Prostate Cancer and Psychological Rehabilitation: An exploratory scoping review

Gizem Bicer, BHSc
Keeley Hudson, BHSc
Tory Nohejl-Edmonds, BHSc
Elizabeth Lehman, BHSc (Hons).
Lindsay B. Carey, MAppSc, PhD
Eutichia Drakopoulos, BHSc, MSpPath, CPSP.

School of Psychology and Public Health
La Trobe University
Report Completion: 30th November 2020
Borchardt Library,
La Trobe University, Melbourne, Australia
Link: https://doi.org/10.26181/5fbf331420d71

Contents

Bicer, G., Hudson, K., Nohejl-Edmonds, T., Lehman, E., Carey, L. B. & Drakopoulos, E. (2020). *Prostate Cancer and Psychological Rehabilitation: An exploratory scoping review*. PHE3PFP Internship Program. Melbourne: Department of Public Health, La Trobe University. https://doi.org/10.26181/5fbf331420d71

PREFACE

This report is an initial exploratory scoping review prepared for Professor Jeremy Millar (Victorian Prostate Cancer Outcomes Registry, Monash University, Melbourne, Victoria Australia) and Professor Harold Koenig (Department of Psychiatry, Duke Univeristy, North Carolina, US). Support for this report was provided by La Trobe University, Department of Public Health Participatory Field Placement Internship program (PHE3PFP).

Organisation/Department:
Department of Public Health,
School of Psychology and Public Health
La Trobe University,
Melbourne, Victoria, Australia.

Referencing System:
American Psychological Association, 7th Edition

Key Words: Prostatectomy, prostate cancer, psychological rehabilitation, prostatectomy prehabilitation, prostate counselling, post-op prostatectomy rehabilitation, rehabilitation counselling.

Access:
OPAL: Borchardt Library, La Trobe University, Melbourne, Australia.
Link: https://doi.org/10.26181/5fbf331420d71

Commencement: 01 August 2020
Completion: 30 November 2020
Revised: TBA

Publication Reference:
Bicer, G., Hudson, K., Nohejl-Edmonds, T., Lehman, E., Carey, L. B. & Drakopoulos, E. (2020). *Prostate Cancer and Psychological Rehabilitation: An exploratory scoping review*. PHE3PFP Internship Program. Melbourne: Department of Public Health, La Trobe University. https://doi.org/10.26181/5fbf331420d71

POC Details:

Dr. Lindsay B. Carey, MAppSc, PhD., Senior Lecturer and Senior Research Fellow, Palliative Care Unit, Department of Public Health School of Psychology and Public Health, La Trobe University, Kingsbury Drive, Bundoora, Victoria, 3084; Phone: + 61 (03) 9479 8808 Email 1: lindsay.carey@latrobe.edu.au

Acknowledgements

Appreciation is acknowledged to Ms Stephanie Gjorgioski, Ms Cassandra Wright, Ms Belinda Conna. Department of Public Health, La Trobe University. Appreciation is also acknowledged to Ms. Rosanna Ripoli, Senior Learning Advisor, Borchardt Library, La Trobe University Melbourne, for her training and assistance.

Prostate Cancer and Psychological Rehabilitation: An exploratory scoping review

Gizem Bicer, Keeley Hudson, Tory Nohejl-Edmonds, Elizabeth Lehman, Lindsay B. Carey, Eutichia Drakopoulos

Palliative Care Unit, Department of Public Health,
La Trobe University, Melbourne, Victoria, Australia

ABSTRACT

Introduction: This scoping review explores literature regarding the psychological rehabilitation that patients experience who have experienced radical prostatectomy. **Aim / Purpose:** The aim of this review was to identify the psychological challenges and strategies that exist when undergoing a radical prostatectomy. Additionally, this review provides an insight into how psychological rehabilitation can be improved prior to encountering a radical prostatectomy. **Method:** To undertake this review, a scoping review framework by Arksey and O'Malley (2005) was utilised, namely: (i) identifying relevant research questions and/or statement, (ii) determine inclusion and exclusion criterion, (iii) identifying relevant studies, (iv) charting the data and (v) utilising the results to analyse, collate and produce results. **Results:** Five key themes were identified from the literature; (1) relationship challenges (2) quality of life (3) prehabilitation (4) mindfulness (5) self-esteem. **Discussion:** A range of literature regarding the psychological challenges encountered post-radical prostatectomy were identified and found relevant to the developed research question. However, an insufficient quantity of literature was found regarding the benefits of mindfulness for radical prostatectomy patients. **Conclusion:** This scoping review details key psychological impacts for radical prostatectomy patients. More importantly, it outlines significant measures that can be implemented in an aim to reduce the detrimental psychological impacts of radical prostatectomy.

Keywords: Prostatectomy, prostate cancer, psychological rehabilitation, prostatectomy prehabilitation, counselling, post-op prostatectomy rehabilitation.

INTRODUCTION

Prostate cancer is one of the most commonly occurring cancers among Australian males (Cancer Council, 2020), and can have lasting psychological impacts following radical prostatectomy (McCorkle et al., 2017). These are inclusive of erectile dysfunction, reduced

Bicer, G., Hudson, K., Nohejl-Edmonds, T., Lehman, E., Carey, L. B. & Drakopoulos, E. (2020). *Prostate Cancer and Psychological Rehabilitation: An exploratory scoping review*. PHE3PFP Internship Program. Melbourne: Department of Public Health, La Trobe University. https://doi.org/10.26181/5fbf331420d71

sexual satisfaction and desire, low self-esteem, perception of masculinity, quality of life and relations with significant others (McCorkle et al., 2017). If detected early, prostate cancer can be treated successfully however can have lasting impacts if progresses too far (Mayo Clinic, 2020). The Cancer Council (2020) articulate prostate cancer as the process of cancerous cells starting to develop in the prostate gland, growing and maturing either in a slow or rapid level. Additionally, there is no clear cause of prostate cancer, although, risk factors can include age, race, family history and obesity. Some symptoms that may be evident to having prostate cancer can be erectile dysfunction, troubles with urinating, discomfort and blood in semen (Mayo Clinic, 2020).

A radical prostatectomy is a form of surgery which focuses on removing the prostate gland and surrounding lymph nodes to treat men with localised prostate cancer (Johns Hopkins Medicine, 2020). This involves detrimental changes post-surgery which are evident in impacting the psychological outcomes of radical prostatectomy. These outcomes are identified to be lacking awareness and efficient transmission of prehabilitation support before radical prostatectomy. Prehabilitation is identified as preparing patients physically and mentally before undergoing changes that may result in significantly increased stress levels, helping enable the reduction of shock and inadaptation through physical and psychological conditioning (Santa et al., 2014). In addition, prehabilitation may involve a set of psychological interventions before a radical prostatectomy which will be further explored in the scoping literature review.

This scoping review is conducted in collaboration with the Monash University Prostate Cancer Outcomes Registry; they aim to improve knowledge involving the outcomes that men may face when diagnosed with prostate cancer and the treatment they will need in Victorian hospitals (Sampurno & Evans, 2015). This scoping review aims to find relevant literature in psychological rehabilitation for post-radical prostatectomy patients, as well as the challenges families and partners face. The importance of this review is to find the literature already available as well as increasing awareness of prostate cancer and what needs to be researched more. This review will be conducted by creating PICO questions and search terms to obtain database searches. Relevant results found will be screened and annotated in an aim to determine which articles contain relevant content in addressing the identified PICO questions.

PURPOSE / AIMS

The overall purpose of this scoping review is to investigate literature regarding the psychological rehabilitation that radical prostatectomy patients encounter. The precise aims were:

(i) To explore what psychological rehabilitation strategies exist pre- and post-radical prostatectomy.

(ii) To assess the challenges and thus, the psychological impacts that males and their significant other encounter post-radical prostatectomy.

(iii) To explore the association between mindfulness and the psychological improvements amongst post radical prostatectomy patients.

METHOD

A scoping review framework modified from Arksey and O'Malley (2005) was utilised to map the research area utilising a predetermined process of: (i) identifying the research question, (ii) developing inclusion and exclusion criterion, (iii) identifying relevant studies for study selection, (iv) charting the data, and (v) collating, summarising and reporting the results.

(i) Identifying the research question

The research questions were developed using the PICO (Population, Intervention, Comparison, Outcome) technique (Fineout-Overholt & Johnston, 2005) (refer to Table 1). The research questions produced are as followed: (a) What literature exists regarding psychological rehabilitation strategies post-radical prostatectomy? (b) What psychological challenges do men with prostate cancer and their partners face post-prostatectomy?

Table 1 PICO research question development

*What literature exists regarding psychological rehabilitation s*trategies *post-radical prostatectomy?*

Population	**Intervention/ Exposure**	**Outcome**
Men who have undergone prostatectomy	Psychological Rehabilitation/ Rehabilitation Counselling/ Psychological Prehabilitation	This review of the literature is seeking a record of *all* outcomes.

What psychological challenges do men with prostate cancer and their partners face post-prostatectomy?

Population	Intervention/ Exposure	Outcome
Men who have undergone prostatectomy and their partners/ family	Psychological Rehabilitation/ Rehabilitation Counselling/ Psychological Prehabilitation	Psychological challenges that men and partners/ families face post prostatectomy. This review of the literature is seeking a record of all outcomes

(ii) Inclusion and exclusion criterion for study selection

This scoping review will only include articles and resources regarding prostate cancer patients, their partners and psychological rehabilitation post-op radical prostatectomy. Articles that were published from 2000-2020 included English language, prehabilitation, mindfulness and world-wide published articles.

