total scores range from 0 to 44, with lower scores indicating greater financial toxicity.

Scores were prorated when at least 6 of 11 scored items were completed. Multiple responses to a single item were treated as missing. For descriptive purposes, scores were categorized as moderate-to-severe financial toxicity (0–13), mild toxicity (14–25), or no/low toxicity (≥ 26).

2.4 Statistical Analysis

Continuous variables were summarized using means with standard deviations or medians with interquartile ranges; categorical variables were reported as frequencies and percentages. Associations with FACIT-COST score were evaluated using Spearman correlations, t tests, Welch tests, or Kruskal-Wallis tests, as appropriate.

A multivariable linear regression model evaluated the independent association of age, institutional socioeconomic level, educational attainment, cost-waiver status, and private health insurance with FACIT-COST score. Results were reported as unstandardized β coefficients with 95% confidence intervals. Internal consistency was assessed using Cronbach α . Indirect-burden analyses were considered exploratory. Statistical significance was defined as two-sided $P < .05$. Analyses were performed using SPSS Statistics, version 24.0 (IBM Corp., Armonk, NY).

3. Results

3.1 Cohort and Patient Characteristics

Among 160 survey responses, 2 duplicates were removed and 13 participants were excluded because fewer than 6 valid FACIT-COST items were available. The final analytic cohort

included 145 patients. Three participants had one invalid item because multiple responses were selected; their scores were prorated.

Mean age was 69.0 ± 7.8 years. Institutional socioeconomic classification was available for 107 patients, and 73 (68.2%) were classified at levels 2 or 3. Among 121 patients with available data, 71 (58.7%) received an institutional cost waiver. Eight patients (5.5%) reported private health insurance.

Open prostatectomy was performed in 117 patients (80.7%) and laparoscopic prostatectomy in 28 (19.3%). Ninety-five patients (65.5%) had localized disease, 41 (28.3%) had locally advanced or node-positive disease, and 8 (5.5%) had metastatic disease. Biochemical recurrence was recorded in 32 patients (22.1%). Baseline demographic, socioeconomic, clinical, and financial-toxicity characteristics are summarized in **Table 1**.

Table 1. Demographic, socioeconomic, clinical, and financial-toxicity characteristics of the analytic cohort

Characteristic	Value
Analytic cohort	145
Age, years, mean $\pm$ SD	69.0 ± 7.8
Marital status	
Married	76 (63.3%)
Living with a partner	10 (8.3%)
Single	17 (14.2%)
Widowed	13 (10.8%)
Other	4 (3.3%)
Educational attainment	
Preschool or primary education	12 (8.3%)
Secondary education	10 (6.9%)
High school or equivalent	25 (17.2%)
University degree	71 (49.0%)
Master's degree	17 (11.7%)
Doctoral degree	10 (6.9%)
Institutional socioeconomic level	
Level 1	9 (8.4%)
Level 2	33 (30.8%)
Level 3	40 (37.4%)

Level 4	12 (11.2%)
Level 5	7 (6.5%)
Level 6	4 (3.7%)
Level 7	2 (1.9%)
Institutional cost-waiver status	
Yes	71 (58.7%)
No	50 (41.3%)
Private health insurance	
Yes	8 (5.5%)
No	137 (94.5%)
Prostatectomy approach	
Open	117 (80.7%)
Laparoscopic	28 (19.3%)
TNM clinical group	
Localized	95 (65.5%)
Locally advanced or node-positive	41 (28.3%)
Metastatic	8 (5.5%)
Unclassifiable	1 (0.7%)
Biochemical recurrence	
Yes	32 (22.1%)
No	113 (77.9%)
FACIT-COST score, mean $\pm$ SD	20.8 $\pm$ 8.5
FACIT-COST score, median (IQR)	21.0 (15–27)
Financial-toxicity category	
Moderate-to-severe, score 0–13	33 (22.8%)
Mild, score 14–25	69 (47.6%)
No or low, score $\geq$ 26	43 (29.7%)
At least mild, score 0–25	102 (70.3%)

Abbreviations: FACIT-COST, Comprehensive Score for Financial Toxicity; IQR, interquartile range; SD, standard deviation; TNM, tumor–node–metastasis.

