

Evaluating an educational intervention to alleviate distress amongst men with newly diagnosed prostate cancer and their partners

Lindsay Hedden*^{†‡} , Richard Wassersug[§], Sarah Mahovlich[†], Phil Pollock[†], Monita Sundar[†], Robert H. Bell[†], Larry Goldenberg^{†§} and Celestia S. Higano^{†§¶}

*Centre for Clinical Epidemiology and Evaluation, University of British Columbia, [†]Vancouver Prostate Centre, Gordon and Leslie Diamond Health Care Centre, Vancouver General Hospital, [§]Department of Urologic Sciences, Faculty of Medicine, University of British Columbia, Vancouver, BC, Canada, [‡]School of Population and Public Health, Faculty of Medicine, University of British Columbia, Vancouver, BC, Canada, and [¶]Seattle Cancer Care Alliance, University of Washington, Seattle, WA, USA

Objective

To determine whether an education session alleviates distress for both patients with prostate cancer and their partners; and whether their partner's attendance at the session; and disease, treatment, and sociodemographic characteristics affect changes in distress levels.

Patients, Subjects and Methods

We identified men with untreated prostate cancer at the Vancouver Prostate Centre between February 2015 and March 2016 who agreed to attend our education session. The session consisted of a didactic presentation covering the biology of prostate cancer, treatment options, and side-effects, followed by a private joint session with a urologist and radiation oncologist. We assessed distress using the Distress Thermometer (DT) and compared pre- and post-session distress, and change in distress between patients and partners using matched and unmatched *t*-tests, respectively. We also assessed pre-session anxiety using the seven-item Generalised Anxiety Disorder measure, and decisional certainty using the Decisional Conflict Scale.

Introduction

Prostate cancer is the most common malignancy diagnosed among men, affecting 14% of men in their lifetimes [1]. Men diagnosed with prostate cancer are confronted with selecting a primary treatment among several choices frequently considered to be equivalent in terms of long-term prognosis [2], but whose sequelae and impact on quality of life differ [3,4]. Existing research suggests a clinically significant level of distress and anxiety associated with the cancer diagnosis and with selecting a treatment, and that such anxiety impairs decision-making [5,6].

Results

In all, 71 patients and 48 partners participated in the study. Attending the session led to a significant reduction in the median DT score for patients (4.0–3.0, $P < 0.01$) and partners (5.0–4.0, $P = 0.02$). Partners reported higher distress both before and after the session (4.9 vs 3.8, $P = 0.03$ pre-session and 4.2 vs 3.2, $P = 0.03$ post-session). The presence of a partner at the session did not affect patients' pre- or post-session distress or the success of the session at alleviating distress. Sociodemographic and clinical characteristics had little effect on distress levels.

Conclusions

An interdisciplinary education session is equally effective at alleviating distress for both patients with prostate cancer and their female partners.

Keywords

anxiety, distress, education, patients and partners, prostate cancer, psychological needs

More than 90% of men with a prostate cancer diagnosis report wanting to take an active role in decision-making about their cancer treatment [7]. However, both patients and their partners report unmet information needs around treatment options [8], and there is substantial variation in the amount of information that these same men deem as 'essential' to support informed decision-making [7].

Additionally, >90% of men with a prostate cancer diagnosis discuss treatment decisions with their partners [9]. Partners play a central role in gathering and interpreting information, facilitating communication between the patient and clinicians,

and helping the patient choose treatments [8,10,11]. Also, distress and anxiety associated with cancer diagnosis and treatment can affect the partner as much or more than the individual who is diagnosed [12–15]; however, individual distress appears to be determined more by gender than by status as patient or partner [16]. Women report consistently more distress than men, regardless of their role [16]. Most partners of patients with prostate cancer are women, and it follows that they may experience higher levels of distress than the patients themselves.

Education sessions in which newly diagnosed patients with cancer and their partners are provided with information about prostate cancer, its treatment, and side-effects can facilitate decisions about treatment options. Such sessions have also been shown to promote realistic expectations about side-effects and recovery from prostate cancer treatments [17]. Furthermore, including meeting jointly with physician specialists, as part of an educational intervention, may minimise the potential for receipt of contradictory information obtained through second and third opinions, particularly when a supportive partner is present [18]. Education sessions with a multi-speciality meeting component may therefore play a role in reducing the distress and anxiety associated with treatment decision-making for both patients and partners; however, there is limited evidence on their effectiveness.