This scoping review will ***not*** include participants who; have not encountered prostate cancer, patients who have had prostate cancer but not undergone a radical prostatectomy, articles that were published before 2000.

(iii) Identifying relevant studies

The PICO strategy (Fineout-Overholt & Johnston, 2005) was utilised to identify specific search elements, synonyms and key database search terms so as to identify relevant literature (refer Table 2). All available databases were used for this search namely: Medline, PubMed, CINAHL and La Trobe Library.

Table 2.1 Psychological rehabilitation for prostate cancer patients

What literature exists regarding psychological rehabilitation strategies post-radical prostatectomy? PICO element, related synonyms and database search terms

PICO Element	Synonyms	Database Search Terms
Men who have undergone prostatectomy	– Post-radical prostatectomy – Prostatectomy	"Post-radical prostatectom*" OR "Post radical prostatectom*" OR Prostatectom*
Psychological Rehabilitation/	– Psychological Rehabilitation – Psychological Prehabilitation	"Psych* Rehab*" OR Psychtherap* OR

Rehabilitation Counselling/ Psychological Prehabilitation	– Rehabilitation Counselling	"Psych* Therap*" OR "Rehab* Counsel*" OR "Prehab*" OR Counsel* OR "Gestalt Therap*"

Table 2.2 Psychological rehabilitation for prostate cancer patients

What psychological challenges do men with prostate cancer and their partners face post-surgery? PICO element, related synonyms and database search terms.

PICO Element	Synonyms	Database Search Terms
Men who have undergone prostatectomy and their partners/families	– Prostatectomy – Post-radical prostatectomy – Prostate cancer patients – Partners – Wife – Husband – Marriage – Relationships – Families	"Post-radical prostatectom*"OR "Post radical prostatectom*" OR Prostatectom* OR Prostate patient* AND Partner* OR Wife OR Wives OR Husband* OR Marriage* OR Relation* OR Famil*
Psychological Rehabilitation/ Rehabilitation Counselling/ Psychological Prehabilitation	– Psychological Rehabilitation – Psychological Prehabilitation – Rehabilitation Counselling	"Psych* Rehab*" OR Psychtherap* OR "Psych* Therap*" OR "Rehab* Counsel*" OR "Prehab*" OR Counsel* OR "Gestalt therap*"

(iv) Charting the data

All articles were then screened through Mendeley for duplicates and relevancy by conducting a title and abstract refinement (refer to Search Strategy: Appendix 1). The allocated numbers evident in Appendix 1 reflect the remaining results after each refinement. After searching the mentioned databases for Table 2.1, a total of 228 articles were found. After searching CINAHL, Medline and PubMed databases using the search strategy provided in Table 2.1, a total of 228 articles were identified. Articles were refined by their titles and 115 were deemed relevant, these articles were then refined by their abstracts and 73 remained.

Duplicates were then removed and a total of 36 articles were determined to be relevant. Similarly, after completing the database search detailed in Table 2.2, a total of 140 articles were found. A title refinement was conducted leaving 105 articles. These articles were then refined by abstracts 47 were determined to be relevant, after removing duplicates a total of 33 articles remained. Hand-searching was then conducted, and 7 articles were included. A total of 39 articles was included in this systematic review. Mendeley reference software was utilised to assist with the screening and refinement of articles. Details and abstracts of final articles deemed valid for thematic analysis were combined at Appendix 2. Relevant themes based on the findings of each article were determined by agreement between authors. Each theme is identified and numerically coded in Appendix 2 and described within the results section.

RESULTS

(v) Collating, summarising and reporting the results

Key themes

The common themes identified within the literature were: (1) relationship challenges, (2) quality of life, (3) prehabilitation, (4) mindfulness, and (5) self- esteem. Table 3 lists the research authors and the associated themes within their work. More specific detail for each of the articles within Table 3 are noted at Appendix 2.

Figure 1. *Key Themes – Prostate cancer psychological rehabilitation*

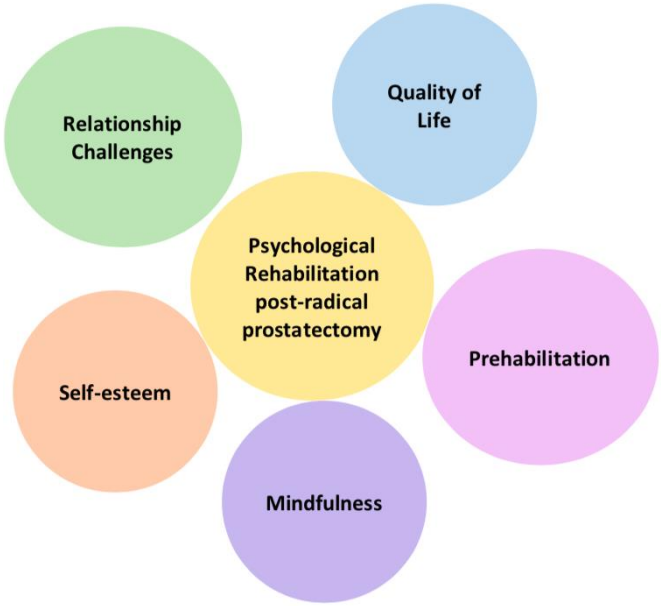


Table 3

Themes identified within the literature by authors articles

Author/s (Year)	1	2	3	4	5
Altschuler et al. (2012)				✓	
Badr et al. (2009)	✓				✓
Batool et al. (2018)					✓
Chambers et al. (2008)	✓				
Chambers et al. (2012)				✓	
Chambers et al. (2013)				✓	
Chambers et al. (2016)				✓	
Chambers et al. (2019)	✓				
Chung et al. (2013)	✓	✓			✓
Couper et al. (2006)	✓				
Faris et al. (2019)			✓		
Fernandez-Sola et al. (2020)	✓	✓			
Glina (2011)		✓			
Grondhuis Palacios et al. (2018)	✓				
Huber et al. (2016)	✓				
Karlsen et al. (2017)	✓				
Katz (2005)		✓	✓		
Lin (2011)		✓	✓	✓	
Lomas et al. (2019)		✓	✓		
McCorkle et al. (2007)	✓				
Molton et al. (2008)		✓		✓	
Monturo et al. (2001)	✓	✓	✓		
Naccarato et al. (2016)		✓			
Naccarato et al. (2018)		✓			
Neese et al. (2003)	✓				
Paterson et al. (2019)			✓		
Peltier et al. (2009)		✓		✓	
Polito et al. (2012)	✓	✓			
Rush et al. (2017)				✓	
Santa Mina et al. 2014			✓		
Santa Mina et al. (2018)			✓		

Siddons et al. (2013)					✓
Terrier et al. (2018)		✓			
Ussher et al. (2019)					✓
Wassersug et al. (2017)	✓	✓			✓
Wittmann et al. (2009)	✓				
Wittmann et al. (2011)	✓		✓		
Wootten et al. (2017)					✓
Zahavich et al. (2013)				✓	
Total:	16	14	9	9	7

***Note**:* Themes are: (1) Relationship challenges, (2) Quality of life, (3) Prehabilitation, (4) Mindfulness, and (5) Self-esteem. Abstracts for each article are provided in Appendix 2.

Summary of Themes

Theme 1 - Relationship challenges

As many sexual functions are impacted post-radical prostatectomy, the challenges associated can extend beyond impacting solely males (Chambers et al., 2019; Monturo et al., 2001). As there are adverse effects on men's physical and psychosocial abilities, their partners encounter many life-changing experiences such as increased responsibility in caregiving (McCorkle et al., 2007). It is evident that partners find it difficult to overcome their spouse's diagnosis of prostate cancer as they have little to no support and often encounter the difficulties just as bad as men (Chambers et al., 2008; Wittmann et al., 2009; Chung & Brock, 2013).

Chung and Brock (2013) demonstrate that both the patient and partner had greater levels of depression, poor sexual communication and more sexual dissatisfaction which can have a strain on the relationship. Couples who can comfortably and openly review their concerns regarding sexual challenges are likely to report higher marital satisfaction (Badr et al., 2009). McCorkle et al. (2007) demonstrated that spouses encountered higher depression, higher distress regarding sexual functioning and significantly higher distress associated with marital interaction.

Preserving relationships or marriages through seeking professional help as a couple is important as marriages, high social support and increased level of optimism can reduce the risk of depression (Monturo et al., 2001). Contrastingly, a study by Badr et al. (2009) outlines the

unique perceptions of stressors amongst post-radical prostatectomy patients and their spouses. Radical prostatectomy patient's ability in being able to complete day-to-day tasks were perceived to be more significant than the potential erectile dysfunction they may be encountering and its impact as an emotional stressor or detrimental impact on their quality of life (Badr et al., 2009).

Majority of men find it crucial to have their partner in consultations with them as they find it generally helps their relationship and recovery (Grondhuis Palacios et al., 2018; Monturo et al., 2001). Another study identified that men are more likely to want to meet with a health professional individually than with a partner present, although most men are open to bringing their partner to appointments (Neese et al., 2003). In contrast, Chambers et al. (2008) states that men and women prefer to have individual consultations around sexual support. Partners increase the chance of patients seeking counselling and thus, having a negative relationship is likely to decrease a patient's chances at seeking assistance (Neese et al., 2003). Having a partner's support through surgery and recovery may have a better impact on the quality of life of patients post radical prostatectomy (Wassersug & Wibowo, 2017).

