



Sexual rehabilitation recommendations for prostate cancer survivors and their partners from a biopsychosocial Prostate Cancer Supportive Care Program

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Abstract

Purpose This study aimed to highlight the biopsychosocial recommendations provided to prostate cancer survivors and their partners during sexual rehabilitation.

Methods Retrospective analysis of a prospectively maintained patient database was conducted for visits between 2013 and 2019. The sexual health rehabilitation action plan (SHRAP) is a standardized 29-item list of biopsychosocial recommendations. The frequency of biopsychosocial recommendations provided to patients via their SHRAPs was assessed.

Results Among 913 patients, across 2671 appointments, nearly 74% of patients underwent radical prostatectomy. Other treatments included combination therapy (surgery, radiation, and/or androgen deprivation therapy (ADT)) (13%), radiation (external beam radiation or brachytherapy) (5%), and active surveillance (2%). Each patient had a median of 2 (SD 2.06) appointments and received a mean of 10.0 (SD 3.9) recommendations at each visit. Educational recommendations (penile rehabilitation, orgasmic guidelines, and climacturia management) were provided in 84% of visits followed by psychosexual recommendations (pleasure-focused, dedicated time, simmering, sexual aids, and sensate focus) in 71% of all appointments. The top recommendations (total n, frequency of recommendation) were penile rehabilitation (2253, 84%), pleasure-focus (1887, 71%), phosphodiesterase inhibitors (1655, 62%), clinical counselor (1603, 60%), vacuum erectile device (1418, 53%) and intracavernosal injections (1383, 52%).

Conclusions Biopsychosocial programs are evolving to be a key part of prostate cancer survivorship. This study's insight suggests that prostate cancer survivors require education around their sexual consequences and psychosexual counseling alongside proven biomedical strategies for erectile dysfunction.

Implications for cancer survivors Cancer survivorship programs should integrate educational and psychosocial strategies alongside biological strategies for prostate cancer survivors and their partners.

Keywords Cancer survivorship · Sexual rehabilitation · Penile rehabilitation · Biopsychosocial · Survivorship program

Introduction

Prostate cancer is reported to be the second most frequent cancer that affects men globally [1]. Prostate cancer survivors deal with many physical and psychological symptoms that are directly related to their cancer and its treatment. Studies have found that post-treatment, patients struggle with urinary symptoms, bowel issues, sexual dysfunction, and emotional stress [2–4]. Many studies have focused on erectile dysfunction (ED) and the pharmacological and non-pharmacological strategies involved in oxygenating the penile corpora, known as penile rehabilitation [5, 6]. However, many patients demonstrate poor adherence to medical

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therapies, and many stop due to medical and psychosocial factors [5].

Sexual dysfunction is not limited to ED, with sexual interest, desire, and intimacy impacted by prostate cancer and its treatment [7]. Prostate cancer significantly impacts partners by affecting life satisfaction, intimacy, communication, and sexual relationships [8–10]. Growing evidence suggests a psychosocial approach is equally as important to medical therapy in sexual rehabilitation [11–13]. Current post-prostate cancer therapy treatment algorithms broadly fail to account for psychosocial considerations [14]. With increased interest in an integrated treatment model, there has been preliminary work in establishing biopsychosocial clinics [15, 16].

The multidisciplinary Prostate Cancer Supportive Care (PCSC) Program was founded through the Vancouver Prostate Centre (VPC) and the Department of Urologic Sciences at the University of British Columbia in 2013. The PCSC Program is a modular survivorship program that addresses the complex supportive care needs of men with prostate cancer and their partners from diagnosis onwards [17]. Here, we describe the biopsychosocial recommendations provided to patients using a novel tool, the Sexual Health Rehabilitation Action Plan (SHRAP).

Methods

We performed a retrospective analysis of the prospectively maintained PCSC database of records from July 2013 to June 2019. All patients that had documented SHRAPs within the database and received a conventional treatment modality (active surveillance (AS), surgery, radiation, hormone therapy, or any combination thereof) were included. The PCSC Program is a modular program addressing several aspects of a patient's care. The module in which the SHRAP is deployed is the sexual rehabilitation clinic (SRC) module. The goal of the SRC is to provide education and support on the sexual side effects of cancer treatment by employing biopsychosocial rehabilitation strategies to reduce the adverse impact of prostate cancer and provide treatment on sexuality, sexual function, and relationships.