Note: Values are presented as mean $\pm$ SD, median (IQR), or n (%). Percentages were calculated using the number of participants with available data for each variable. Higher institutional socioeconomic levels indicate greater household resources. FACIT-COST ranges from 0 to 44, with lower scores indicating greater financial toxicity.

3.2 Financial Toxicity

Mean FACIT-COST score was 20.8 ± 8.5 , with a median of 21.0 (interquartile range, 15–27). Moderate-to-severe financial toxicity was present in 33 patients (22.8%), mild toxicity in 69 (47.6%), and no or low toxicity in 43 (29.7%). Overall, 102 patients (70.3%) experienced at least mild financial toxicity. The distribution of FACIT-COST scores is shown in **Figure 1**, and the proportions within each descriptive severity category are presented in **Figure 2**. Internal consistency was high among 142 complete responses (Cronbach $\alpha = 0.883$).

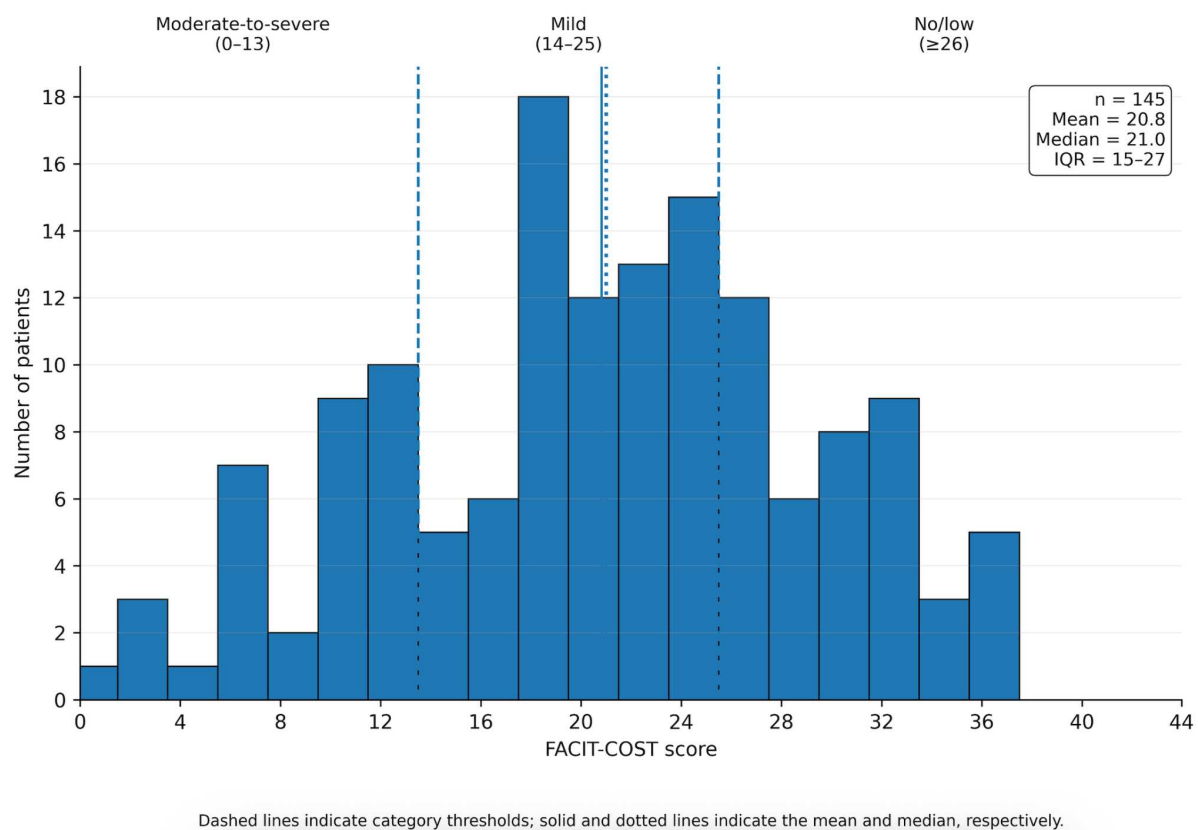


Figure 1. Distribution of FACIT-COST scores. Histogram showing the distribution of FACIT-COST scores among 145 patients with prostate cancer included in the analytic cohort. FACIT-COST scores range from 0 to 44, with lower scores indicating greater financial toxicity and higher scores indicating better financial well-being. Dashed vertical lines indicate the descriptive thresholds for moderate-to-severe financial toxicity (0–13), mild financial toxicity (14–25), and no or low financial toxicity (≥ 26). Solid and dotted vertical lines indicate the mean and median scores, respectively.

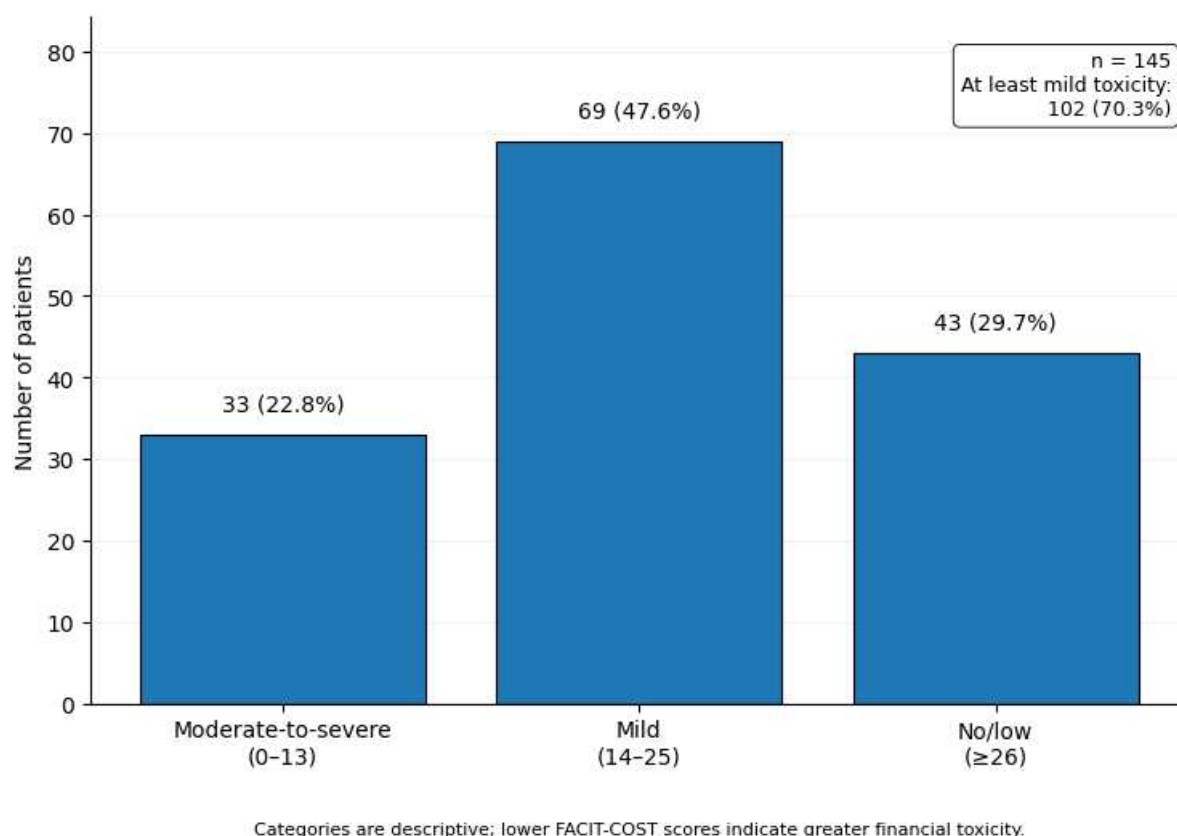


Figure 2. Severity categories of financial toxicity.