Open spousal communication is identified as a substantial method in enabling couples to acclimate to any chronic illnesses which may create long-term psychological, physical, social, psychosexual and physiological changes (Badr et al., 2009). As there are alterations in sexual patterns within relationships, this demonstrates that it may create anxiety within relationships (Fernandez-Sola et al., 2020). Despite the significance of men who had undergone radical prostatectomy and their partners seeking professional helps, Chambers et al., (2019) highlights that there is a lack of effort into addressing psychosexual issues and a lack of involvement of men’s partners in the discussions.

Wittmann et al. (2009), Neese et al. (2003) and Wittmann et al. (2011) indicated that partners usually feel more distressed than the men dealing with post-radical prostatectomy and that partners prefer to be included in discussions with health care professionals involving, information, decisions, support and recovery. Spouses may also become disruptive of the patient’s time when seeking for assistance from a physician by interrupting the patient, taking over and answering questions on behalf of the patient (Huber et al., 2016). In most instances, partners were an essential social support when it came to physical and emotional distress and thus, men felt that their masculinity was compromised, despite these men were very

appreciative that their partners comprehended how they were feeling (Fernandez-Sola et al., 2020).

Spousal communication is identified as a lacking component within relationships as patients and their partners avoid discussing the hardships they are experienced and the emotions encountered as a result of the radical prostatectomy (Badr et al., 2009). By avoiding discussion around concerns that have initiated as a result of radical prostatectomy, couples may encounter higher levels of distress (Badr et al., 2009). Sexual intercourse is a quality of life domain for partners, signifying that it could have an immense impact on relationships (Polito et al., 2012). Females partners experience psychological distress and is often increased due to limited or lack of knowledge about what to expect with their partners treatment, oftentimes unmet supportive care is reported (Chambers et al., 2008). More often, partners experience stress and anxiety alone, as partners do not want to share negative feelings with the patient and make the patient stressed about their own illness and how it has affected them (Chambers et al., 2008).

Communication is outlined as a challenging component as men and women report different requirements of intimacy and guidance in recovery, making it harder to share their concerns (Wittmann et al., 2009; Badr et al., 2009; Fernandez-Sola et al., 2020). An article suggested that counselling should prioritise communication between prostate cancer patients and their partner as it is implied to improve intimacy (Karlsen et al., 2017). Many women do not focus on treatments for erectile dysfunction but are more focused on counselling as it might help with intimacy and closeness (Badr et al., 2009; Chambers et al., 2008). Chambers et al. (2019) signifies the importance of nurse or peer couple counselling in improving the outcome of long-term medical treatment for erectile dysfunction.

A variety of studies highlight differentiating interventions however with a similar outcome; that is to enhance communication in an aim to strengthen relationships in order to further enable couples to conquer the stressors that are involved with post-radical prostatectomy (Badr et al., 2009; Chambers et al., 2019; Couper et al., 2006; Karlsen et al., 2017; Monturo et al., 2001; McCorkle et al., 2007). Maintaining relationships and marriages post-radical prostatectomy is essential in enabling the patient himself and his partner to overcome not only the physical challenges, but the psychological challenges that come with radical prostatectomy.

Theme 2 - Quality of life

Quality of life may be impaired when one does not accept their discomfort or limitations and may be influenced by how satisfied someone is with their life (Naccarato et al., 2016). As radical prostatectomy can create long-term detrimental impacts on prostate cancer patients, it can alter and even deter one's quality of life. Men who undergo radical prostatectomy are generally not informed about the potential post-surgery changes that can greatly impact their quality of life. Quality of life may be judged and measured differently in every individual's life and thus, individual circumstances must be considered when assessing one's quality of life.

Loss of sexual activity and companionship are two significant factors that impact a male's quality of life, relevant to prostate cancer patients who seek radical prostatectomy as a treatment method (Monturo et al., 2001). As radical prostatectomy can result in reduced sexual performance and erectile dysfunction, men may feel increased pressure to perform sexually as once capable (Katz, 2005; Monturo et al., 2001; Peltier et al., 2009). This may exacerbate the process of recovery as an inability to sexually perform creating depressive thoughts and feelings, impairing the quality of an individual's life which is also judged to be their perception of their happiness (Molton et al., 2008; Monturo et al., 2001).

In multiple papers, it is addressed that the impact on a patient's sex life greatly impacts their quality of life (Chung & Brock, 2013; Polito et al., 2012). Men are quite sexually active and after a radical prostatectomy however, it is generally reversed due to the difficulty they encounter in achieving an erection as it just becomes too hard. Polito (2012) determined that sexual intercourse was the main quality of life domain for the patient's partner/spouse. This demonstrates that an impact on sexual life for patients also alters their partner's quality of life. In addition to erectile dysfunction impacting men who are suffering from prostate cancer, it can create an immense burden on the significant other, impacting the quality of life for both parties (Naccarato et al., 2018).

Due to the association of erectile dysfunction and quality of life, there is a significant need to address issues such as sexual dysfunction for men post-operation (Glina, 2011; Naccarato et al., 2016; Naccarato et al., 2018; Peltier, 2009; Terrier et al., 2018). The psychological impacts of erectile dysfunction immensely alter the quality of life, further impacting health (Peltier, 2009). Given the lack of information and direction prior to proceeding with radical prostatectomy, most patients often encounter feelings of frustration

and low self-esteem as they realise their bodily functions are worsened (Monturo et al., 2001). Regret in choice of treatment method being radical prostatectomy alters one's quality of life and the process of recovery and healing (Lin, 2011; Lomas et al., 2019; Monturo et al., 2001).

As found, men do not feel comfortable bringing up the subject, they feel ashamed, embarrassed, or less satisfied about the whole situation (Glina, 2011). A male's perspective when encountering a loss in sexual drive, sexual functioning, and erectile dysfunction contribute to the likelihood of them feeling the pressure, a loss in companionship, and inability to provide. By experiencing thoughts and emotions as such, it may contribute to a decreased self-esteem, feeling a loss of masculinity, loss of identity, and thought patterns measuring whether they are a man anymore. Experiences as such may appear due to an increased interpersonal sensitivity which is ultimately identified as an individual being too sensitive to their external environment (Molton et al., 2008).

A study found that decreased levels of interpersonal sensitivity were associated with a lack of fear of sexual dysfunction toward their sense of identity or masculinity (Molton et al., 2008). Addressing thought patterns and emotions are significant ways to reason why they exist. As a result, it may enable a variety of factors to be addressed, increasing the quality of life. Depression and distress are strongly associated with erectile dysfunction and quality of life (Naccarato et al., 2018). Group psychotherapy and social support are a form of assistance that may enable a positive impact on patients' quality of life and erectile dysfunction (Naccarato et al., 2018; Fernandez-Sola et al., 2020). Having the right support from a partner during difficult times as such may benefit a patient's quality of life (Wassersug & Wibowo, 2017). In this study, it was evident that patients who had a strong support system with their partners/spouses had a higher rate of survival over the patients who did not have that strong support system (Wassersug & Wibowo, 2017).

Theme 3 - Prehabilitation

Through a variety of articles, it comprehended that prehabilitation is effective and beneficial for radical prostatectomy patients as it prepares them and their families around what to expect following surgery (Faris et al., 2019; Santa Mina et al., 2018; Wassersug & Wibowo, 2017). As radical prostatectomy involves detrimental post-surgery impacts such as urinary incontinence, decreased sexual drive, decreased sexual function, low self-esteem, and erectile

dysfunction, introducing prehabilitation pre-radical prostatectomy may enable increased levels of recovery, preparation, and development (Katz, 2005; Lin, 2011; Wittmann et al., 2011; Paterson et al., 2019). Prehabilitation has been reviewed and confirmed to profit both physical and psychological well-being post-operation and throughout recovery (Santa Mina et al., 2018).

Given through multiple papers, it is evident that there is a lack of guidance regarding prehabilitation awareness on the impact of radical prostatectomy (Faris et al., 2019; Wassersug & Wibowo, 2017; Paterson et al., 2019; Lin, 2011; Lomas et al., 2019). Prehabilitation actively educates and informs patients on what to expect during surgery and post-surgery. This may include a wide range of information regarding sexual function, managing of erectile dysfunctions and preparation for partners and families on what to expect (Faris et al., 2019; Wassersug & Wibowo, 2017). Pre-education demonstrates that there are substantial positive and even negative impacts on a patient and their experiences throughout their surgery (Faris et al., 2019). Given in the circumstance of a patient focusing purely on the desire of removing and curing cancer, they may not be immensely aware of the challenges that may emerge post-radical prostatectomy (Lin, 2011; Lomas et al., 2019).

As a result of focusing heavily on treatment and removing cancer, patients can often be misinformed on the challenges, risks, changes, and complications that may emerge following radical prostatectomy (Lin, 2011; Lomas et al., 2019). A study found that misinforming patients on the impacts of post-radical prostatectomy is evident amongst patients, with 31% of 100 patients feeling regret after radical prostatectomy (Lin, 2011). Patients who lack a level of awareness regarding post-radical prostatectomy often feel regret due to enduring bothersome adverse effects (Lin, 2011; Lomas et al., 2019). Increased feelings of regret can further alter one's quality of life as their bodily changes prevent them from partaking in day-to-day tasks, decreasing their level of psychological well-being ultimately (Lin, 2011; Monturo et al., 2001).