In the present study we had two objectives: i) to determine the impact of an interdisciplinary education session on distress levels of newly diagnosed patients with prostate cancer and their partners; and ii) to assess how partner's attendance at the session, and specific disease, treatment, and sociodemographic characteristics, affect the patients' distress. We also assessed participant satisfaction with the structure, format, and usefulness of the session.

Patients, Subjects and Methods

We received ethics approval to conduct this study from the University of British Columbia's Clinical Research Ethics Board.

Educational Intervention

The Prostate Cancer Supportive Care (PCSC) programme is located within the Prostate Clinic at Vancouver General Hospital. It is designed to address the challenges of decision-making and coping faced by men with prostate cancer, their partners, and family members. It includes education sessions on sexual health, incontinence, diet, exercise, and androgen-deprivation therapy, as well as clinic visits with an interdisciplinary team of clinicians to address ongoing health needs. Funds for the initiative are provided by the Specialist Services Committee (a collaboration between Doctors of

British Columbia (BC) and the BC Ministry of Health), the Prostate Cancer Foundation of BC, and the BC Ministry of Health.

One of the educational modules offered through the programme is a 2.5-h group education session, *'Introduction to Prostate Cancer and Primary Treatment Options'*. During this evaluation study, the session was delivered in two parts based around a comprehensive PowerPoint presentation. The first component of the session was co-delivered by a prostate cancer researcher and educator, urologist and radiation oncologist (RO). The prostate cancer researcher and educator covered information on the biology of prostate cancer, diagnosis, staging, and risk status. The urologist and RO then presented the treatment options available in BC and the possible side-effects of each (including rates and severity of urinary incontinence, erectile dysfunction, and others). Material on the other PCSC programme modules, as well as how participating in the programme can help patients and partners was also presented. Videos of the presentation are available on the programme's website to accommodate those individuals who are unable to or do not wish to attend in person [19]. A copy of the slide presentation is included as a supplemental appendix to this article.

The second component of the session was a private, meeting with each patient/partner, together with the urologist and RO. Each meeting lasted ~8 min, within which the urologist and RO discussed each participant's latest biopsy results and addressed any questions about treatment choices. The session was a supplement to, not a replacement for, standard consultations with participants' diagnosing and treating physician(s).

Urologists and ROs in BC are remunerated on a fee-for-service basis or salaried respectively, and as such, are not able to bill for helping to deliver this type of session. Funding from the Specialist Services Committee allowed us to explore the impact of a collaborative approach to patient education and treatment decision-making that was evaluated in this study.

Recruitment and Consent

Men learn about the PCSC programme through various approaches including: referral from their primary care physician, urologist or RO, or other cancer support group, from the PCSC website, print materials, or through word-of-mouth. For this study, we approached all men with untreated prostate cancer, who had enrolled in the PCSC programme between February 2015 and March 2016, and who agreed to attend the education session. They were advised that their partner was encouraged, but not required, to attend the session and also participate in the study. Informed consent was obtained by the Study Coordinator

before the education session started. Individuals who had difficulty reading or understanding English, who had already started primary treatment at the time of PCSC programme enrolment, or who had any psychological condition(s) that could potentially hamper the completion of the questionnaires were excluded.

Measures

We assessed distress immediately before and after the information session using the Distress Thermometer (DT), a visual analogue scale on which participants rate their level of distress from zero (no distress) to 11 (extreme distress) [20]. Distress is a mixture of anxiety and depressive symptoms, and in patients with cancer, elevated distress has been linked to poorer quality of life [21,22] and higher healthcare costs [23]. Further, among men with low-risk prostate cancer, elevated distress levels have been associated with choosing more aggressive treatments and correspondingly reduced uptake of active surveillance [24]. The DT has been shown to be a valid tool for detecting prostate cancer-specific distress, particularly in the period soon after diagnosis [21], and has acceptable test–retest reliability [25]. A score of ≥ 4 on the DT is considered a clinically significant level of distress in this population [21].