Bar chart showing the distribution of patients across the descriptive FACIT-COST severity categories. Moderate-to-severe financial toxicity was identified in 33 patients (22.8%), mild financial toxicity in 69 (47.6%), and no or low financial toxicity in 43 (29.7%). Overall, 102 patients (70.3%) experienced at least mild financial toxicity.

3.3 Socioeconomic Associations

Institutional socioeconomic level correlated positively with FACIT-COST score (Spearman $\rho = 0.41$; $P < .001$), as did educational attainment ($\rho = 0.17$; $P = .040$). Cost-waiver recipients had lower mean scores than patients without a waiver (20.0 ± 8.2 vs 22.7 ± 8.9 ; $P = .088$). Patients with private insurance had higher mean scores than those without coverage (25.5 ± 8.7 vs 20.5 ± 8.4 ; $P = .156$). Bivariate associations are presented in **Table 2**.

Table 2. Bivariate associations between participant characteristics and FACIT-COST score

Variable	Available, n	FACIT-COST score or association measure	P value
Demographic and socioeconomic factors			
Age, years	145	Spearman $\rho = -0.03$	.762
Institutional socioeconomic level	107	Spearman $\rho = 0.41$	<.001
Educational attainment	145	Spearman $\rho = 0.17$	.040
Institutional cost-waiver status	121		.088
No	50	22.7 ± 8.9	
Yes	71	20.0 ± 8.2	
Private health insurance	145		.156
No	137	20.5 ± 8.4	
Yes	8	25.5 ± 8.7	
Clinical characteristics			
Prostatectomy approach	145		.488
Open	117	20.5 ± 7.9	
Laparoscopic	28	22.0 ± 10.7	
TNM clinical group	144 ¹		.892
Localized	95	20.7 ± 8.4	
Locally advanced or node-positive	41	21.3 ± 8.8	
Metastatic	8	21.4 ± 8.7	

Biochemical recurrence	145		.163
No	113	20.3 ± 8.4	
Yes	32	22.7 ± 8.6	
Exploratory patient-reported well-being			
Physical well-being	145	Spearman ρ = 0.62	<.001
Emotional well-being	145	Spearman ρ = 0.48	<.001
Functional well-being	145	Spearman ρ = 0.35	<.001
Social well-being	145	Spearman ρ = 0.10	.242

Abbreviations: FACIT-COST, Comprehensive Score for Financial Toxicity; SD, standard deviation; TNM, tumor–node–metastasis.

Notes: Values are presented as mean ± SD unless otherwise indicated. Higher FACIT-COST scores represent better financial well-being. Positive correlation coefficients indicate that higher values of the corresponding variable were associated with better financial well-being. Educational attainment was treated as an ordinal variable for the bivariate correlation. Patient-reported well-being scores were derived from selected items and should not be interpreted as validated FACT-G subscale scores.

¹ One participant with inconsistent or insufficient TNM information was excluded from the comparison across TNM groups.

The multivariable model included 105 patients. Each one-level increase in institutional socioeconomic classification was associated with a 1.72-point higher FACIT-COST score

(95% CI, 0.51–2.93; $P = .005$). University or postgraduate education was associated with a 5.59-point higher score compared with secondary education or less (95% CI, 1.22–9.95; $P = .012$). Age, high school education, cost-waiver status, and private insurance were not independently associated with FACIT-COST score. The model had an adjusted R^2 of 0.152. Full regression results are shown in **Table 3** and graphically summarized in **Figure 3**.