The period before encountering a radical prostatectomy may emerge as an optimal time to introduce pre-operative measures such as physical activity and psychological interventions (Santa Mina et al., 2014; Paterson et al., 2019). Naturally, more active and fitter men are deemed to be more likely to recover quickly after radical prostatectomy, positively impacting the process of rehabilitation, recovery, and the risk of complications (Paterson et al., 2019; Santa Mina et al., 2014). In turn, an increased level of recovery, development, and reduced

exposure to impacts as a result of preparation before radical prostatectomy may potentially reduce detrimental psychological outcomes post-radical prostatectomy. Recovery optimising behaviours including pelvic floor muscle training, psychological assistance, and self-management therapy are traditionally conducted post-radical prostatectomy (Paterson et al., 2019; Santa Mina et al., 2014). In the postoperative period, patients are prone to adopting innumerable challenges (Paterson et al., 2019). In the period of post-operative radical prostatectomy, patients are expected to encounter high levels of distress as a result of bodily functions, bodily changes, awareness regarding lack of comprehension on radical prostatectomy impacts before surgery and anxiously waiting for the success of prostatectomy results (Paterson et al., 2019; Santa Mina et al., 2014).

Theme 4 - Mindfulness

Mindfulness is a form of therapeutic practice through open awareness which enables patience and acceptance of the present moment to manage stressful situations (Chambers et al., 2013). Over time, mindfulness may allow an individual to gain skills that may enable them to become less sensitive to experiences that may be deemed challenging to deal with (Altschuler et al., 2012; Chambers et al., 2013). Cancer, and specifically prostate cancer, can intensify existing stressors in an individual's lives (Rush & Sharma, 2017). Post-radical prostatectomy can create long-term implications on not only male's lives, but with whom they share their life with. Reduced sexual functioning, loss in sexual drive, loss in sexual performance, erectile dysfunction, and a loss in communication or intimacy with their partner can create additional stress (Lin, 2011; Molton et al., 2008; Peltier et al., 2009). Factors as such may exacerbate the process of recovery.

As the recovery process may result in increased stress levels, yoga has been identified as a form of gentle therapy that may enable consistent participation by individuals when facing additional stressors, as experienced by radical prostatectomy patients (Rush & Sharma, 2017; Zahavich et al., 2013). Meditation as identified as another form of mindfulness, enables individuals to practice patience, acceptance, and to appreciate and acknowledge (Altschuler et al., 2012; Rush & Sharma, 2017). Progression has been recognized in patients who have undergone mindfulness practices such as acceptance and personal growth (Chambers et al., 2013). It was strongly recommended the practise of mindfulness techniques such as meditation, was encouraged daily as participants were asked to partake in one out of the four 34-minute techniques which depended on what stage the participants were in (Chambers et al., 2012). It

was shown that mindfulness-based cognitive therapy group interventions were an efficient way in meeting men's needs regarding advanced prostate cancer and enables men in dealing with negative thoughts and feelings (Chambers et al., 2012).

A study conducted by Altschuler et al. (2012) demonstrated that mindfulness-based stress reduction (MBSR) audio recordings were used by patients to find out if these recordings assisted in improving quality of life, decreased stress, improved sleep quality, and any improvements of immune function. The findings from this study found that listening to these recordings reduced the HADS (Hospital Anxiety and Depression Scale) numbers as well as decreasing the rate of prostate-specific antigen increase after a prostatectomy. Another mindfulness predictor that helps show the improvement of the quality of life, cancer-specific distress, and psychological distress is a 39- item Five Facet Mindfulness Questionnaire (Chambers et al., 2016). This study aimed to find out the relationship between mindfulness interventions and patient's quality of life, cancer-specific distress, and psychological distress. The findings demonstrate that mindfulness should be a major part of rehabilitation post-radical prostatectomy as they have a positive impact, which at this stage isn't spoken about as men have the stigma of mindfulness meditation is for women.

Often, prostate cancer may cause recurrence and increase prostate-specific antigen despite undergoing radical prostatectomy (Altschuler et al., 2012; Rush & Sharma, 2017). The implementation of mindfulness techniques may enhance the process of encountering a recurrence of prostate cancer post-radical prostatectomy.

Theme 5 - Self-esteem

Self-esteem focuses on the process of evaluating ourselves and deeming ourselves as worthy of reciprocal respect (Batool et al., 2018). Specifically, masculine self-esteem is referred to as how a man views himself (Siddons et al., 2013). This is relevant because prostate cancer and a radical prostatectomy can impact a man's sense of masculinity. Extending on, this can be viewed and assessed in statements that define how a man feels and what they subsequently experience as a masculine inadequacy (Siddons et al., 2013). Masculine self-esteem involves self-judgement and how masculine an individual male may perceive himself.

After a radical prostatectomy, a man's self-esteem will be affected during the period of recovery. In multiple studies, it was argued that after a radical prostatectomy patient's feel a loss of their masculine identity which affects their self-esteem (Ussher et al., 2019; Wassersug

& Wibowo, 2017; Chung & Brock, 2013; Wootten et al., 2017). Masculine self-esteem is considered to have a major impact on mental health such as anxiety, depression and quality of life (Wootten et al., 2017). Many men blame themselves after having surgery as they feel like they are unable to please their significant other; they feel that they are responsible for not being able to have an erection, and therefore feel as though they are less of a man by not being able to satisfy their sexual partner (Siddons et al., 2013; Ussher et al., 2019).

Physical changes impacting masculinity as a result of post-radical prostatectomy may force one to perceive themselves as weak, less like a man, too emotional and no longer feeling how they previously were prior to their radical prostatectomy (Wootten et al., 2017). In the Chung and Brock (2013) study it was found that among the most sexually motivated patients, 52% (64) felt a loss of self-esteem and 75% (64) reported the loss of masculine identity. Still being sexually active but feeling that loss of self-esteem and masculine identity greatly impacts on the man's psychological state in turn affecting their rehabilitation (Chung & Brock, 2013). The impacts of post radical prostatectomy can also create interrelated changes within one's life. Encountering a radical prostatectomy may result in long-term erectile dysfunction, which can significantly alter a male's perception of themselves and their experiences.

Reduced self-esteem can occur as a direct result of a self-believed thought of a loss in masculinity due to erectile dysfunction and an inability to sexually perform as they usually would. Erectile dysfunction may further immensely impact a male's sexual drive, desire, function and pleasure. Impacting 33-98% of males with prostate cancer, sexual dysfunction may alter the sexual interactions that males may encounter with their spouses and/or partners (Badr et al., 2009). In a study conducted of 90 prostate cancer patient couples, erectile dysfunction has been demonstrated to directly be associated with the sexual drive, desire, arousal, sexual activity, orgasm and satisfaction encountered by the female partners (Badr et al., 2009). It becomes evident that a reduced sexual experience by female partners may cause prostate cancer patients to experience a loss in masculinity and thus, lower their self-esteem.

A study by Wootten et al. (2017) trialled the efficacy of a self-guided online psychological intervention in combination with an online forum. The study demonstrated that progression in overall sexual satisfaction was immensely related to a progression in sexual functioning and additionally was identified to improve sexual confidence and masculine self-esteem, reducing psychological distress (Wootten et al., 2017). The study further identifies the

reduction of erectile dysfunction aids use and its significance in enabling improvements (Wootten et al., 2017). Rather, it indicates patients who utilised the self-guided online intervention and online forum encountered immense improvements in physical sexual functioning in addition with psychological factors of sexuality, both contributing to increased self-esteem (Wootten et al., 2017).

Radical prostatectomy has a huge impact on self-esteem, masculine self-esteem in particular is discussed multiple times as men feel as though a huge part of them has been taken away after surgery. Men feel as though they cannot satisfy their partners which puts more pressure on themselves to develop an erection making them have lower self-esteem.

DISCUSSION

This scoping review found that there was extensive literature on post radical prostatectomy for prostate cancer patients and the psychological rehabilitation they encounter. There were also several challenges that patients and partners experience with prostate cancer and post radical prostatectomy. Most of the literature for psychological rehabilitation post-radical prostatectomy, and challenges faced related to: (1) relationship challenges, (2) quality of life, (3) prehabilitation, (4) mindfulness and (5) self-esteem. Despite an inclusion criterion of only English articles being selected, the randomised control trials and literature collated were conducted in selected countries such as Australia, Canada, the United States, and Switzerland. As unanticipated avenues of psychological rehabilitation were identified, it enabled for an expansion of additional literature to be explored.

Most of the literature study design involved a variety of focus groups, nurse/peer groups and interviews, with all exploring a similar outcome; most of the studies focused on how post-radical prostatectomy impacts psychological rehabilitation, while other literature discussed how an improved psychological and physical well-being could enhance the post-radical prostatectomy period.

Prehabilitation

Focusing on post-radical prostatectomy, prehabilitation was explored to ensure an in-depth exploration of all factors that may alter the psychological rehabilitation process and how they may differ. While seeking content regarding prehabilitation, it was unanticipated that

prehabilitation (involving both physical and psychological dynamics) would be identified as a major area in determining positive outcomes post-radical prostatectomy. The anticipated role of prehabilitation includes preparing for radical prostatectomy through guidance, support, reduced regret due to awareness of the procedure, counselling, psychological preparation, and providing a high level of awareness on the potential outcomes of radical prostatectomy (Katz, 2005; Lin, 2011; Paterson et al., 2019 and Wassersug & Wibowo, 2017; Wittmann et al., 2011). Further benefits were identified including preoperative measures such as pelvic floor training, increasing fitness levels, and self-management therapy (Paterson et al., 2019; Santa Mina et al., 2014). Males who were deemed fitter, achieving higher levels of physical activity before radical prostatectomy were perceived to recover quicker after surgery (Paterson et al., 2019; Santa Mina et al., 2014).