At each appointment, a SHRAP was provided to each patient to follow as part of their rehabilitation process (Appendix Fig. 2). The SHRAP is a list of 29 potential biopsychosocial recommendations provided to the patient by a sexual medicine-trained registered nurse (RN) with the support of physician, counselor, and physical therapist consultations. During each visit, the RN identified and recommended specific items from SHRAP determined to be helpful in assisting the patient's sexual rehabilitation.

In this paper, the 29 SHRAP recommendations were further distilled into 17 unique actionable items that fit under

four categories: biomedical, educational, psychosexual, and referrals. Of the 29 items on the checklist, a number of items were synthesized under one recommendation. For instance, items 1 through 5 involved the use of phosphodiesterase-5 inhibitors (PDE5i's); thus, these were consolidated under "PDE5i's." Items 6 and 7 involved the vacuum erectile device (VED) and was categorized under "VED." Items 8 through 10 involved intracavernosal injections (ICI) and its progress; thus, these were categorized under "ICI." Penile rehabilitation was defined as items 13 and 14, "penile massage/stimulation" and "erections three times weekly," respectively. Items 22 through 24 involved pelvic floor exercises or the Pelvic Floor Clinic; therefore, these three items were amalgamated into "physical therapy." Items 28 and 29 were not determined to be clinically relevant for this analysis. Collectively, these consolidations and deletions resulted in 17 potential recommendations referenced in this paper.

Furthermore, these 17 recommendations were organized into four categories based on the inherent characteristics of the recommendations. Biomedical strategies were defined as pharmacologic or non-pharmacologic interventions that improve sexual dysfunction and these were (1) daily or on-demand PDE5i's, (2) VED, (3) ICI, (4) intraurethral alprostadil, and (5) penile braces. Educational recommendations were those that involved knowledge transfer between practitioner and patient to treat adverse physical symptoms. These include (1) penile rehabilitation, (2) orgasmic guidelines, and (3) climacturia management. Orgasmic guidelines and climacturia management are delivered by the sexual health RN and detailed in distributable pamphlets within the SRC. Psychosexual recommendations were determined to focus on the patient and his partner's psyche, sexuality, or non-physical symptoms. Here, they were (1) pleasure-focus, (2) dedicated time, (3) simmering, (4) sexual aids, and (5) sensate focus. Pleasure-focus involves being "present" in partner encounters as opposed to "spectatoring" during sexual activity. Simmering is the act of consciously cultivating a thought or sensation that is sexually appealing until one can become sexual with oneself or with a partner. Sensate focus is an exercise between a couple using non-sexual touching to explore their sensuality and build intimacy [18]. Ultimately, these psychosexual recommendations are based on establishing or re-establishing intimacy with oneself and their partners. Referral recommendations included any intervention that required the involvement of allied health professionals and existed outside of a sexual rehabilitation appointment; these comprised (1) physical therapy for urinary incontinence, (2) exercise therapy, (3) couples intimacy workshops, and (4) couples counseling. Couples' intimacy workshops are quarterly workshops facilitated by two sexual health clinicians that discuss the impact of sexual changes on relationships and strategies to enhance intimacy and sexual communication. At the end of each appointment, SHRAPs were

provided to patients via mail or email as a summary of recommendations discussed during each meeting. Not all visits necessitated a SHRAP; for example, a detailed SHRAP was not provided to patients in the case of a short telephone visit.

Study patients were enrolled by referral (either by a healthcare provider or self-referral) to the program and underwent visits with a sexual health clinician at regular intervals. Data was obtained from patient charts (electronic medical records), semi-structured clinician-led interviews, and SHRAPs. Study patients were categorized under one of six treatment categories: active surveillance (AS); surgery (radical prostatectomy); radiation (brachytherapy or external beam radiation therapy (EBRT)); androgen deprivation therapy (ADT); radiation combination (any combination of brachytherapy, EBRT and/or ADT); and combination therapy (any combination of brachytherapy, EBRT, surgery and/or ADT). Patients undergoing experimental or unique therapies like high-intensity frequency ultrasound (HIFU), cystoprostatectomy, and chemotherapy were excluded from this study due to low numbers of use for these treatment modalities.

