Psychological distress in prostate cancer: Validation of the K10 scale using a crossover randomized clinical trial

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ABSTRACT

Introduction: Men diagnosed with prostate cancer (PCa) experience substantial psychological distress. Despite this, the use of screening tools in this population is limited and understudied. This study evaluates the validity of the Kessler Psychological Distress Scale (K10) as a psychological distress screening tool in men undergoing curative PCa treatment.
Methods: Participants in a PCa psychological distress prevention program (n=128) were assessed at baseline, six months, and 12 months using the K10. Exploratory (EFA) and confirmatory factor analysis (CFA) examined the scale's factor structure. Receiver operating characteristic (ROC) analyses evaluated sensitivity, specificity, and predictive values for depression and anxiety. Logistic regression assessed the impact of cutoffs on clinical psychological distress.

KEY MESSAGES

- Men diagnosed with prostate cancer and undergoing treatment experience significant psychological distress, which remains understudied.
- The Kessler Psychological Distress Scale (K10) is a robust screening tool that exhibits excellent internal consistency and reliability in the prostate cancer patient population.
- Standard K10 thresholds of determining significant psychological distress, K10≥20, remains a preferable threshold for detecting distress and anxiety in men with prostate cancer.

Results: EFA identified a single-factor structure (factor loadings: 0.59–0.96, variance explained: 76%). CFA confirmed model-fit (CFI=0.905; SRMR=0.042). ROC analysis demonstrated excellent predictive ability (area under the curve [AUC] 0.98, 95% confidence interval [CI] 0.95–1.0 for depression; 0.92, 95% CI 0.86–0.98 for anxiety). Youden's index suggested K10 thresholds of ≥17.5 (depression) and ≥16.5 (anxiety), although these cutoffs lacked sensitivity. With standard K10≥20 cutoffs, significant differences were observed between intervention and control groups at six months (adjusted odds ratio [aOR] 3.59, 95% CI 1.12–11.51, p=0.031) and 12 months (aOR 4.41, 95% CI 1.35–4.41, p=0.014), consistent with prior findings.
Conclusions: The K10 is valid and reliable for this population, demonstrating excellent internal consistency; however, lower cutoffs (K10≥16.5, K10≥17.5) may reduce sensitivity. The standard K10≥20 threshold remains preferable for detecting distress and evaluating intervention effects in men with PCa.

INTRODUCTION

Prostate cancer (PCa), although boasting high survival rates, exposes patients to substantial psychological distress, including depression, anxiety, and increased suicide risk.[1-3] Psychological distress has been shown to exist not only at diagnosis but persists throughout treatment and survivorship, often lasting for years post-treatment.[4] Evidence suggests that psychological well-being influences oncological outcomes, making early and accurate distress screening critical.[5]

The Kessler Psychological Distress Scale (K10) is widely recognized as a robust screening tool for nonspecific psychological distress.[6] It has been validated in the general population and individuals with chronic illnesses.[7-9] However, its psychometric properties have not been specifically assessed in men diagnosed with PCa or undergoing treatment. Given the unique psychosocial and medical challenges faced by this population, a validation study is necessary to determine its appropriateness and establish optimal cut-offs for screening.

Previous research has demonstrated that a K10 score ≥20 effectively identified psychological distress and the need for clinical intervention among PCa patients.[10] However, alternative cut-offs have been proposed to optimize sensitivity and specificity.[11] This study aims to validate the K10 in this population, explore its factor structure, and determine the most appropriate cut-offs for detecting depression and anxiety by calibrating it against gold-standard measures, the Center of Epidemiologic Studies Depression Scale (CES-D-R20) and the Generalized Anxiety Disorder (GAD-7) questionnaire. Results from this study will contribute to improved mental health screening in PCa care and ensure the K10's applicability in routine clinical practice.