Self-esteem can be influential in a patient's rehabilitation as they begin to doubt themselves and their masculinity. Similarities throughout the literature demonstrated that men feel less masculine due to their surgery and this ultimately affects their self-esteem (Ussher et al., 2019; Wassersug & Wibowo, 2017; Chung & Brock, 2013; Wootten et al., 2017). Quality of life is lowered when a man does not accept his limitations as he may not be informed before radical prostatectomy of changes that may occur such as erectile dysfunction. Further similarities portrayed that a patient's sex life can negatively impact the quality-of-life post-surgery (Chung & Brock, 2013; Polito et al., 2012). It was apparent in relationship challenges that communication was a key aspect in ensuring that couples are experiencing an effective outcome with post radical prostatectomy. This can generally be seen when patients and partners avoid conversations about sexuality causing conflict (Badr et al., 2009; Fernandez-Sola et al., 2020).

There is insufficient literature regarding mindfulness and its association with radical prostatectomy. This explains the inability of developing mindfulness as a research question. Although there was not an extensive amount of evidence on the practice of mindfulness, it yet is perceived as an effective approach in addressing psychological rehabilitation. Similarities showed that mindfulness will allow patients to gain skills that may be perceived as challenging (Altschuler et al., 2012; Chambers et al., 2013). When there is a lack of information and guidance regarding mindfulness and prehabilitation for radical prostatectomy patients, they may find it difficult in adjusting to their new circumstances and challenges.

Current psychological rehabilitation

This scoping review has shown that there are effective rehabilitation practices in which men with prostate cancer can use pre- and post-radical prostatectomy. Prehabilitation was an effective practice for patients as it has prepared patients for what to expect prior to surgery (Faris et al., 2019; Santa Mina et al., 2018; Wassersug & Wibowo, 2017). This allows men to have an effective recovery as they can comprehend what will occur post-surgery, such as erectile dysfunction and decreased sex drive (Katz, 2005; Lin, 2011). Many men go into surgery without the knowledge they require or are misinformed and therefore encounter a hard time with self-esteem afterwards and some often even regret their choice of rehabilitation (Lin, 2011, Monturo et al., 2001; Lomas et al., 2019). Prehabilitation is used to prevent this and profit wellbeing.

Mindfulness is another form of practice that has been demonstrated to be efficient as it enables men to accept their new condition and manage it (Chambers et al., 2013). Daily practice of mindfulness such as meditation is encouraged (Chambers et al., 2012). Personal psychological growth and acceptance have been identified as effective mindfulness techniques for allowing positive development within patients when dealing with the challenges associated with radical prostatectomy (Chambers et al., 2013). Counselling for patients and their partner was also deemed beneficial for the relationship and a patient's recovery (Badr et al., 2009; Chambers et al., 2008). It enabled men and their partners to discuss the problems they may experience post radical prostatectomy (Badr et al., 2009; Chambers et al., 2008). This helps as both the patient and partner can discuss their concerns and includes the partner in the recovery as well as discussing things that might be hard to communicate (Badr et al., 2009; Chambers et al., 2008).

CONCLUSIONS AND RECOMMENDATIONS

Key recommendations

(i) There is a need to establish high-quality educational programs regarding prehabilitation to prepare and educate patients and partners prior to radical prostatectomy, particularly with respect to the radical change in quality of life they will experience – irrespective of whether the actual surgery is successful or not.

(ii) Further research is needed regarding the success and benefits of physical activity and fitness levels prior to encountering a radical prostatectomy in order to ensure a reduction in detrimental psychological outcomes following surgery.

(iii) Further research is needed with respect the relationship between radical prostatectomy and the benefits of mindfulness to help increase quality of life.

Conclusion

The purpose of this scoping review was to explore and assess literature regarding the psychological rehabilitation strategies and outcomes post-radical prostatectomy, as well as the challenges patients and partners face after surgery. Within the literature collated and reviewed, it is evident that psychological rehabilitation strategies are often overlooked in comparison to physical rehabilitation for radical prostatectomy patients.

Despite limited research, effective prehabilitation was found to benefit self-esteem amongst prostatectomy patients effectively preparing and educating men and partners prior to surgery (Lin, 2011, Monturo et al., 2001; Lomas et al., 2019). This limited but effective strategy should be mandated for all patients before radical prostatectomy. Additionally, implementing mindfulness can be identified as an effective strategy pre and post-prostatectomy but with the current research isn't perceived as a ‘man’ thing to do.

Rehabilitation exists for ensuring that detrimental outcomes are reduced and ideally, eventually eliminated. Detrimental outcomes are due to a lack of information, guidance, and preparedness and thus there is a need for rehabilitation to overcome and deal with any concerns and issues. With the current and limited research around prehabilitation and its significance in ensuring preparedness before radical prostatectomy, more could be implemented using prehabilitation practices to ensure positive outcomes. This may further increase an individual’s encouragement, involvement, satisfaction, and motivation to manage their condition and radical prostatectomy. As a result, it may promote the prevention of potential issues and ensure better outcomes.

ACKNOWLEDGEMENTS

The authors would like to thank Professor Jeremy Millar, Ms Melanie Evans (Monash University), Ms Stephanie Gjorgioski, Ms Cassandra Wright and, Ms Belinda Conna (Department of Public Health, La Trobe University) for allowing us to work alongside Monash University Prostate Cancer Outcomes Registry. We would also like to express our appreciation to Ms Elizabeth Lehman for supporting us and Ms Rosanna Ripoli, Senior Learning Advisor at La Trobe University for her training and assistance regarding project writing.

REFERENCES

Altschuler, A., Rosenbaum, E., Gordon, P., Canales, S., & Avins, A. L. (2012). Audio recordings of mindfulness-based stress reduction training to improve cancer patients' mood and quality of life - A pilot feasibility study [Article]. *Supportive Care in Cancer*, *20*(6), 1291–1297. https://doi.org/10.1007/s00520-011-1216-7

Arksey, H., & O'Malley, L. (2005). Scoping studies: towards a methodological framework. *International Journal of Social Research Methodology, 8*(1), 19-32. https://doi.org/10.1080/1364557032000119616

Batool, A., Ajma, A., Abid, S., & Iqbal, H. (2018). Self-concept and self-esteem among adults. *Peshawar Journal of Psychology and Behavioural Sciences, 4(2), 238-239.* https://doi.org/10.32879/picp.2018.4.2.237

Badr, H., CL, T., Badr, H., & Taylor, C. L. C. (2009). Sexual dysfunction and spousal communication in couples coping with prostate cancer. *Psycho-Oncology*, *18*(7), 735–746. https://doi.org/10.1002/pon.1449

Cancer Council Victoria. (2020). *Prostate cancer.* https://www.cancervic.org.au/cancer-information/types-of-cancer/prostate_cancer/prostate-cancer-overview.html

Chambers, S. K., Foley, E., Clutton, S., McDowall, R., Occhipinti, S., Berry, M., Stockler, M. R., Lepore, S. J., Frydenberg, M., Gardiner, R. A., Davis, I. D., & Smith, D. P. (2016). The role of mindfulness in distress and quality of life for men with advanced prostate cancer. *Quality of Life Research*, *25*(12), 3027–3035. https://doi.org/10.1007/s11136-016-1341-3

Chambers, S. K., Foley, E., Galt, E., Ferguson, M., & Clutton, S. (2012). Mindfulness groups for men with advanced prostate cancer: A pilot study to assess feasibility and effectiveness and the role of peer support [Article]. *Supportive Care in Cancer*, *20*(6), 1183–1192. https://doi.org/10.1007/s00520-011-1195-8

Chambers, S. K., Occhipinti, S., Stiller, A., Zajdlewicz, L., Nielsen, L., Wittman, D., Oliffe, J. L., Ralph, N., & Dunn, J. (2019). Five-year outcomes from a randomised controlled trial of a couples-based intervention for men with localised prostate cancer. *Psycho-Oncology*, *28*(4), 775–783. https://doi.org/https://dx.doi.org/10.1002/pon.5019

Chambers, S. K., Schover, L., Halford, K., Clutton, S., Ferguson, M., Gordon, L., Gardiner, R. A., Occhipinti, S., & Dunn, J. (2008). ProsCan for couples: randomised controlled trial of a couples-based sexuality intervention for men with localised prostate cancer who receive radical prostatectomy. *BMC Cancer*, *8*, 226. https://doi.org/https://dx.doi.org/10.1186/1471-2407-8-226

Chambers, S. K., Smith, D. P., Berry, M., Lepore, S. J., Foley, E., Clutton, S., McDowall, R., Occhipinti, S., Frydenberg, M., & Gardiner, R. A. (2013). A randomised controlled trial of a mindfulness intervention for men with advanced prostate cancer [Article]. *BMC Cancer*, *13*, 89. https://doi.org/10.1186/1471-2407-13-89

Chung, E., & Brock, G. (2013). Sexual rehabilitation and cancer survivorship: a state of art review of current literature and management strategies in male sexual dysfunction among prostate cancer survivors. *The Journal of Sexual Medicine*, *10 Suppl 1*, 102–111. https://doi.org/10.1111/j.1743-6109.2012.03005.x

Couper, J., Bloch, S., Love, A., Macvean, M., GM, D., & Kissane, D. (2006). Psychosocial adjustment of female partners of men with prostate cancer: A review of the literature. *Psycho-Oncology*, *15*(11), 937–953. https://doi.org/10.1002/pon.1031