Descriptive statistics were computed using Microsoft Excel and Prism GraphPad 8. Where data was not available for all patients, the proportion of patients included in each analysis is noted. Approval from the University of British Columbia clinical research ethics board was obtained.

Results

Patient demographics

Nine hundred thirteen patients were enrolled between July 13, 2013, and June 25, 2019, amassing a total of 2671 appointments. The mean (standard deviation (SD)) age was 65.4 (SD 6.99) years old (Table 1). Approximately half of the patients (240, 50.4%) had a university degree or higher (Table 1). Patients had a median of 2 appointments with the PCSC program, with an interquartile range (IQR) of 3 and a SD of 2.06. Five hundred ninety-one patients (64.8%) had at least one follow-up appointment and documented detailed SHRAP. Of this subset, the median number of follow-up appointments was 3, with an IQR of 3 and a SD of 1.97. Seven hundred eighty-four patients had prostate cancer grade scores recorded. Two hundred six of the 782 (26.0%) had grade group 1 prostate cancer, 264 (33.8%) had grade group 2, 111 (14.2%) had grade group 3, and 203 (25.9%) had grade group 4 or 5 (Table 1). Within the cohort, 673 (73.6%) patients underwent surgery; 121 (13.2%) underwent a combination of surgery, brachytherapy, EBRT, or ADT; 46 (5.0%) received radiation (EBRT or brachytherapy); 45 (4.9%) received a combination of radiation and ADT; 15

(1.6%) patients underwent AS; and 13 (1.4%) underwent ADT (Table 1).

Individualized SHRAP treatment plans

The SHRAP is an individualized treatment plan provided to each patient and their partner based on perceived sexual health dysfunction post-treatment. The SHRAP incorporates biomedical, educational, and psychosexual tools, as well as referral programs into an accessible package for patient rehabilitation. A mean (SD) of 10.0 (SD 3.9) recommendations were provided to patients at each visit. Assessing all visits, educational recommendations were provided 84% of the time, psychosexual recommendations 71% of the time, biomedical recommendations 62% of the time, and referrals 60% of the time. The most common recommendations (total n, %) provided to patients were a blend of biopsychosocial strategies: penile rehabilitation (2253, 84%); pleasure-focus (1887, 71%); PDE5i's (1655, 62%); clinical counselor (1603, 60%); VED (1418, 53%); and ICI (1383, 52%).

Educational and biomedical recommendations

Educational recommendations in the SHRAP fell under three categories: penile rehabilitation, orgasmic guidelines, and climacturia management. Penile rehabilitation was the most common educational recommendation. Patients were instructed to conduct penile massage stimulation and create at least three erections a week. This was recommended in 84% of all visits, followed by orgasmic guidelines (40%) and climacturia management (38%) (Table 2). Penile rehabilitation was the most consistently recommended when comparing across time points of 0–6 months (84%), 6–12 months (88%), 12–24 months (85%), and > 24 months (79%).

PDE5i's (daily and/or on-demand) were the most common biomedical recommendation and provided to patients in 62% of all visits (Table 2). VED (53%) and ICI (52%) were also frequently prescribed (Table 2). Penile braces (19%) and intraurethral alprostadil (14%) were less commonly recommended (Table 2).

Psychosexual interventions and referrals

Psychosexual interventions consisted of pleasure-focused, sexual aids, dedicated time, sensate focus, and simmering. The two most frequent psychosexual recommendations were pleasure-focused (71%), followed by sexual aids (48%) (Table 2). Dedicated time (21%), sensate focus (15%), and simmering (12%) were less commonly prescribed to patients (Table 2).