We also assessed pre-session anxiety using the seven-item Generalised Anxiety Disorder measure (GAD-7) [26]. The GAD-7 is a validated screening tool for the four most common anxiety disorders (generalised anxiety, panic, social anxiety, and post-traumatic stress). Scores of ≥ 5 , ≥ 10 , and ≥ 15 indicate mild, moderate and severe anxiety, respectively [26]. A score of ≥ 10 has been used for diagnosing generalised anxiety disorder, with 89% sensitivity and 82% specificity [26].

Participants were also asked to complete the Decisional Conflict Scale (DCS), which is a validated measure that elicits uncertainty around healthcare decision-making, to assess their certainty about primary treatment choice prior to the session [27]. A score of ≥ 25 out of 100 is considered to be clinically significant decisional conflict [27–29], which has been associated with delayed decision-making, decisional regret, nervousness, and increased rates of suing physicians after treatment [29–31].

Lastly, we assessed whether the content and format of the session were acceptable to participants using a Likert-based Acceptability Survey [32]. We collected various self-reported clinical and sociodemographic characteristics to assess the efficacy of the programme across distinct subgroups of the prostate cancer patient population. Clinical variables included Gleason score, PSA level, and whether the attendees had decided on a treatment course and, if so, which treatment. Demographic characteristics included marital status, presence/absence of their partner at the session, educational attainment, age, and ethnicity.

Statistical Analyses

We conducted chi-squared tests to compare patients and partners across categorical sociodemographic characteristics. We compared baseline (pre-session) and post-session distress scores independently for patients and partners using Wilcoxon signed-rank tests. We used Fisher's exact test to compare the number of participants whose distress met the threshold for clinical significance before and after the session. We also compared unadjusted change in distress between patients and partners, and between patients who attended the session with a partner and those who attended the session alone using Wilcoxon rank-sum tests.

Lastly we assessed whether the change in distress was affected by PSA level or Gleason score, using simple linear regression.

Results

Patient Characteristics

We approached 82 patients to participate in the study. Of these, 86.6% consented to participate; reasons for not participating included wanting to leave the session early (one patient), difficulties with reading or understanding English (one), and a lack of interest (nine). In all, 84.5% of the 71 patients were married or in common-law relationships, and 80.0% of them attended the session with a partner. All partners were female.

The mean age was 63.3 years for patients and 60.7 years for partners ($t = 2.7$, $P = 0.007$), and 70.4% of patients and 77.1% of partners had some university or college education (chi squared = 48.0, $P = 0.087$). Most participants identified their ethnicity as either North American (43.6% of patients and 50.0% of partners) or English (25.4% of patients and 20.8% of partners).

The patients' mean (SD; median) PSA level was 9.5 (8.3; 7.4) ng/mL (Table 1) and 19.7% of the patients had Gleason scores of ≥ 8 . Before attending the session, 77.5% of patients were leaning towards a particular treatment option. Among those, 60.0% intended to have either an open or robotic prostatectomy, 14.6% radiotherapy, and 18.2% were unsure. In all, 94.4% of the patients had met with a urologist before attending the session, and 25.4% had met with an RO.

Patients who attended the session with a partner did not differ from those who attended alone across any of the sociodemographic or clinical characteristics we examined (data not shown).

Distress and Anxiety

Partners had both higher pre- (3.8 for patients vs 4.9 for partners, $P = 0.03$) and post-session (3.5 for patients vs 4.2

Table 1 Cohort demographic and clinical characteristics.