METHODS

This validation study utilized data from 128 patients in a previously described crossover randomized clinical trial (with published protocol) assessing a psychological distress prevention

intervention – the Prostate Cancer-Patient Empowerment Program (PC-PEP)[12]. PC-PEP is a structured multimodal health-promotion program designed to improve physical and mental well-being through daily videos, exercises, stress-reduction techniques, and social supports. The trial received institutional ethics approval (Nova Scotia Health Authority #1024822) and was registered at ClinicalTrials.gov (NCT03660085).

Participants were diagnosed with biopsy-confirmed PCa and were scheduled for curative radical prostatectomy or radiation therapy (external beam or brachytherapy), with or without hormone therapy. Patients completed self-reported surveys at baseline, 6 months, and 12 months, including measures of psychological distress, depression, and anxiety. Randomization (1:1) allocated 64 patients to the early intervention group and 64 to the waitlist group using a computer-generated fixed block allocation stratified by psychological distress (K10≥20), treatment type, and hormone therapy status.

The early intervention group received the six-month PC-PEP initially, while the waitlist group received standard care. At 6 months, the waitlist group began PC-PEP, while the initial intervention group, received standard care with maintained access to program materials.

Measures

Kessler psychological distress scale (K10)
The K10 assesses nonspecific psychological distress over the past 30 days using 10 items scored from 1 (“None of the time”) to 5 (“All of the time”), yielding a total score of 10–50.[6] A score of K10≥20 indicates significant distress.[6] It has demonstrated high validity and reliability across various populations, including the general public, military personnel, disability claimants, and cancer patients.[7-9,13]

Center of epidemiologic studies depression scale (CES-D-R20)
The CES-D-R20 is a robust 20 item self-reported measure of depression, validated across numerous study populations.[14-16] Each item is assessed on a Likert scale from 0 to 4 (“Not at all/less than 1 day”; “1-2 days”; “3-4 days”; “5-7 days”; “Nearly every day for 2 weeks”), for a total score of 0-80. Scores of ≥17 were used to indicate moderate-severe depression.[16]

Generalized anxiety disorder (GAD-7) Questionnaire
The GAD-7 questionnaire is a brief, seven-item self-reported measure of anxiety symptoms over the previous 2 weeks.[17] The seven items are scored 0-3 (“Not at all”; “Several Days”; “More than half the days”; “Nearly every day”). Total scores range from 0-21 with scores ≥ 10 indicating moderate-severe anxiety.[18] The GAD-7 has demonstrated high validity and reliability in the general population and in cancer populations including men with PCa.[18-20]

Statistical analysis
Baseline characteristics were summarized using descriptive statistics (mean (SD), median (IQR), and frequencies (%)). Group differences were assessed using t-tests, chi-square, or Fisher exact tests. Statistical significance was set at $p < 0.05$. Age, treatment modality (surgery vs. radiation),

Charlson Comorbidity Index (CCI), relationship status, and prescribed psychotropic medication were a-priori covariates.[12]

Exploratory Factor Analysis (EFA) was conducted on the ten K10 items using maximum likelihood estimation with oblique rotation to assess factor structure. The optimal number of factors was determined using scree plots and parallel analysis. Confirmatory Factor Analysis (CFA) was performed to validate the structure, specifying a single latent factor model. Model-fit was evaluated using the Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR). Receiver operating characteristic (ROC) analysis determined area under the curve (AUC) values and optimal K10 cut-offs for detecting depression (CES-D-R20) and anxiety (GAD-7). Cut-offs were validated using Youden's Index, with sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) reported. Precision Recall (PR) curve analysis further evaluated classification performance.

Logistic regression assessed psychological distress using newly identified K10 cut-offs for comparison with previous K10≥20 assessments, adjusting for age, treatment modality (surgery vs. radiation), relationship status, CCI, prescribed psychotropic medication, and time from randomization to treatment.[12] EFA and CFA were performed using R-version 4.2.2 (Posit Software PBC), while reliability, ROC, PR, and logistic regression analyses were conducted using SPSS version 29.0.1.1 (IBM Corp).