Table 3. Multivariable linear regression of factors associated with FACIT-COST score

Variable	β coefficient	95% CI	P value
Age, per year	−0.05	−0.24 to 0.14	.613
Institutional socioeconomic level, per one-level increase	1.72	0.51 to 2.93	.005
Educational attainment			
Secondary education or less	Reference	—	—
High school or equivalent	1.90	−4.05 to 7.84	.532
University or postgraduate education	5.59	1.22 to 9.95	.012
Institutional cost-waiver status, yes vs no	−0.76	−4.10 to 2.57	.651

Private health insurance, yes vs no	2.95	-3.58 to 9.48	.372
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Model characteristics: $n = 105$; $R^2 = 0.201$; adjusted $R^2 = 0.152$.

Abbreviations: CI, confidence interval; FACIT-COST, Comprehensive Score for Financial Toxicity.

Notes: FACIT-COST score was modeled as a continuous outcome, with higher scores indicating better financial well-being. β coefficients are unstandardized. Institutional socioeconomic level was modeled as an ordinal variable ranging from 1 to 7, with higher levels indicating greater household resources. Educational attainment was grouped as secondary education or less, high school or equivalent, and university or postgraduate education. The model included participants with complete data for all covariates.

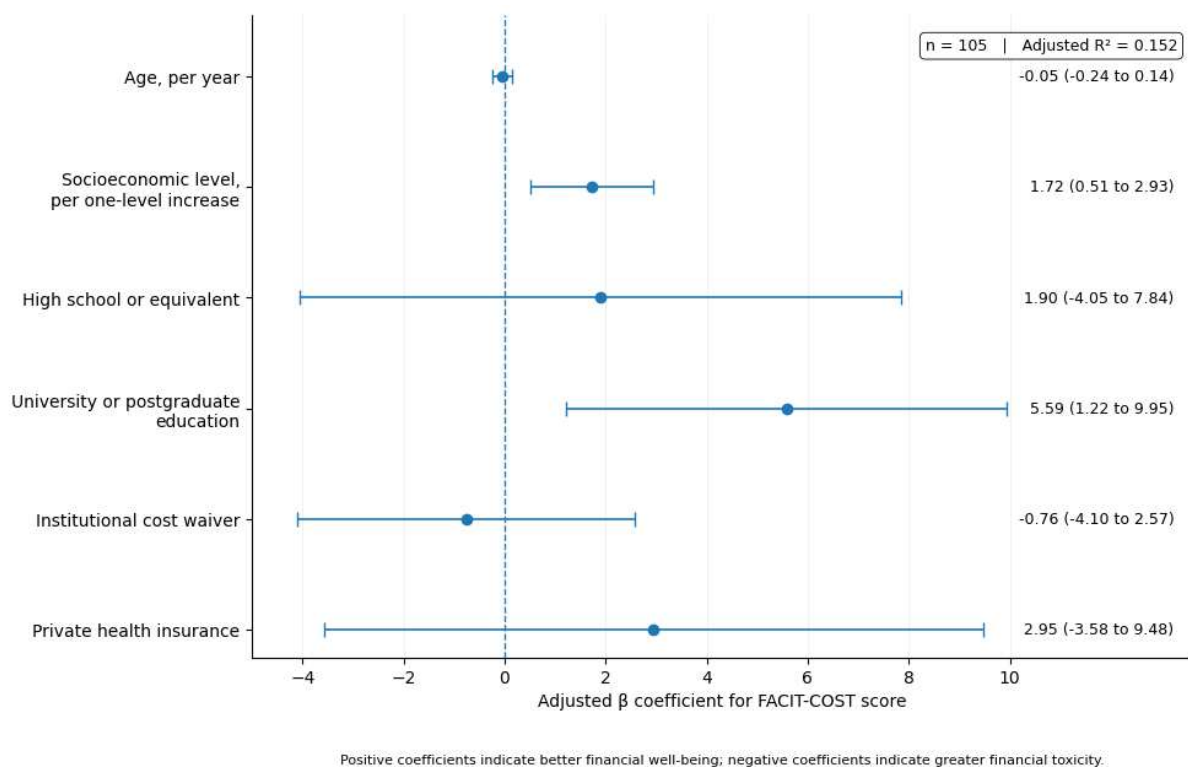


Figure 3. Adjusted associations with FACIT-COST score.