| Characteristic | Patients (N = 71) | Partners (N = 48) |
|---|-------------------|-------------------|
| Demographic characteristics | | |
| Age, years, mean (SD) ^{*,†} | 63.3 (7.8) | 60.7 (8.6) |
| Highest level of education attained [‡] , n (%) | | |
| No certificate, diploma or degree | 1 (1.4) | 0 |
| High school | 15 (21.1) | 10 (20.8) |
| College | 5 (7.0) | 4 (8.3) |
| Apprenticeship or trades certificate/diploma | 7 (9.9) | 2 (4.2) |
| University, below bachelor level | 9 (12.7) | 5 (10.4) |
| University, bachelor level or above | 29 (40.9) | 26 (54.2) |
| Other/non-response | 5 (7.0) | 1 (2.1) |
| Marital status, n (%) | | |
| Married | 51 (71.8) | 36 (75.0) |
| Common-law/co-habiting | 9 (12.7) | 8 (16.7) |
| Single/never married | 4 (5.6) | 0 |
| Separated/divorced | 4 (5.6) | 1 (2.1) |
| Widowed | 1 (1.4) | 0 |
| Other | 2 (2.8) | 3 (6.3) |
| Ethnicity [§] , n (%) | | |
| North American | 31 (43.7) | 24 (50.0) |
| British Isles | 18 (25.4) | 10 (20.8) |
| European | 10 (14.1) | 7 (14.6) |
| East or Southeast Asian | 8 (11.3) | 5 (10.4) |
| South Asian | 3 (4.2) | 2 (4.2) |
| Other | 1 (1.4) | 0 |
| Clinical characteristics | | |
| Gleason score, median | | |
| ≤6, n (%) | 7 (1.1) | NA |
| =7, n (%) | 10 (14.1) | |
| ≥8, n (%) | 27 (38.0) | |
| Unknown | 14 (19.7) | |
| PSA level, ng/mL, mean (SD; median) | 20 (28.2) | NA |
| Leaning towards particular treatment [¶] , n (%) | | |
| Active surveillance | 9.5 (8.2; 7.40) | 39 (81.3) |
| Prostatectomy (open, robotic) | 55 (77.5) | 2 (5.1) |
| Radiotherapy (EBRT, BT) | 33 (60.0) | 25 (64.1) |
| Other | 8 (14.6) | 9 (23.1) |
| Don't know | 3 (5.5) | 4 (10.3) |
| | 10 (18.2) | 4 (10.3) |

NA, not applicable; *P < 0.05; †t = 2.8, P = 0.007; ‡Chi-square = 48.0, P = 0.087; §Chi-square = 36.0, P = 0.21; ¶McNemar's Chi-square = 0.17, P = 0.68.

for partners, P = 0.03) DT scores than patients (Table 2). The average score for partners met the threshold for a clinically significant distress both before and after the session. Although we found no statistical difference between patients and partners on the pre-session GAD-7, with average scores of 5.5 and 6.7 (P = 0.52) respectively, they both reached the threshold for mild anxiety. We found no difference in decisional conflict experienced by patients compared to partners (DCS scores: partners 30.9, patients 14.6, P = 0.085); however, partners' average DCS score met the criteria for clinically significant decisional conflict, while patients' average score did not.

Attending the session significantly reduced the number of patients and partners whose DT scores met the threshold value for clinical significance (Table 3). Pre-session, 38.0% of patients and 47.9% of partners were experiencing clinically significant distress, compared to 23.9% of patients and 39.6% of partners after the session (patients P < 0.001, partners P < 0.001). This decline in distress is equivalent to a 1 point

Table 2 Distress, anxiety and decisional conflict.

| Variable | Patients (N = 71) | Partners (N = 48) |
|---|-------------------|----------------------------|
| DT score, mean (SD; median) | | |
| Before session ^{*,†} | 3.8 (2.5; 4) | 4.9 (2.4; 5) |
| After session ^{*,‡} | 3.1 (2.5; 3) | 4.2 (2.6; 4) |
| Change ^{*,§,¶} | -0.68 (1.9; 1) | -0.75 (2.1; 1) |
| GAD-7 score (pre-session) ^{††} | 5.5 (5.4) | 6.7 (6.3) |
| DCS score (pre-session) ^{‡‡} | 14.6 (7.4) | 30.90 (15.9) ^{‡‡} |

*P < 0.05; †Wilcoxon rank sum = 1715.5, P = 0.025; ‡Wilcoxon rank sum = 1840.0, P = 0.032; §Patients: pre vs post-session: paired Wilcoxon signed rank = 714.5, P < 0.001; ¶Partners: pre vs post-session: paired Wilcoxon signed rank = 287.0, P = 0.018; **Patients vs partners: Kendall's rank correlation = 1.3, P = 0.20; ††Patients vs partners: t = 0.94, P = 0.35; ‡‡Patients vs partners: Wilcoxon rank sum = 529.5, P = 0.085.