Referrals within the PCSC Program included physical therapy (including pelvic floor exercises), exercise, clinical counselor, and couple's intimacy workshops. Referrals

Table 1 Demographics of patients attending the Prostate Cancer Supportive Care (PCSC) Program who received a Sexual Health Rehabilitation Action Plan (SHAP), between 2013 and 2019

			Available data
Total patients			n = 913
Age (mean years, range, standard deviation)	65.4 (43–89) SD = 6.95		n = 845
Education (highest completed)			n = 476
High school (n, % of total)	89 (18.7%)		
Apprenticeship/non-university diploma/other (n, % of total)	147 (30.9%)		
University undergraduate (n, % of total)	119 (25.0%)		
Graduate (n, % of total)	121 (25.4%)		
Gleason score			n = 782
< 6 (n, % of total)	1 (0.1%)		
Grade group 1 (n, % of total)	203 (26.0%)		
Grade group 2 (n, % of total)	264 (33.8%)		
Grade group 3 (n, % of total)	111 (14.2%)		
Grade group 4 (n, % of total)	98 (12.5%)		
Grade group 5 (n, % of total)	105 (13.4%)		
Primary treatment type			n = 913
Surgery (n, % of total)	673 (73.7%)		
Radiation (external beam radiation therapy or brachytherapy) (n, % of total)	46 (5.0%)		
ADT (n, % of total)	13 (1.4%)		
Radiation and ADT (n, % of total)	45 (4.9%)		
Combination (surgery, radiation and/or ADT) (n, % of total)	121 (13.3%)		
Active Surveillance (n, % of total)	15 (1.6%)		
Baseline sexual function			n = 913
Sexually active (n, % of total)	689 (75.5%)		
PDE5 as needed (n, % of total)	272 (29.8%)		
PDE5 daily (n, % of total)	14 (1.5%)		
VED (n, % of total)	5 (0.5%)		
ICI (n, % of total)	9 (1.0%)		
Sexual orientation			n = 439
Heterosexual (n, % of total)	419 (95.0%)		
Homosexual (n, % of total)	18 (4.1%)		
Bisexual (n, % of total)	2 (0.6%)		

were made on an as-needed basis and re-referrals were possible. The clinical counselor was the most common referral recommendation, being provided in 60% of all visits (Table 2). The frequency of referral to couples counseling was consistent across the program, from 59% at 0–6 months to 66% at 6–12 months and 12–24 months to 54% beyond 24 months. Couples intimacy workshop was another

important recommendation and was prescribed in 50% of visits (Table 2). The pattern of couples intimacy workshop referrals trended downward over time post-enrolment into the program, from 59% at 0–6 months, 50% at 6–12 months, 40% at 12–24 months, to 26% at > 24 mos. Physical therapy referrals were provided in 30% of all visits and exercise was offered in only 8% of all visits (Table 2).

Table 2 SHRAP recommendations provided to patients over post-treatment survivorship

Category	Ranking of Recommendations (frequency of recommendation of all visits, %)				
Biomedical	PDE5 inhibitors (62%)	Vacuum pump erection device (53%)	Intracavernosal injections (52%)	Penile brace (19%)	Intraurethral alprostadil (14%)
Educational	Penile rehabilitation (84%)	Orgasmic guidelines (40%)	Climacturia management (38%)		
Psychosexual	Pleasure-focused (71%)	Sexual aids (48%)	Dedicated time (21%)	Sensate focus (15%)	Simmering (12%)
Referrals	Clinical counselor (60%)	Couples intimacy workshop (50%)	Physical therapy (30%)	Exercise (8%)	

Recommendations by prostate cancer treatment modality

When comparing the types of recommendations provided according to treatment, SHRAP recommendations appeared to be given in a similar way across treatment modalities. Patients that underwent surgery were most frequently prescribed educational recommendations (Figs. 1 and 2). Penile rehabilitation was the most common recommendation (87%), followed by climacturia management (43%) and orgasmic guidelines (39%) (Appendix Fig. 3). Psychosexual recommendations for surgery were recommended at a frequency of 71% of visits, and pleasure-focused (71%) and sexual aids (48%) were the most common of the psychosexual strategies (Appendix Fig. 3). Biomedical interventions were involved in 62% of visits and of that category, PDE5i's were recommended in 62% of visits, followed by VED (54%) and ICI (53%) (Appendix Fig. 2). Referral recommendations were only recommended in 60% of visits and mainly focused on couples counseling (60%), couples intimacy workshops (50%) and physical therapy (30%) (Appendix Fig. 2).