RESULTS

Baseline patient demographics are presented in Table 1. At baseline, 16% of participants screened positive for non-specific psychological distress and need for clinical treatment (K10≥20), 14% screened positive for depression (CES-D-R20≥17), and 7% screened positive for anxiety (GAD-7≥10). Treatment distribution included radical prostatectomy (48%), radiation therapy (43%), and salvage radiotherapy (9%).

Exploratory factor analysis

EFA supported a unidimensional K10 factor structure. All 10 items loaded strongly on a single factor, with standardized loadings ranging from 0.59 to 0.96, explaining 76% of the total variance. The scree plot displayed a distinct "elbow" after the first factor, and parallel analysis corroborated a single-factor solution (Figure 1A).

Confirmatory factor analysis

The single-factor model demonstrated adequate fit: CFI = 0.905, SRMR = 0.042. However, the RMSEA was elevated (0.188; 90% CI: 0.163–0.215), indicating potential limitations in model fit, possibly due to sample size. All standardized factor loadings were statistically significant and ranged from 0.59 to 0.96 (Figure 1B).

ROC and precision-recall (PR) analyses

ROC analysis demonstrated excellent predictive validity of the K10 in detecting depressive and anxiety symptoms (Table 2). The AUC for detecting depression (CES-D-R20≥17) was 0.975 (95% CI: 0.951–0.999) and anxiety (GAD-7≥10) was 0.923 (95% CI: 0.864–0.981) (Supplementary 1).

Using Youden's Index, optimal K10 cut-off scores were determined to be ≥17.5 for depression and ≥16.5 for anxiety. These thresholds achieved high sensitivity (1.00 for both) but lower PPVs (0.44 and 0.23, respectively). Specificity was higher for the depression cut-off (0.917) compared to anxiety (0.748). The NPV was 1.00 for both thresholds, underscoring the utility of the K10 for ruling out cases. PR curves further confirmed high precision across recall levels (Table 2). Internal consistency was excellent for the K10, CES-D-R20, and GAD-7 across all time points (Cronbach's $\alpha = 0.85–0.97$; Table 3).

Nonspecific psychological distress and need for clinical intervention

When comparing the PC-PEP and waitlist control groups at 6 months, the odds of psychological distress were significantly higher in the waitlist control group at the standard K10 cut-off of ≥20 (adjusted odds ratio (aOR) = 3.59, 95% CI: 1.12–11.51; $p < 0.031$) (Table 4). However, with lower cut-offs, the differences between the groups were not statistically significant (aOR = 1.74, 95% CI: 0.69–4.40, $p = 0.24$ for K10≥17.5; aOR = 1.85, 95% CI: 0.74–4.63, $p = 0.19$ for K10≥16.5). Notably, baseline psychological distress was strongly associated with outcomes in all models, with aORs ranging from 1.16 to 1.20 across the different cut-offs ($p < 0.05$). Prescribed medication for depression, anxiety, or both at baseline was also significant in models using K10 cut-offs of ≥17.5 and ≥16.5 (aOR = 3.15, 95% CI: 1.02–9.74, $p = 0.046$ for K10 ≥17.5; aOR = 3.66, 95% CI: 1.17–11.47, $p = 0.026$ for K10 ≥16.5), indicating the influence of existing treatment on psychological distress.

When comparing intervention timing, a significant difference was observed in nonspecific psychological distress at K10≥20, with the late intervention group (receiving PC-PEP at 6 months) showing an aOR of 4.41 (95% CI: 1.35–14.41; $p = 0.014$) relative to the early intervention group. This effect persisted, albeit at a lower magnitude, when using a K10 cut-off of ≥16.5 (aOR = 2.74, 95% CI: 1.06–7.04; $p = 0.037$), whereas for K10≥17.5, the difference between early and late groups was not significant (aOR = 2.34, 95% CI: 0.93–5.93, $p = 0.73$). Psychological distress at the start of the intervention remained significantly associated with outcomes in all models ($p < 0.05$). Additionally, prescribed medication at the intervention's start continued to be a significant predictor at K10 cut-offs of ≥20 and ≥16.5. Age also emerged as a significant factor when comparing early versus late intervention, with younger patients showing higher odds of distress (aOR = 0.88, 95% CI: 0.80–0.96, $p = 0.006$ for K10≥20), indicating age-related differences in response to PC-PEP. Overall, these findings suggest that timing of the intervention (early versus late) has a substantial impact on psychological distress outcomes.