(10.0%) median decline on the DT for both patients (P > 0.01) and partners (P = 0.02). There was a subset of patients (12; 16.9%) and partners (five; 4.8%) whose distress increased after the session. However, we found no relationship between pre-session DT, GAD-7, DCS scores, or any other study

variable, and the likelihood of patient's distress increasing after the session. We also found no difference in pre-session, post-session or change in DT scores between patients whose partners attended and those whose partners did not.

A lower pre-session PSA level was associated with a larger reduction in distress (F -statistic 4.3, $P = 0.04$); however, we observed no relationship between the change in DT scores and Gleason scores (Table 4). Additionally, men who had low decisional conflict had a lower level of distress after the session compared to men who were more uncertain about their treatment choice ($W = 251.5$, $P = 0.04$).

Satisfaction

Participants expressed a high degree of satisfaction with the content and format of the session (Fig. 1). We found no statistical difference between patients and partners on any of the Acceptability Survey questions. All of the patients and 98% of the partners agreed that the session contained useful information, and 98.5% of patients and all of the partners would recommend the session to a friend. In all, 17.4% of patients and partners responded they felt 'neutral' when asked whether they felt prepared for their (or their partner's) treatment.

Discussion

The objective of the present study was to determine the impact of an education session on the level of distress experienced by men with newly diagnosed prostate cancer and their partners. This session provided information on prostate cancer biology and treatments, as well as the opportunity to consult with a urologist and a RO simultaneously. There is evidence suggesting that a

multidisciplinary approach to patient education improves both patient satisfaction and outcomes [33]; however this literature has typically focused exclusively on patients, despite the critical role partners play in treatment decision-making [8,10,11] and the distress partners experience from their patients' diagnoses.

Distress levels in our sample of men with prostate cancer are slightly higher than have been reported previously [21], but lower than post-diagnostic distress experienced by individuals with other cancers (breast [34], thyroid [35], and blood [36]). Distress levels were higher among partners; however, suggesting a lesser degree of psychological resilience to the cancer diagnosis and supporting existing evidence on the effects of prostate cancer on partners, and particularly on women [12,13,15,16]. We were unable to specifically separate the effects of gender from those of partner status because all of our partners were women.

We also found that the intervention was equally effective in reducing distress for both patients and partners. Significantly fewer patients and partners met the threshold for clinically significant distress after the session. Specific sociodemographic and clinical characteristics did not appear to affect the change in distress, with the exception of PSA level and decisional conflict. Men with lower decisional conflict were more likely to experience a reduction in distress from attending the session. This suggests that men, who are highly uncertain about their choice of treatment, are correspondingly less likely to benefit from the session. A more nuanced investigation of the relationship between decisional conflict and the benefits of educational interventions is warranted.

Although the session reduced distress for both patients and partners independently, we found that the attendance of partners at the session did not have an impact on pre- or post-session distress, or the change in distress level experienced by patients. Also, despite the overall improvement in distress levels, a subset of patients and partners experienced an increase in distress as a result of attending the session. The men whose distress level increased did not differ from those whose distress level decreased or did not change in any measurable way. Additional research to characterise individuals likely to experience increased distress during pre-treatment educational sessions is certainly warranted. Individuals have diverse information needs that depend on clinical factors, as well as their personal preferences and coping styles [37–39]. Providing attendees, a choice about how they would prefer to receive the information could help to address this issue. Further research that identifies information-sharing strategies including different media, such as online or written, which are most likely to support specific subgroups of patients with prostate cancer and partner populations is needed. Additional work