The other treatments, such as radiation and combination therapy, overall demonstrated comparable trends in recommendation patterns. Specifically, patients that received radiation were most frequently prescribed educational recommendations (83%), followed by psychosexual recommendations (82%), biomedical recommendations (66%), and referral services (51%) (Fig. 1). In terms of educational recommendations within the radiation cohort, penile rehabilitation was most prescribed (83%), followed by orgasmic guidelines (55%) and climacturia management (10%) (Appendix Fig. 3). Similar to the surgical cohort, the top two psychosexual recommendations were pleasure-focus (82%) and sexual aids (50%) (Appendix Fig. 3). The top biomedical recommendations were PDE5i (66%), ICI (43%), and VED (38%)

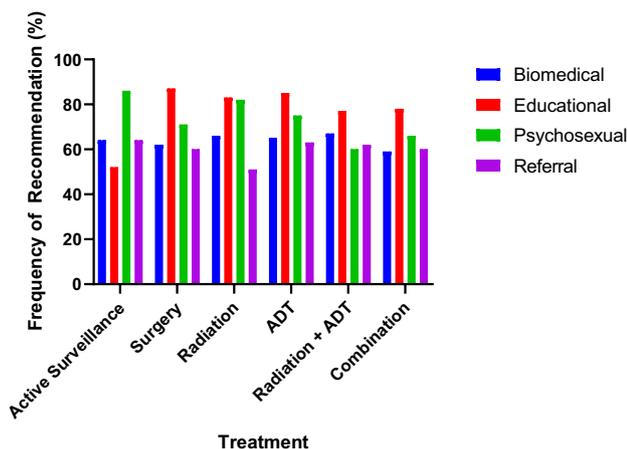


Fig. 1 Frequency of biopsychosocial recommendations provided to patients based on treatment modality. ADT, androgen deprivation therapy; combination = surgery, radiation and/or ADT

(Appendix Fig. 3). Likewise, the top referral recommendations were couples counseling (51%), couples intimacy workshop (47%), and physical therapy (26%) (Appendix Fig. 3).

AS did have some variance compared to the other treatment modalities with psychosexual interventions being the most frequently prescribed SHRAP recommendation (86%), over biomedical (64%), referral (64%), or educational (52%) strategies (Fig. 1). Within the psychosexual category, pleasure-focused (86%), sexual aids (39%), and simmering (30%) were the top recommendations.

Discussion

There is consensus that psychosocial strategies, in addition to biomedical interventions, are necessary for optimal rehabilitation of cancer survivors [11, 15, 16]. This study provides a descriptive analysis characterizing a unique biopsychosocial approach to sexual rehabilitation in prostate cancer survivorship. Over 60% of patients voluntarily continued in the PCSC Program with a follow-up appointment, suggesting most patients found the program helpful and continued to incorporate the biopsychosocial recommendations in their rehabilitation. To the best of our knowledge, the SHRAP is the first standardized checklist in a prostate cancer survivorship program that has combined biopsychosocial recommendations with a patient-centered rehabilitation process.

Sexual dysfunction, particularly ED, is a prominent concern and thus, the top five recommendations given to patients were meant to rehabilitate sexual function. Unlike bladder and bowel function, sexual function, and sexual drive improve less spontaneously post-treatment [2]. Penile rehabilitation (penile massage and periodic stimulation of erections) were recommended to encourage blood flow to penile tissues and minimize fibrosis [19]. Other biomedical methods like PDE5i's and VED were among the top five recommendations and were used to support penile rehabilitation and stimulate erections for sexual activity. Unfortunately, sexual dysfunction is often complicated by psychological barriers that may prevent or limit treatment adherence, such as the idea of being sexually inadequate or being dishonest to their partners about their sexual situation [5]. Thus, it is important to have interventions that target these psychological barriers.