DISCUSSION

Psychological distress is highly prevalent in the PCa population with implications on quality of life and oncological outcomes.[5] To best serve patients, screening for psychological distress is crucial at time of diagnosis, during treatment, and during survivorship. The K10 is a well-established screening tool that has been validated in the general population and select oncologic groups, but its use in the PCa patient group is limited. Through EFA, CFA, and ROC analyses, this study validated the use of the K10 in the PCa population while establishing suitability of the conventional K10 cut-off score of 20 to capture psychological distress.[21]

The single factor model identified through EFA and CFA in this study is supported by significant factor loadings across all 10 items. Furthermore, both CFI and SRMR indices of fit supported a single factor. Our finding of a single factor model for the K10 in patients undergoing curative PCa treatment may reflect a more generalized, nonspecific form of mental distress being experienced in this population.[22,23] It is also important to note that our sample may have been too homogenous or underpowered to identify more than the single latent factor, as reflected in high REMSA value.

One key feature of the K10 is the inclusion of anxiety and depression subscales. Brooks et al. suggested use of the K10 subscales independently in clinical practice, however factor loadings and goodness of fit presented here suggest that use of the full measure may be preferable for screening nonspecific mental distress in PCa patients, as opposed to subscales.[22] Thakre et al.[13] similarly found that a single factor model had better fit than a two factor model in cancer patients, suggesting the K10 may measure a unidimensional construct in cancer patients.

Regarding predictive validity, our findings suggest that the K10 may be a valuable screening tool for depression and anxiety in men with PCa. ROC analysis demonstrated that the K10 is outstanding at predicting both depression and anxiety in individuals who screened positive using the CES-D-R20 and GAD-7. Cut-offs of K10≥17.5 and K10≥16.5 demonstrated excellent sensitivity and specificity, as well as NPV. Our study found higher AUCs which may suggest higher predictive utility of the K10 in the PCa population by comparison.[24] Our findings support the established validity and utility of the K10 in assessing nonspecific psychological distress, as well as depression and anxiety.

While the high sensitivity, specificity and NPV of the K10 for both depression and anxiety are promising for clinical practice, particularly for identifying cases of depression and anxiety in men undergoing PCa treatment, they should be interpreted with caution. Use of these cut-off points resulted in failure to detect a statistical difference in nonspecific mental distress between PC-PEP and waitlist groups in the initial arm of the trial. The cut-off of K10≥17.5 also resulted in no statistical difference between groups following the cross-over period of the trial. Given overwhelming evidence of the success of PC-PEP, when using the standardized K10≥20 cut-off at reducing nonspecific psychological distress, lower cut-off points may result in a lack of sensitivity. Furthermore, PC-PEP has substantially positive patient responses, suggesting the lack of difference between groups when using these cut-offs may be a Type II error.[12,25,26]

Furthermore, given the high NPV observed across adjusted cut-offs, and the ability of the traditional K10 threshold of K10≥20 to identify significant psychological distress reliably in this population, it is recommended that the K10 be administered in its current form with a cut-off score of 20. This threshold maintains clinical relevance while ensuring high sensitivity and specificity.