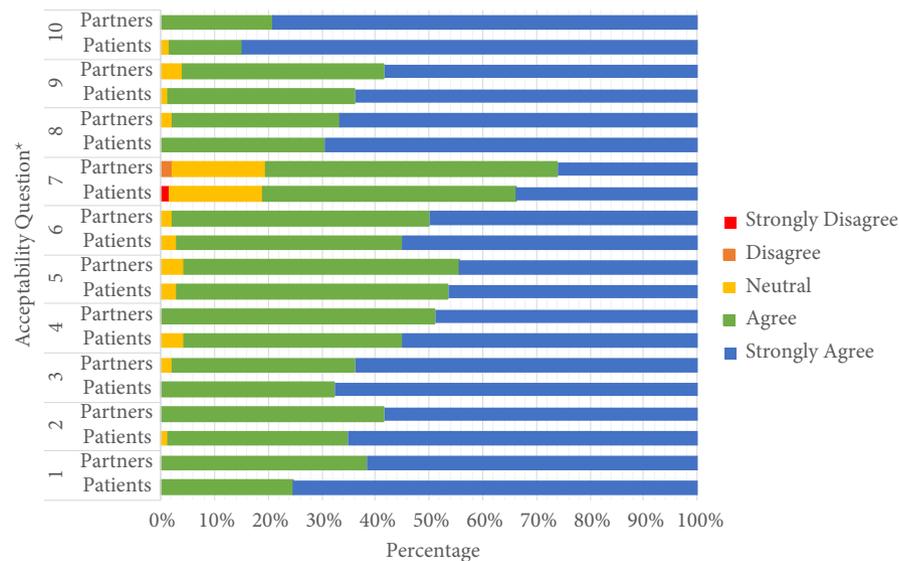
Table 3 Change in clinically significant distress as assessed with the DT.

| | Clinically significant distress [†] , n (%) | |
|-------------------------------|--|--------------|
| | Pre-session | Post-session |
| All participants [‡] | 50 (42.0) | 36 (30.3) |
| Patients [§] | 27 (38.0) | 17 (23.9) |
| Partners [¶] | 23 (47.9) | 19 (39.6) |

* $P < 0.05$; [†]Score of ≥ 4 on the DT; [‡]Fisher's exact odds ratio (OR) = 9.5, $P < 0.001$;
[§]Fisher's exact OR = 9.4, $P < 0.001$; [¶]Fisher's exact OR = 8.2, $P = 0.004$.

Table 4 Linear regression of PSA level and Gleason score and change in DT.

| | Coefficient | | P |
|---------------|-------------|----------------|------|
| | Estimate | Standard error | |
| PSA level | 0.42 | 0.20 | 0.04 |
| Gleason score | 0.19 | 0.24 | 0.45 |

Fig. 1 Acceptability survey results.

- *1. The information was presented clearly
 2. The information was presented at a level suitable for me
 3. The presentation contained valuable/useful information for me overall
 4. The presentation helped me understand what is expected during planning of treatment
 5. The presentation helped me understand what is expected during treatment
 6. The presentation helped me understand the possible side effects
 7. I feel prepared for my upcoming (or if you are a partner, his upcoming) treatment
 8. I was satisfied with the education session as a whole
 9. I have learned something new today
 10. I would recommend this session to someone else

examining what specific areas of education are the most important to alleviate distress in this population is also necessary.

Our present results are consistent with the existing literature on the benefits of group education sessions on patients with prostate cancer [17]. Furthermore, the group education component of the intervention is similar in delivery to a group medical visit, defined as a medical appointment that is delivered to a group of patients with the same condition, rather than the one-to-one patient–physician format [40]. Group medical visits have shown promise as an effective and efficient means of delivering care and education for patients visiting urology clinics for various conditions [41,42], as well as in other cancer survivor populations [43]. Our work supports the hypothesis that a group visit format can be a useful tool for the delivery of patient education in the context of prostate cancer. This is an important finding given the increasing time pressure faced by urologists, and all physicians, to see more patients in less time. Increased reliance on a group medical visit model within prostate cancer care and education allows for a more substantive

discussion about treatment options, side-effects, and other concerns than are feasible in the time-limited traditional one-on-one patient–physician consult.

The PCSC programme is delivered within a prostate clinic in an urban hospital setting. Although the intervention could be replicated within other hospitals or clinics, access would remain problematic for patients living in rural or remote locations. Access to this, and other education-based interventions, for these patients could be improved through the use of telemedicine technology. Technologically based interventions, such as video-conferencing, web-based programming, or telephone support, have shown some promise in improving levels of distress, fatigue, social support, and overall quality of life among patients living with cancer [e.g. [44–46], and patient and provider satisfaction with such interventions tends to be high [47]. Additional research on the feasibility and efficacy of technologically based educational interventions specifically targeted at individuals with prostate cancer and their partners is in progress as we expand our programme to other sites across BC.