With increased focus on non-physical symptoms such as psychosexual health and intimacy [7, 11, 12], studies have suggested incorporating a psychosocial approach into sexual recovery to deal with non-physical sequelae [11, 20]. Here, the second most common recommendation was pleasure-focus, which involves being “present” during sexual activity and focusing on the pleasurable sensations instead of being goal oriented. Pleasure-focus is a relatively simple technique to implement and can also encourage intimacy. Other interventions such as intimacy

workshops have also been found to increase relationship satisfaction scores [21]. Consequently, approximately half of the patients in the study were recommended to undergo either intimacy or counseling services with their partners and these interventions aimed to establish understanding surrounding prostate cancer survivorship. The frequency of couples' intimacy workshop referrals did trend downward over time and this is due to how the workshops are set-up: they are typically one-time workshops attended by the patient and their partner(s) to maximize their sexual intimacy and all participants are provided with a resource package for reference. Re-referral is at the discretion of the clinician based on perceived continued intimacy issues. On the other hand, couples counseling was consistently recommended because the clinical counselor was meant to provide ongoing care to patients and/or partners to navigate the emotional journey associated with prostate cancer survivorship and these changes likely required more than one counseling appointment. Current literature suggests that strategies such as fostering realistic expectations of the recovery process and timeline, encouraging nonpenetrative sexual practices, intervening early with penile stimulation, including prerehabilitation strategies, and involving partners are also effective [11]. However, in our study, patients were enrolled post-treatment so it was not possible to provide these services prior to treatment.

When comparing the recommendations provided based on treatment modality, for all treatments other than AS, penile rehabilitation was the cornerstone of rehabilitation followed by pleasure-focus. These were the least invasive tools that could be employed by the patient. For patients who received surgery, it was intuitive to also recommend strategies that treated side effects such as climacturia [22] (climacturia management) and urinary incontinence [3] (physical therapy) as needed. Although most recommendations for surgery, radiation, ADT, and combinations were similar, the recommendations for AS were different due to differences in symptoms post-treatment. Primarily, patients receiving AS have fewer/no urinary and sexual side effects compared to those who receive surgery or radiation [3]. As a result, recommendations for AS patients trended towards psychosexual interventions like pleasure-focused, sexual aids, and simmering.

Strengths and limitations

The concept of a multidisciplinary biopsychosocial approach to prostate cancer survivorship is not new. The American Cancer Society highlights the importance of a multidisciplinary biopsychosocial approach in rehabilitation after prostate cancer treatment and mentions the implementation of various scales and tools to assess patient outcomes [23]. Indeed, biopsychosocial programs

exist that are similar to the PCSC program [15, 24]. To the best of our knowledge, these existing programs do not currently have a tool like the SHRAP that unifies biomedical, educational, psychosexual, and interdisciplinary referral interventions into a single referential guide for patients.

The SHRAP is standardized to include an array of interventions that target multiple domains of sexual rehabilitation. The SHRAP allows for the individualization of treatment plans based on treatment modality. The very nature of the SHRAP allows the clinician to provide personalized interventions based on a patient's treatment modality and their needs. As an action plan in the form of a checklist, the SHRAP is an excellent summary of interventions discussed during the meeting. The tool can also be used by clinicians to document which interventions have previously been tried to eliminate redundancy in management. With interdisciplinary guidance, the SHRAP can be revised as needed to include or exclude treatment regimens based on best clinical practices.

Unfortunately, there is no measure related to patient adherence to the items highlighted in the SHRAP. Poor patient adherence to counseled strategies may explain why intuitively helpful strategies like penile rehabilitation were recommended in follow-up visits. Alternatively, poor patient health literacy may explain this pattern. Health literacy is crucial for patient involvement [25, 26]. Many elements of promoting health literacy are integrated within the PCSC program, including multidisciplinary support and online lecture series, though there are no data on the uptake of these resources.

In addition, the SHRAP is not a validated tool despite ongoing input and revisions with content experts. The SHRAP is inherently difficult to validate because it is not a scale but a series of recommended actions based on individual patient requirements. Despite supporting literature that biopsychosocial techniques are equally valuable in sexual rehabilitation, the present study is not meant to draw conclusions on its effectiveness compared to biomedical or educational techniques. With a small sample size of patients receiving a therapy other than surgery, it is difficult to determine if recommendations were made differently based on treatment modality or adverse effects secondary to treatment modality. Because the data presented are recommendations and due to the absence of an established national protocol for sexual rehabilitation, there is an inherent prescriber bias that influences what recommendations may be provided to patients. Finally, the present study reports the frequency of recommendations, and this type of data makes it difficult to employ comparative statistics.