Internal consistency of the K10 in our study was excellent at all time points, although consistency varied. There was relatively lower consistency in the waitlist control group at baseline compared to at 6 months and 12 months. This difference may reflect the uncertain nature of psychological distress in PCa patients who are awaiting treatment and not receiving the PC-PEP intervention. Given this uncertainty, and the overwhelming evidence that PCa diagnosis and treatment is associated with negative mental health outcomes, uncertainty of psychological support may contribute to more varied K10 responses in the control group.[4,5,10,27]

While promising for establishing K10 validity for PCa patients, limitations in our study exist. The smaller sample size and geographic limitations of our sample may reduce generalizability to other contexts and cancer populations. While the sample size of 128 is adequate for many analyses, it might be limited for complex models in CFA, which could affect the robustness of the fit indices. The slightly elevated RMSEA in the CFA results may reflect this limitation. Although this study addresses psychometric validation, it may not fully account for cultural differences in the experience or expression of psychological distress, which can be relevant in multicultural settings. A phase 4 Pan-Canadian and International Phase 4 implementation trial is underway and will allow us to undertake further cross-cultural validation of the K10 in patients with PCa. The lack of significant differences between groups when using lower cut-offs (K10≥17.5 and K10≥16.5) might reflect a loss of power or sensitivity. This suggests the need for cautious interpretation when using alternative cut-offs, especially in clinical practice.

This study does boast several strengths. We were able to calibrate the K10 against robust measures of depression (CESD-R20) and anxiety (GAD-7). We were also able to perform a comprehensive validation of the K10 in our population using EFA and CFA. Our study had no missing data and full participant retention, eliminating any form of attrition bias from our findings. Our ROC analysis also demonstrated high sensitivity and NPV, which are crucial in ruling out clinically insignificant cases.[28]

Given that rates of depression and anxiety are higher in men with PCa than the general population, and may be present for over a decade after initial diagnosis, screening for psychological distress should be incorporated into standard of care.[2-5,10,27,29] Our findings suggest that the K10 is a valid and reliable tool in this population. We would encourage the adoption of its use to identify patients with increased need for mental health services throughout the course of their treatment. Improved screening for mental health in men with curative PCa may also improve treatment outcomes, further underlining the potential benefit of screening for psychological distress early.[5,30]

CONCLUSIONS

Psychological distress is highly prevalent in PCa patients and has implications on patient quality of life and oncological outcomes. Our study has validated the use of the K10 as an effective screening tool for psychological distress in the PCa population. Improved psychological distress screening practices are encouraged to better serve this at-risk patient group.

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FIGURES AND TABLES

Figure 1. Scree plot and parallel analysis of the (A) K10 items and (B) confirmatory factor analysis (CFA) path diagram for the K10 single-factor model.

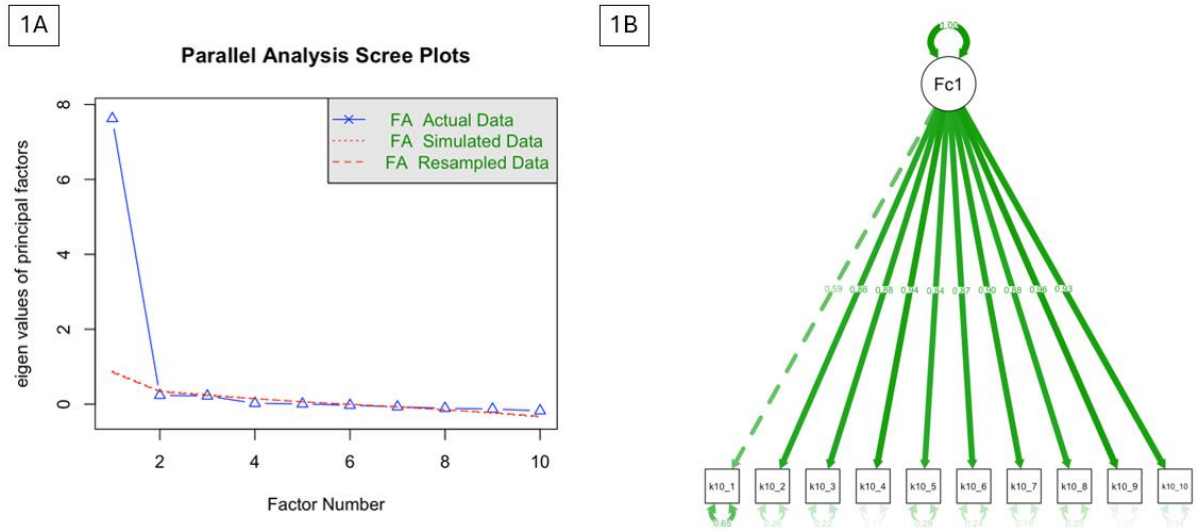

Table 1. Sample characteristics at baseline between the PC-PEP intervention and control groups, among 128 prostate cancer patients undergoing curative-intent treatment in NS, Canada