Faris, A. E. R., Montague, D. K., & Gill, B. C. (2019). Perioperative educational interventions and contemporary sexual function outcomes of radical prostatectomy. *Sexual Medicine Reviews*, *7*(2), 293–305. https://doi.org/10.1016/j.sxmr.2018.05.003

Fernandez-Sola, C., Martinez-Bordajandi, A., Puga-Mendoza, A. P., Hernandez-Padilla, J. M., Jobim-Fischer, V., Lopez-Rodriguez, M. D. M., & Granero-Molina, J. (2020). Social support in patients with sexual dysfunction after non-nerve-sparing radical prostatectomy: A qualitative study. *American Journal of Men's Health*, *14*(2), 1557988320906977. https://doi.org/https://dx.doi.org/10.1177/1557988320906977

Fineout-Overholt, E., & Johnston, L. (2005). Teaching EBP: asking searchable, answerable clinical questions. *Worldviews on Evidence-Based Nursing, 2*(3), 157-160. https://doi.org/10.1111/j.1741-6787.2005.00032.x

Glina, S. (2011). Erectile dysfunction after radical prostatectomy: Treatment options. *Drugs & Aging*, *28*(4), 257–266. https://doi.org/10.2165/11588290-000000000-00000

Grondhuis Palacios, L. A., Krouwel, E. M., den Oudsten, B. L., den Ouden, M. E. M., Kloens, G. J., van Duijn, G., Putter, H., Pelger, R. C. M., & Elzevier, H. W. (2018). Suitable sexual health care according to men with prostate cancer and their partners. *Supportive Care in Cancer : Official Journal of the Multinational Association of Supportive Care in Cancer*, *26*(12), 4169–4176. https://doi.org/10.1007/s00520-018-4290-2

Huber, J., Streuli, J. C., Lozankovski, N., Stredele, R. J. F., Moll, P., Hohenfellner, M., Huber, C. G., Ihrig, A., & Peters, T. (2016). The complex interplay of physician, patient, and spouse in preoperative counseling for radical prostatectomy: A comparative mixed-method analysis of 30 videotaped consultations. *Psycho-Oncology*, *25*(8), 949–956. https://doi.org/10.1002/pon.4041

Johns Hopkins Medicine. (2020). *Radical prostatectomy.* Retrieved November 18, 2020, from https://www.hopkinsmedicine.org/health/treatment-tests-and-therapies/radical-prostatectomy

Karlsen, R. V, E Bidstrup, P., Hvarness, H., Bagi, P., Friis Lippert, E., Permild, R., Giraldi, A., Lawaetz, A., Krause, E., Due, U., & Johansen, C. (2017). Feasibility and acceptability of couple counselling and pelvic floor muscle training after operation for prostate cancer. *Acta Oncologica (Stockholm, Sweden)*, *56*(2), 270–277. https://doi.org/10.1080/0284186X.2016.1267397

Katz, A. (2005). What happened?: Sexual consequences of prostate cancer and its treatment. *Canadian Family Physician*, *51*(7), 977–982. http://ez.library.latrobe.edu.au/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=106344426&login.asp&site=ehost-live&scope=site

Lin, Y.-H. (2011). Treatment decision regret and related factors following radical prostatectomy. *Cancer Nursing*, *34*(5), 417–422. https://doi.org/10.1097/NCC.0b013e318206b22b

Lomas, D. J., Ziegelmann, M. J., & Elliott, D. S. (2019). How informed is our consent? Patient awareness of radiation and radical prostatectomy complications. *Turkish Journal of Urology*, *45*(3), 191–195. https://doi.org/10.5152/tud.2018.81522

Mayo Clinic. (2020). *Prostate cancer.* https://www.mayoclinic.org/diseases-conditions/prostate-cancer/symptoms-causes/syc-20353087

McCorkle, R., ML, S., MF, D., JP, R., & Pickett, M. (2007). Effects of advanced practice nursing on patient and spouse depressive symptoms, sexual function, and marital interaction after radical prostatectomy. *Urologic Nursing*, *27*(1), 65–77. http://ez.library.latrobe.edu.au/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=106273026&login.asp&site=ehost-live&scope=site

Molton, I. R., SD, Siegel, S. D., Penedo, F. J., Dahn, J. R., Kinsinger, D., Traeger, L. N., Carver, C. S., Shen, B. J., Kumar, M., Schneiderman, N., Antoni, M. H., Molton, I. R., Siegel, S. D., Penedo, F. J., Dahn, J. R., Kinsinger, D., Traeger, L. N., Carver, C. S., Shen, B.-J., & Kumar, M. (2008). Promoting recovery of sexual functioning after radical prostatectomy with group-based stress management: The role of interpersonal sensitivity. *Journal of Psychosomatic Research*, *64*(5), 527–536. https://doi.org/10.1016/j.jpsychores.2008.01.004

Monturo, C. A., Rogers, P. D., Coleman, M., Robinson, J. P., & Pickett, M. (2001). Beyond sexual assessment: Lessons learned from couples post radical prostatectomy. *Journal of the American Academy of Nurse Practitioners*, *13*(11), 511–516. https://doi.org/10.1111/j.1745-7599.2001.tb00017.x

Naccarato, A. M. E. P., Consuelo Souto, S., Matheus, W. E., Ferreira, U., & Denardi, F. (2018). Quality of life and sexual health in men with prostate cancer undergoing radical prostatectomy. *The Aging Male : The Official Journal of the International Society for the Study of the Aging Male*, 1–8. https://doi.org/https://dx.doi.org/10.1080/13685538.2018.1486397

Naccarato, A. M. E. P., Reis, L. O., Ferreira, U., & Denardi, F. (2016). Psychotherapy and phosphodiesterase-5 inhibitor in early rehabilitation after radical prostatectomy: A prospective randomised controlled trial. *Andrologia*, *48*(10), 1183–1187. https://doi.org/https://dx.doi.org/10.1111/and.12557

Neese, L. E., Schover, L. R., Klein, E. A., Zippe, C., & Kupelian, P. A. (2003). Finding help for sexual problems after prostate cancer treatment: A phone survey of men's and women's perspectives. *Psycho-Oncology*, *12*(5), 463–473. https://doi.org/10.1002/pon.657

Paterson, C., Primeau, C., Pullar, I., & Nabi, G. (2019). Development of a prehabilitation multimodal supportive care interventions for men and their partners before radical prostatectomy for localized prostate cancer. *Cancer Nursing*, *42*(4), E47–E53. https://doi.org/10.1097/NCC.0000000000000618

Peltier, A., R, van V., & Roumeguère, T. (2009). Current management of erectile dysfunction after cancer treatment. *Current Opinion in Oncology*, *21*(4), 303–309. https://doi.org/10.1097/CCO.0b013e32832b9d76

Polito, M., D'Anzeo, G., Conti, A., & Muzzonigro, G. (2012). Erectile rehabilitation with intracavernous alprostadil after radical prostatectomy: Refusal and dropout rates. *BJU International*, *110*(11 Pt C), E954-7. https://doi.org/10.1111/j.1464-410X.2012.11484.x

Rush, S. E., & Sharma, M. (2017). Mindfulness-Based Stress Reduction as a Stress Management Intervention for Cancer Care: A Systematic Review [Article]. In *Journal of Evidence-Based Complementary and Alternative Medicine* (Vol. 22, Issue 2, pp. 348–360). SAGE Publications. https://doi.org/10.1177/2156587216661467

Sampurno, F., & Evans, S. M. (2015). For the Victorian Prostate Cancer Clinical Registry Steering Committee. Victorian Prostate Cancer Clinical Registry - Five Year Report [Internet] Melbourne, Victoria. Monash University. http://pcr.registry.org.au

Santa Mina, D., Hilton, W. J., Matthew, A. G., Awasthi, R., Bousquet-Dion, G., Alibhai, S. M. H., Au, D., Fleshner, N. E., Finelli, A., Clarke, H., Aprikian, A., Tanguay, S., & Carli, F. (2018). Prehabilitation for radical prostatectomy: A multicentre randomized controlled trial. *Surgical Oncology*, *27*(2), 289–298. https://doi.org/https://dx.doi.org/10.1016/j.suronc.2018.05.010

Santa Mina, D., Matthew, A. G., Hilton, W. J., Au, D., Awasthi, R., Alibhai, S. M. H., Clarke, H., Ritvo, P., Trachtenberg, J., Fleshner, N. E., Finelli, A., Wijeysundera, D., Aprikian, A., Tanguay, S., & Carli, F. (2014). Prehabilitation for men undergoing radical prostatectomy: A multi-centre, pilot randomized controlled trial. *BMC Surgery*, *14*, 89. https://doi.org/10.1186/1471-2482-14-89

Siddons, H. M., Wootten, A. C., & Costello, A. J. (2013). A randomised, wait-list controlled trial: evaluation of a cognitive-behavioural group intervention on psycho-sexual adjustment for men with localised prostate cancer. *Psycho-Oncology*, *22*(10), 2186–2192. https://doi.org/https://dx.doi.org/10.1002/pon.3273

Terrier, J. E., Masterson, M., Mulhall, J. P., & Nelson, C. J. (2018). Decrease in Intercourse Satisfaction in Men Who Recover Erections After Radical Prostatectomy. *The Journal of Sexual Medicine*, *15*(8), 1133–1139. https://doi.org/10.1016/j.jsxm.2018.05.020