Forest plot showing unstandardized β coefficients and 95% confidence intervals from the

multivariable linear regression model evaluating factors associated with FACIT-COST score. Higher FACIT-COST scores indicate better financial well-being. Positive coefficients indicate better financial well-being, whereas negative coefficients indicate greater financial toxicity. Secondary education or less was the reference category for educational attainment. The model included 105 participants and had an adjusted R^2 of 0.152.

3.4 Well-Being, Indirect Burden, and Clinical Factors

FACIT-COST score correlated with physical ($\rho = 0.62$; $P < .001$), emotional ($\rho = 0.48$; $P < .001$), and functional well-being ($\rho = 0.35$; $P < .001$), but not with social well-being ($\rho = 0.10$; $P = .242$). These associations are included in **Table 2**.

Among 41 patient with harmonized indirect-burden data, more workdays lost by the patient or caregiver ($\rho = -0.51$; $P < .001$) and longer time spent attending consultations or procedures ($\rho = -0.36$; $P = .022$) were associated with lower FACIT-COST scores. Transportation, meals, lodging, and paid caregiving were not significantly associated with financial well-being. These exploratory findings are reported in **Supplementary Table 1**.

FACIT-COST scores did not differ significantly by prostatectomy approach, TNM group, or biochemical recurrence, as shown in **Table 2**.

4. Discussion

In this cross-sectional study of 145 patients with prostate cancer receiving care at a public tertiary center, financial toxicity was common despite access to subsidized medical services. More than two-thirds of patients experienced at least mild financial toxicity, including 22.8% with moderate-to-severe toxicity. Financial well-being was more consistently associated with socioeconomic position, educational attainment, and patient-reported well-being than with the clinical characteristics evaluated.

The mean FACIT-COST score of 20.8 reflects a substantial burden of financial distress. Although direct comparisons across studies require caution because of differences in healthcare systems, treatment exposure, and patient selection, financial hardship has been documented across both localized and advanced prostate cancer populations (7-10). Contemporary studies of localized prostate cancer have associated financial toxicity with impaired quality of life and treatment regret (15,16), whereas studies in metastatic disease have emphasized prolonged treatment burden, coping strategies, and the need for targeted interventions (17,18). The present findings extend this evidence to a public-sector setting in which institutional charges may be reduced but broader financial protection remains incomplete.

Institutional socioeconomic classification was the most consistent independent factor associated with financial well-being. Each one-level increase was associated with a 1.72-point higher FACIT-COST score. University or postgraduate education was also independently associated with better financial well-being. These variables likely reflect differences in household resources, employment stability, accumulated assets, and the ability to absorb unexpected expenses and navigate healthcare systems (4,9,10,19).

Institutional cost-waiver status was not independently associated with better FACIT-COST scores. This should not be interpreted as evidence that cost waivers are ineffective. More likely, eligibility for gratuity identifies patients with greater baseline socioeconomic vulnerability. Similarly, private insurance was associated with numerically higher scores, but only 8 patients reported private coverage, resulting in limited precision. Together, these findings support the distinction between reduced institutional charges and comprehensive financial protection. Patients may continue to face employment disruption, transportation costs, caregiving demands, and other indirect expenses even when institutional charges are reduced (11,12, 20–23).

Financial toxicity also coexisted with poorer physical, emotional, and functional well-being. This is consistent with previous evidence linking greater financial hardship with worse health-related quality of life and treatment regret (15,16,18,24). These associations may be bidirectional. Patients with greater symptoms or functional limitations may require more care, lose productive time, and depend more heavily on family members, while financial distress may worsen psychological stress and perceived health. Because the study was cross-sectional, temporal direction cannot be established.

Social well-being was not significantly associated with FACIT-COST score. Emotional and interpersonal support may help patients cope without directly reducing material hardship. Conversely, family involvement may itself generate indirect costs through unpaid caregiving, lost work, and shared household expenses. This interpretation remains exploratory because the survey included selected rather than complete FACT-G domains. Studies in advanced prostate cancer have similarly emphasized the importance of including informal caregivers when assessing financial burden and potential interventions (17).