	Overall (n=128)	**PC-PEP Intervention (n=66)**	**Control (n=62)**	**p**
Age (years)	66 (7) [50-82]	65 (7)[50-78]	67 (7) [51-82)	0.2
Body mass index	28 (26-31) [19-48]	28 (26-31) [19-44]	28 (26-30) [20-48]	0.11
Household income at baseline, >30 000 CAD/past year	106, 83%	54, 82%	52, 84%	0.5
Race, White	121, 95%	60, 91 %	61, 98%	0.063
Education, university or above	68, 53%	31, 47%	37, 60%	0.16
Employed (part- or full-time)	45, 35%	22, 33%	23, 37%	0.7
Relationship status (married/currently in a relationship)	120, 94%	59, 89%	61, 98%	0.038

Screening positive for nonspecific psychological distress and need for clinical treatment (K10 ≥20)	20, 16%	9, 18 %	11, 14%	0.5
Screening positive for depression (CES-D-R20$_{5opt}$ ≥17)	18, 14%	7, 11%	11, 18%	0.3
Screening positive for anxiety (GAD7 ≥10)	9, 7%	5, 8%	4, 7%	0.8
PCa risk category (RP+primary RT±HT)				0.6
Low	3, 2.3%	1, 1.5%	2, 3.2%	
Intermediate	82, 71%	42, 75%	40, 67%	
High	31, 26%	13, 23%	18, 30%	
PSA (ng/ml)	8 (6–10) [3–22]	8 (6–9) [3–18]	8 (6–13) [3–22]	
Post-COVID* enrolment	101, 79%	51, 77%	50, 81%	0.8
Prescribed ADT	48, 38%	27, 41%	21, 34%	0.4
Treatment modality				0.7
Radical prostatectomy	62, 49%	29, 44 %	33, 53%	
Radiation therapy**	54, 42%	27, 41%	27, 44%	
Radiation therapy (salvage)**	12, 9.4%	10, 15%	2, 3.2%	
Charlson comorbidity index	3 (2-3) [1-7]	2 (2-3) [1-7]	3 (2-3) [1-5]	0.3
Self-identified as cigarette smoker	8, 6.3%	5, 7.6%	3, 4.8%	0.5
Time between randomization and treatment (days)	69 (33-100) [3-173]	61 (34-99) [6-138]	73 (29-101) [3-173]	0.3
Intake of prescribed medication for depression, anxiety or both at the time of entering the trial	19, 15%	12, 18%	7, 11%	0.3
Absence of cancer recurrence at 6 months post randomization	121, 95%	63, 96%	58, 94%	0.6

There were no statistically significant differences between the two arms at baseline for any of the PROs, sociodemographic or medical covariates. *The COVID pandemic restrictions began in the Canadian Maritime Provinces: Nova Scotia, New Brunswick, and Prince Edward Island on March 16, 2020. **The radiation therapy and salvage radiation groups were pooled together to allow for meaningful comparisons. Summary statistics are presented as n, mean (±standard

deviation) for continuous normally distributed data, n, median and interquartile range for skewed continuous variables, and n (%) for categorical data. Ranges are added in square brackets. ADT: androgen deprivation therapy; HT: hormone therapy; NCCN: National Comprehensive Cancer Network; PCPEP: Prostate Cancer – Patient Empowerment Program; RP: radical prostatectomy, RT: radiation therapy.