Ussher, J. M., Perz, J., Rose, D., Kellett, A., & Dowsett, G. (2019). Sexual rehabilitation after prostate cancer through assistive aids: A comparison of gay/bisexual and heterosexual men. *Journal of Sex Research*, *56*(7), 854–869. https://doi.org/https://dx.doi.org/10.1080/00224499.2018.1476444

Wassersug, R., & Wibowo, E. (2017). Non-pharmacological and non-surgical strategies to promote sexual recovery for men with erectile dysfunction. *Translational Andrology and Urology*, *6*(Suppl 5), S776–S794. https://doi.org/https://dx.doi.org/10.21037/tau.2017.04.09

Wittmann, D., Foley, S., & Balon, R. (2011). A biopsychosocial approach to sexual recovery after prostate cancer surgery: The role of grief and mourning. *Journal of Sex & Marital Therapy*, *37*(2), 130–144. https://www.tandfonline.com/doi/full/10.1080/0092623X.2011.560538

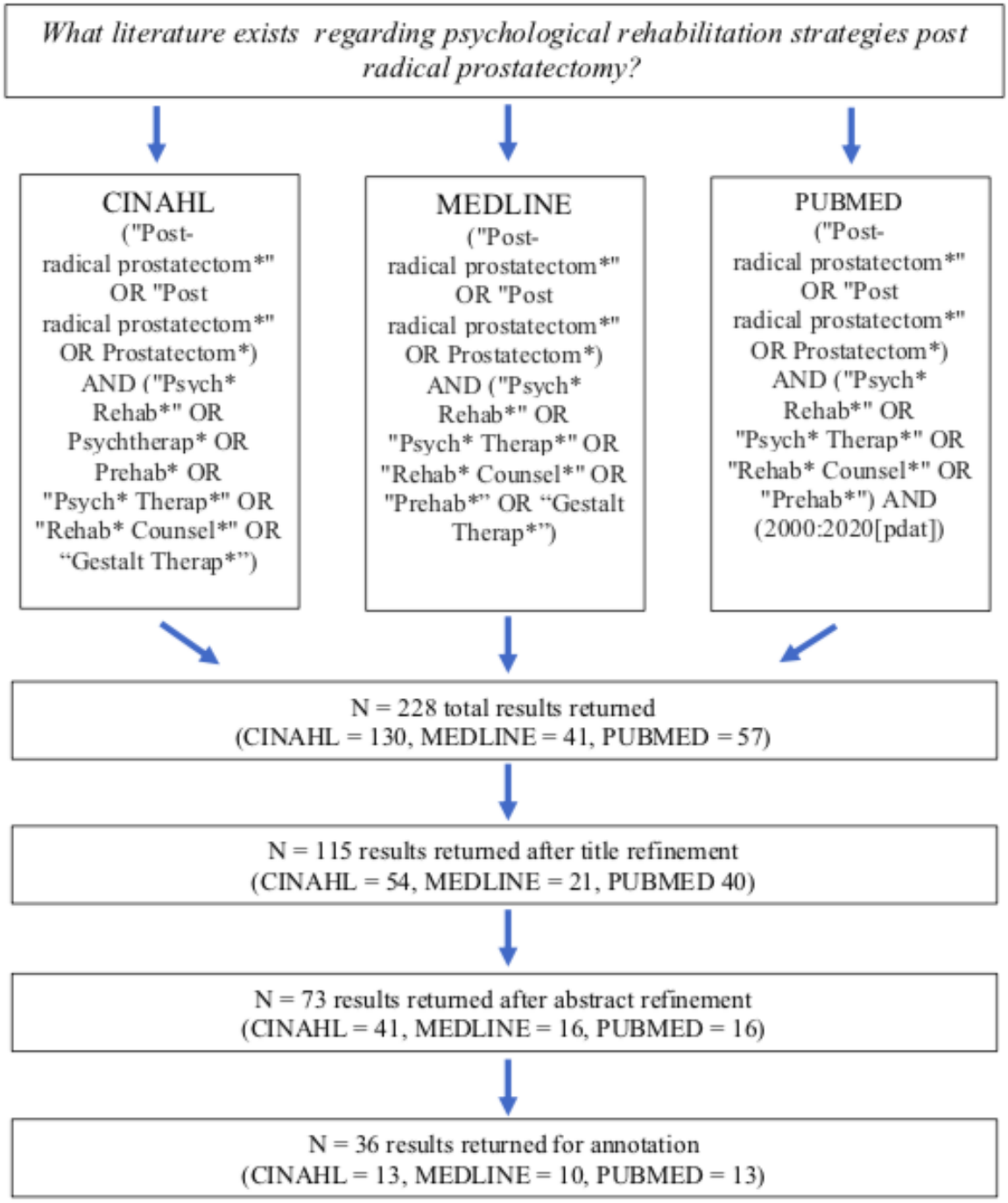
Wittmann, D., Northouse, L., Foley, S., Gilbert, S., Wood, D. P. J., Balon, R., & Montie, J. E. (2009). The psychosocial aspects of sexual recovery after prostate cancer treatment. *International Journal of Impotence Research*, *21*(2), 99–106. https://doi.org/https://dx.doi.org/10.1038/ijir.2008.66

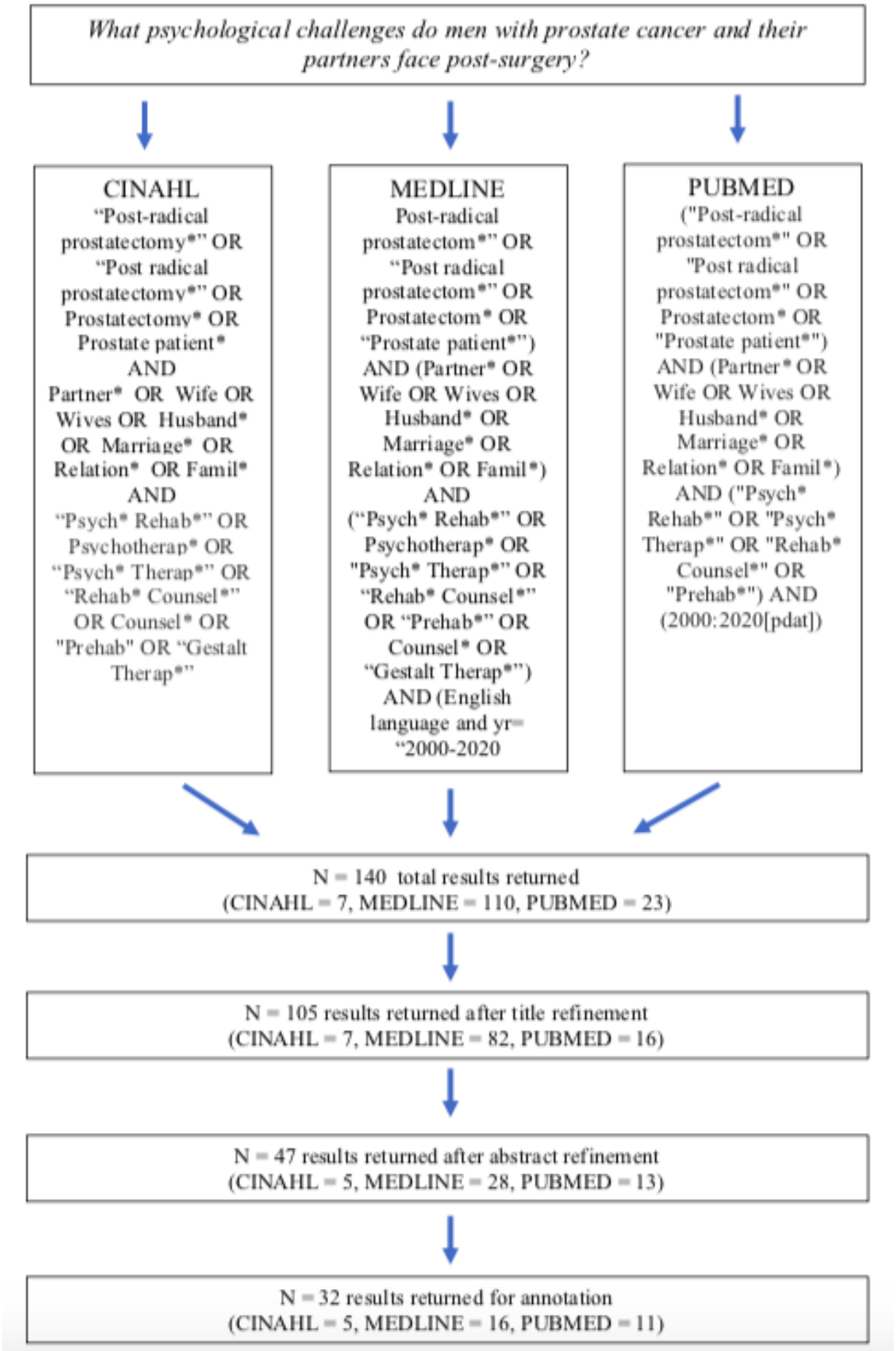
Wootten, A. C., Meyer, D., Abbott, J.-A. M., Chisholm, K., Austin, D. W., Klein, B., McCabe, M., Murphy, D. G., & Costello, A. J. (2017). An online psychological intervention can improve the sexual satisfaction of men following treatment for localized prostate cancer: Outcomes of a Randomised Controlled Trial evaluating My Road Ahead. *Psycho-Oncology*, *26*(7), 975–981. https://doi.org/https://dx.doi.org/10.1002/pon.4244

Zahavich, A. N. R., Robinson, J. A., Paskevich, D., & Culos-Reed, S. N. (2013). Examining a therapeutic yoga program for prostate cancer survivors [Article]. *Integrative Cancer Therapies*, *12*(2), 113–125. https://doi.org/10.1177/1534735412446862