Because the present study does not investigate which sexual rehabilitation strategies are most effective in each treatment modality, the authors hope to evaluate this in future studies with the PCSC program. These analyses could

investigate the efficacy and impact of recommendation types on patient and partner sexual function.

Conclusion

Biopsychosocial programs are evolving to be a key component of prostate cancer therapy. This study describes a novel tool (SHRAP) used to standardize treatment. This has

allowed examination of the types of biopsychosocial recommendations patients and their partners receive while providing insight into what patients and their partners are experiencing following prostate cancer treatment. Implementing tools such as the SHRAP, with its integrated biopsychosocial emphasis, should be considered when establishing a prostate cancer survivorship program.

Appendix

Fig. 2 The abbreviated Sexual Health Rehabilitation Action Plan (SHRAP)



VANCOUVER
PROSTATE CENTRE
A UBC & VGH Centre of Excellence

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Phone: (604) 875-4495
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Date: _____ Appointment #: _____

Patient label

The abbreviated Sexual Health Rehabilitation Action Plan (SHRAP) includes:

- 1. Confirmation with family doctor around the safety of taking PDE5 inhibitors with current medical history and medication profile
- 2. Cialis 5mg daily for penile rehabilitation
- 3. Combining short acting PDE5 inhibitors (Viagra, Levitra, Staxyn) with Cialis 5mg to strengthen erection for sexual play
- 4. Cialis 20mg for sexual play (hold daily Cialis 5mg for 36 hours)
- 5. On demand PDE5 inhibitors
- 6. Review Vacuum Pump Erection Device (VED)
- 7. Consult with VED advisor prn
- 8. Review intracavernosal injections
- 9. Inform of progress with injections
- 10. Manage priapism prn
- 11. Review intraurethral gel
- 12. Review Elator (penile brace)
- 13. Penile massage/stimulation
- 14. Create a minimum three erections per week for penile rehabilitation
- 15. Orgasmic guidelines
- 16. Climacturia and/or urine leakage guidelines during sexual play
- 17. Pleasure focused versus goal directed sexual activity
- 18. Dedicated time to be sexual
- 19. Simmering for arousal
- 20. Sexual aids
- 21. Sensate Focus
- 22. Pelvic Floor exercises
- 23. Possible referral to PCSC Pelvic Floor Clinic
- 24. Referral to PCSC Program's Pelvic Floor Clinic
- 25. Referral to PCSC Program's Exercise Clinic
- 26. Couples Intimacy Workshop prn
- 27. PCSC Clinical Counsellor prn
- 28. Enrollment into PCSC Program prn
- 29. Detailed customized SHRAP has been provided to your patient