The chief limitation of the present study is the small sample size, which prevented us from conducting more substantive multivariate analyses, and may have left us underpowered to detect some differences between patients and partners. The fact that we were unable to better characterise the population patients for whom the session resulted in an increase in distress is likely a result of this limitation. A related issue is that there may have been unmeasured differences between patients who are single and those who are partnered, but whose partners did not attend the session. We collected information about marital status, but did not have a sufficient number of single patients to split our analyses into single and partnered groups. Thus, although we can state with reasonable certainty that the presence of a partner at the session did not affect patients' pre- or post-session distress, or the success of the session at alleviating distress overall, it is certainly possible that pre-session distress levels differ for partnered and unpartnered patients. In addition, although patients' distress levels did not meet the threshold for clinical significance, partners' distress levels did, and as patient's quality of life is directly related to that of their partners, it is reasonable to infer that the session was clinically beneficial to the couple [48]. This finding also has implications for how supportive care services are designed and implemented more broadly, and supports the idea that these services need to be available as much, if not more so, for partners as patients.

Lastly, our study sample is unlikely to be representative of all men who have a diagnosis of early prostate cancer. The PCSC programme is nested within a urology clinic, where the overwhelming majority of the patients have undergone diagnostic biopsy and talked with a urologist. Most of the patients who chose to attend the education session did so because they needed to consider primary treatment (either after a period of active surveillance or because of the initial diagnosis of high-risk disease), which is reflected in proportion of the study sample whose Gleason score is >6 . Furthermore, because we limited our present study to include only those individuals who could read and write in English, we cannot generalise our results to the broader multilingual and multicultural population served by the PCSC programme.

The present study assessed change in distress over a very short period. Future research should examine whether the benefits of the programme are long-lasting by re-surveying patients and partners at a later time.

Although physicians, governments, and patient advocates increasingly call for comprehensive supportive care programmes for men with prostate cancer, there remains minimal evidence around the best practices for such programmes. Our findings suggest that, at a minimum, programmes should serve not just patients, but also their

partners. Programmes that only serve patients will fail to reach the population with the greatest need.

This also has long-term implications for patient health status. As Kim et al. [49] noted, not only does distress in the partner correlate with distress for patients, but that 'women's distress predict[s] men's physical health, over and above the men's distress, . . . age, and cancer stage'. Not attending to the needs of the female partners of patients with prostate cancer can therefore be harmful to the patients in the long run.

Conclusions

An information session for newly diagnosed patients with prostate cancer and their partners can significantly alleviate distress and anxiety. Although partners experience higher levels of distress compared to men with a prostate cancer diagnosis, we found the session to be equally effective at reducing distress for both groups. Additional research is needed to gauge the success of supportive care programmes more broadly in terms of their ability to address the physiological and psychological needs of patients with prostate cancer and their families, and the potential role of education sessions therein.

Conflicts of Interest

Dr Higano reports grants and personal fees from Valeant/Dendreon, Bayer, Pfizer, Aptevo/Emergent BioSolutions and Medivation, personal fees from Ferring, AbbVie, BHR Pharma, Orion Corporation, MorphoSys, Churchill Pharmaceuticals, Astellas Pharma, Clovis Oncology, Parexel Int'l, Blue Earth Diagnostics, Asana Biosciences; grants from Algeta/Bayer, Aragon Pharmaceuticals, AstraZeneca, Genentech, Millennium, Sanofi, Teva and Exelixis, outside the submitted work; and CTI BioPharma (immediate family member has leadership role and ownership interest in the company). All other authors have no conflicts of interest to declare.

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Correspondence: Lindsay Hedden, Centre for Clinical Epidemiology and Evaluation, Research Pavilion, Vancouver General Hospital, 717–828 West 10th Avenue, Vancouver, BC V6T 1Z3, Canada.

e-mail: lindsay.hedden@ubc.ca

Abbreviations: BC, British Columbia; DCS, Decisional Conflict Scale; DT, Distress Thermometer; GAD-7, seven-item Generalised Anxiety Disorder measure; PCSC, Prostate Cancer Supportive Care; RO, radiation oncologist.

Supporting Information

Additional Supporting Information may be found in the online version of this article:

Appendix S1: Supplementary Material.