The indirect-burden analysis provides additional insight. Among 41 patients with harmonized responses, more workdays lost by the patient or caregiver and longer time spent attending consultations or procedures were associated with worse financial well-being. These findings emphasize the importance of opportunity costs, including lost productivity, caregiver time, and the workload required to navigate cancer care (20-23). Transportation, meals, lodging, and paid caregiving were not significantly associated with FACIT-COST score, but the limited subgroup size and ordinal response categories preclude firm conclusions.

Clinical variables showed weaker associations with financial toxicity. FACIT-COST scores did not differ significantly according to prostatectomy approach, TNM group, or biochemical recurrence. These negative findings should be interpreted cautiously because the cohort was dominated by open prostatectomy, metastatic disease was uncommon, and the study was not powered to detect modest differences across clinical subgroups. Financial burden

may depend more strongly on treatment duration, healthcare use, complications, systemic therapy, and time since diagnosis than on stage or surgical approach alone (7,8,15,17).

These findings have practical implications. Financial toxicity should not be presumed absent in public-sector care. Brief screening may help identify patients with limited socioeconomic resources, substantial time-related burden, or poor physical and emotional well-being.

However, screening should be linked to actionable support, including social work referral, transportation assistance, coordinated scheduling, medication support, and financial navigation (25-28). Evidence regarding interventions remains heterogeneous, but recent systematic and interventional studies support the feasibility of financial-navigation programs in oncology care (29,30).

This study has limitations. Its single-center and cross-sectional design limits generalizability and prevents causal inference. Several socioeconomic and indirect-cost variables were self-reported, survey items changed during recruitment, and harmonized indirect-burden analyses were restricted to 41 patients. The well-being measures were derived from selected rather than complete FACT-G domains. Missing socioeconomic data reduced the multivariable sample to 105 patients and may have introduced selection bias. Residual confounding and limited power across clinical subgroups remain possible.

Strengths include use of a validated financial-toxicity instrument, reproducible FACIT-COST scoring, systematic database quality control, and integration of socioeconomic, clinical, patient-reported, and indirect-burden variables. The findings underscore that access to subsidized medical care does not necessarily eliminate the broader financial consequences of prostate cancer.

5. Conclusion

Financial toxicity was common among patients with prostate cancer receiving care at a public tertiary center. Higher institutional socioeconomic level and university or postgraduate

education were independently associated with better financial well-being, whereas greater financial toxicity coexisted with poorer physical, emotional, and functional well-being.

These findings suggest that subsidized medical care may not fully address the indirect, socioeconomic, and time-related burdens of prostate cancer. Incorporating financial-distress screening into patient-centered care may help identify patients who could benefit from targeted social, logistical, and financial support.

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Conflicts of interest: The authors declare no conflicts of interest related to this study.

Data availability: The data supporting the findings of this study are available from the corresponding author upon reasonable request, subject to institutional and ethical restrictions.

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Supplementary Table 1. Exploratory associations between indirect care-related burden and FACIT-COST score

Variable	Available, n	Spearman ρ	P value
Transportation expenses per hospital visit	41	−0.02	.877
Workdays lost by the patient or caregiver	41	−0.51	<.001
Paid caregiving or household assistance	41	−0.26	.098
Meals away from home during hospital visits	41	0.08	.641
Lodging expenses	41	−0.29	.068
Time spent attending consultations or completing healthcare-related procedures	41	−0.36	.022

Abbreviation: FACIT-COST, Comprehensive Score for Financial Toxicity.

Notes: Higher FACIT-COST scores indicate better financial well-being. Negative correlation coefficients indicate that greater indirect burden was associated with greater financial toxicity. Variables were based on self-reported ordinal categories and were analyzed only among participants whose responses could be consistently harmonized across survey versions. These analyses were exploratory and hypothesis-generating.