Table 2. Properties of the K10 for predicting significant depressive symptoms defined by CES-D-R20 and anxiety defined by GAD-7 in 128 men with potentially curative prostate cancer at randomization

Condition	AUC (95% CI)	Sensitivity	Specificity	PPV	NPV	Cutoff
Depressive symptoms	0.975 (0.951, 0.999)	1.00	0.917	0.44	1.00	17.50
Anxiety	0.923 (0.864, 0.981)	1.00	0.748	0.23	1.00	16.50

AUC: area undr the curve; CI: confidence interval; NPV: negative predictive value; PPV: positive predictive value.

Table 3. Internal consistency (Cronbach's alpha) for measures of non-specific mental distress, depression and anxiety as defined by the K10, CES-D-R20, and GAD-7 in 128 men with potentially curative prostate cancer at randomization

Measure	Cronbach's alpha for pooled sample		
	Baseline	6 months	12 months
K10	0.85	0.94	0.97
CES-D-R20	0.83	0.93	0.95
GAD-7	0.89	0.94	0.96

Table 4. Multiple logistic regression assessing non-specific clinical psychological distress and need for treatment (≥20 on K10) at 6 months by group (PC-PEP vs. waitlist control) and at intervention completion by group (early/baseline vs. late/6-mo timing of PC-PEP intervention delivery), for K10 cutoffs of ≥20, ≥17.5, and ≥16.5, while controlling for prognostic covariates among 128 prostate cancer patients undergoing curative-intent treatment in NS, Canada

	K10 cutoff 20		**K10 cutoff 17.5**		**K10 cutoff 16.5**	
	aOR (95%CI)	**p**	**aOR (95% CI)**	**p**	**aOR (95% CI)**	**p**
Early PC-PEP vs. waitlist control 6 months evaluation						
Full cohort analysis[a] (N=128)		0.001		0.005		0.002
Group						
PC-PEP intervention	1.0 (reference)		1.0 (reference)		1.0 (reference)	
Waitlist control	3.59 (1.12–11.51)	<0.031	1.74 (0.69–4.40)	0.24	1.85 (0.74–4.63)	0.19
Psychological distress (K10) at baseline	1.20 (1.08–1.34)	<0.001	1.16 (1.06–1.28)	0.02	1.17 (1.06–1.28)	0.02
Prescribed medication for depression, anxiety or both at baseline	2.76 (0.78–9.81)	0.12	3.15 (1.02–9.74)	0.046	3.66 (1.17–11.47)	0.026
Early vs. late PC-PEP 6 months evaluation						
Full cohort analysis (N=128)		<0.001		<0.001		<0.001
Group						
Early intervention (PC-PEP received at baseline)	1.0 (reference)		1.0 (reference)		1.0 (reference)	
Late waitlist control (PC-PEP received at 6 mo)	4.41(1.35–14.41)	0.014	2.34 (0.93–5.93)	0.73	2.74 (1.06–7.04)	0.037
Psychological distress (K10)	6.44 (2.01–20.68)	0.002	4.61 (1.78–11.94)	0.002	6.56 (2.49–17.27)	<0.001

at start of the intervention						
Prescribed medication for depression, anxiety or both at start of the intervention	4.95 (1.32–18.49)	0.018	3.18 (0.99–10.13)	0.051	3.55 (1.09–11.51)	0.035
Age	0.88 (0.80–0.96)	0.006	0.92 (0.86–0.99)	0.020	0.91 (0.86–0.98)	0.012

All analyses include the following prognostic covariates: age, treatment modality (surgery vs radiation), relationship status (not in a relationship vs currently in a relationship), Charlson Comorbidity Index, prescribed medication for depression or anxiety or both (yes vs no), and days between randomization and treatment. [a]Analyses are controlled for sum scores for psychological distress at baseline. [b]Analyses are controlled for sum scores for psychological distress at baseline for the early group and sum scores for psychological distress at 6 mo for the late waitlist control group. aOR: adjusted odds ratio; CI: confidence interval; K10: Kessler Psychological Distress Scale; PC-PEP: Prostate Cancer-Patient Empowerment Program.