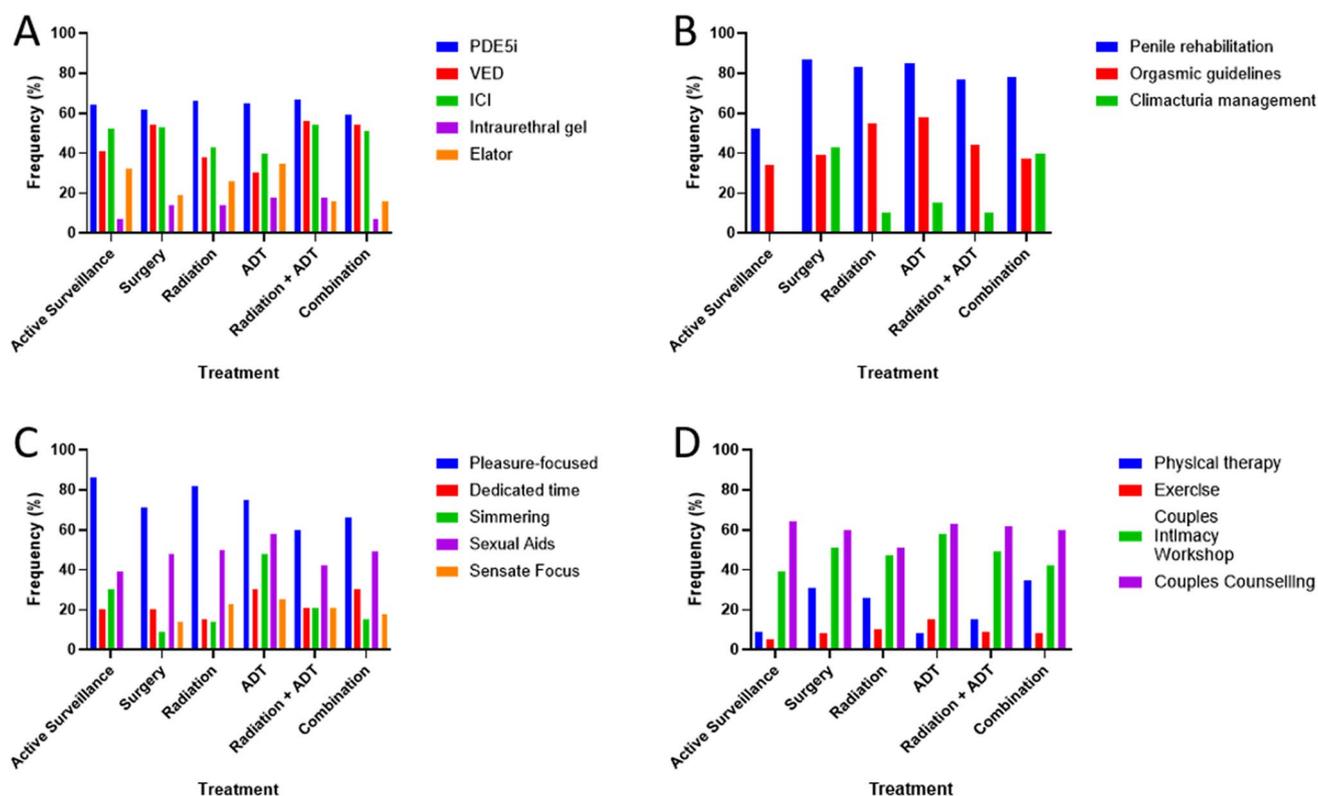


Fig. 3 Frequency of biopsychosocial recommendations provided to patients based on treatment modality. (A) Frequency of specific biomedical recommendations based on treatment modality. (B) Frequency of specific educational recommendations based on treatment

modality. (C) Frequency of specific psychosexual recommendations based on treatment modality. (D) Frequency of specific referral recommendations based on treatment modality. ADT = androgen deprivation therapy; Combination = surgery, radiation and/or ADT

Author contributions Wallace Yuen: conception and design, administrative support, collection and assembly of data, data interpretation, manuscript writing, final approval of the manuscript.

Luke Witherspoon: administrative support, data interpretation, manuscript writing, final approval of the manuscript.

Eugenia Wu: conception and design, administrative support, collection and assembly of data, final approval of the manuscript.

Julie Wong: data collection.

Sara Sheikholeslami: data collection.

Jenna Bentley: conception and design, administrative support, final approval of the manuscript.

Christine Zarowski: conception and design, administrative support, final approval of the manuscript.

Monita Sundar: conception and design, administrative support, final approval of the manuscript.

Stacy Elliott: conception and design, administrative support, final approval of the manuscript.

Celestia Higano: conception and design, administrative support, final approval of the manuscript.

Ryan Flannigan: conception and design, administrative support, manuscript writing, final approval of the manuscript.

Data availability The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Code availability Not applicable.

Declarations

Ethics approval The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. This retrospective chart review study involving human participants was in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The IRB of the University of British Columbia approved this study.

Consent to participate Informed consent was obtained from all individual participants included in the study.

Consent for publication Not applicable.

Conflict of interest Celestia S. Higano has received research grants from Aptevo, Aragon, Astellas, AstraZeneca, Clovis, Dendreon, eFFECTOR Therapeutics, Emergent, Ferring, Genentech, Hoffman-Larocche, Medivation, and Pfizer; she has also received personal fees from Astellas, Bayer, Blue Earth Diagnostics, Clovis, Dendreon, Ferring, Hinova, Janssen, Merck, Orion, Pfizer, Tolmar, Carrick Therapeutics, Novartis, and Genentech. Ryan Flannigan has received research grants

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