APPENDIX 1

Search Strategy




What psychological challenges do men with prostate cancer and their partners face post-surgery?
CINAHL
"Post-radical prostatectomy*" OR "Post radical prostatectomy*" OR Prostatectomy* OR Prostate patient* AND Partner* OR Wife OR Wives OR Husband* OR Marriage* OR Relation* OR Famil* AND "Psych* Rehab*" OR Psychotherap* OR "Psych* Therap*" OR "Rehab* Counsel*" OR Counsel* OR "Prehab" OR "Gestalt Therap*"
MEDLINE
Post-radical prostatectom*" OR "Post radical prostatectom*" OR Prostatectom* OR "Prostate patient*") AND (Partner* OR Wife OR Wives OR Husband* OR Marriage* OR Relation* OR Famil*) AND ("Psych* Rehab*" OR Psychotherap* OR "Psych* Therap*" OR "Rehab* Counsel*" OR "Prehab*" OR Counsel* OR "Gestalt Therap*") AND (English language and yr= "2000-2020
PUBMED
("Post-radical prostatectom*" OR "Post radical prostatectom*" OR Prostatectom* OR "Prostate patient*") AND (Partner* OR Wife OR Wives OR Husband* OR Marriage* OR Relation* OR Famil*) AND ("Psych* Rehab*" OR "Psych* Therap*" OR "Rehab* Counsel*" OR "Prehab*") AND (2000:2020[pdat])
N = 140 total results returned
(CINAHL = 7, MEDLINE = 110, PUBMED = 23)
N = 105 results returned after title refinement
(CINAHL = 7, MEDLINE = 82, PUBMED = 16)
N = 47 results returned after abstract refinement
(CINAHL = 5, MEDLINE = 28, PUBMED = 13)
N = 32 results returned for annotation
(CINAHL = 5, MEDLINE = 16, PUBMED = 11)

APPENDIX 2

Literature and Thematic Coding

Article no.	Author/s (Year), Title	Brief summary	Thematic coding
1	Altschuler et al (2012) Audio recordings of mindfulness-based stress reduction training to improve cancer patients' mood and quality of life - A pilot feasibility study	Purpose: Mindfulness-based stress reduction (MBSR), typically taught in eight weekly classes, helps patients cope with illness, including cancer. Current research is almost exclusively based on post-treatment class attendance. Research suggests that short courses and alternative delivery techniques may also be beneficial. This pilot study assessed whether it would be feasible for cancer patients receiving chemotherapy to listen to MBSR audio recordings individually during treatment and at home and evaluate whether the intervention shows preliminary evidence of efficacy to improve patients' mood and quality of life (QoL). Methods: Patients were recruited from two oncology clinics. Inclusion criteria included a score ≥8 on the Hospital Anxiety and Depression Scale (HADS). Participants were asked to listen to study CDs containing MBSR instructions at least 5 days/week for 3 months and to maintain study diaries of their meditation practices. Results: Twenty-three patients enrolled in the study, and 20 (87%; 95% confidence interval (CI), 66% to 97%) completed the study protocol. Analysis showed that participants listened to study CDs an average of 39 times during the study; mean HADS scores declined from 18.3 to 12.2 (change=-6.1 points; 95% CI, -2.9 to -9.4). Participants reported subjectively that participation improved their mood and QoL. Conclusions: This pilot study demonstrates the feasibility of investigating an individual audio MBSR intervention for patients with cancer and provides preliminary evidence that MBSR may benefit chemotherapy patients' mood and QoL. Fully powered comparative clinical trials to asses this MBSR modality to help improve mood and QoL for patients receiving chemotherapy are feasible and needed.	4

2	Badr et al. (2009) Sexual dysfunction and spousal communication in couples coping with prostate cancer.	Objective: To characterize the sexual function of both prostate cancer patients and their partners, and to examine whether associations between sexual dysfunction and psychosocial adjustment vary depending on spousal communication patterns.Methods: In this cross-sectional study, 116 prostate cancer patients and their partners completed psychosocial questionnaires.Results: Patients and partners reported high rates of sexual dysfunction. Within couples, patients' and their partners' sexual function was moderately to highly correlated (r=0.30-0.74). When patients had poor erectile function, their partners were more likely to report that the couple avoided open spousal discussions; this in turn was associated with partners' marital distress (Sobel's Z=12.47, p=0.001). Patients and partners who reported high levels (+1SD) of mutual constructive communication also reported greater marital adjustment, regardless of their own sexual satisfaction. In contrast, greater sexual dissatisfaction was associated with poorer marital adjustment in patients and partners who reported low levels (-1SD) of mutual constructive communication ($p<0.05$).Conclusion: Our findings underscore the need for psychosocial interventions that facilitate healthy spousal communication and address the sexual rehabilitation needs of patients and their partners after prostate cancer treatment. Although some couples may be reluctant to engage in constructive cancer-related discussions about sexual problems, such discussions may help alleviate the negative impact that sexual problems have on prostate cancer patients' and their partners' marital adjustment.	1, 5
3	Batool et al. (2018) Self-Concept and self-esteem among adults.	Despite an ample study and analysis of Self-concept and Self-esteem, not a solitary deconstructive work has been done on the Effect of Self-concept on Self-esteem. So, this study aimed at the disclosure of all the ways through which self-concept affects the self-esteem among university students. The research method applied on the paper was quantitative. The study adopted a Multiple Self Concept Scale byBruce A. Bracken and Rosenberg's Self- esteems scale (Rosenberg, 1965). The collected data analysis was accomplished statistically using the t-test and coefficient of correlation techniques. A sample of 250 students comprised of 75 males and 175 females was taken from BZU Multan. The inferences of the study conceded that Self Concept has a significant effect on Self-esteem among university adults. Besides, the research inquiry brought the fact to light that there is, no doubt, a significant disparity of influences of self-concept on self-esteem between male and female.	5
4	Chambers et al. (2008) ProsCan for Couples: randomised controlled trial of	BACKGROUND: Prostate cancer is the most common male cancer in the Western world. The most substantial long-term morbidity from this cancer is sexual dysfunction with consequent adverse changes in couple and intimate relationships. Research to date has not identified an effective way to improve sexual and psychosocial adjustment for both men with prostate cancer and their partners. As well, the efficacy	1

	a couples-based sexuality intervention for men with localised prostate cancer who receive radical prostatectomy.	and cost effectiveness of peer counselling as opposed to professional models of service delivery has not yet been empirically tested. This paper presents the design of a three arm randomised controlled trial (peer vs. nurse counselling vs. usual care) that will evaluate the efficacy of two couples-based sexuality interventions (ProsCan for Couples: Peer support vs. nurse counselling) on men's and women's sexual and psychosocial adjustment after surgical treatment for localised prostate cancer; in addition to cost-effectiveness., METHODS/DESIGN: Seventy couples per condition (210 couples in total) will be recruited after diagnosis and before treatment through urology private practices and hospital outpatient clinics and randomised to (1) usual care; (2) eight sessions of peer-delivered telephone support with DVD education; and (3) eight sessions of oncology nurse-delivered telephone counselling with DVD education. Two intervention sessions will be delivered before surgery and six over the six months post-surgery. The intervention will utilise a cognitive behavioural approach along with couple relationship education focussed on relationship enhancement and helping the couple to conjointly manage the stresses of cancer diagnosis and treatment. Participants will be assessed at baseline (before surgery) and 3, 6 and 12 months post-surgery. Outcome measures include: sexual adjustment; unmet sexuality supportive care needs; attitudes to sexual help seeking; psychological adjustment; benefit finding and quality of life., DISCUSSION: The study will provide recommendations about the efficacy of peer support vs. nurse counselling to facilitate better sexual and couple adjustment after prostate cancer as well as recommendations on whether the interventions represent efficient health service delivery.	
5	Chambers et al. (2012) Mindfulness groups for men with advanced prostate cancer: A pilot study to assess feasibility and effectiveness and the role of peer support	Purpose: Men diagnosed with advanced prostate cancer experience higher psychological distress and greater unmet supportive care needs than men with localized disease. A mindfulness-based cognitive therapy group intervention was pilot tested for acceptability and effectiveness in this patient group. Methods: Nineteen men were initially recruited to three groups and 12 completed final assessments. Outcomes assessed included anxiety, depression, cancer-related distress, prostate cancer-specific quality of life, and mindfulness skills at baseline, immediately, and 3 months postintervention. Satisfaction measures and in-depth interviews were undertaken post-intervention to describe men's personal experiences of the groups. Results: Significant improvements were observed for anxiety (p=0.027), avoidance (p=0.032), and mindfulness skills (p=0.019), with a trend for a reduction in fear of cancer recurrence (p=0.062). Effect sizes were moderate to large. A shared group identity, acceptance of, and learning from other group members were key aspects of the group context that contributed to acceptance of progressive disease. Conclusions: Mindfulness-based group interventions appear to have utility in this patient group and show promise for reducing anxiety, avoidance, and fear of cancer recurrence. Peer learning appeared to be helpful in generating acceptance of advancing disease.	4

6	Chambers et al. (2013) A randomised controlled trial of a mindfulness intervention for men with advanced prostate cancer	Background: Prostate cancer is the most common male cancer in developed countries, and in Australia approximately one-fifth of men with prostate cancer have advanced disease. By comparison to men with localised prostate cancer, men with advanced disease report higher levels of psychological distress; poorer quality of life; and have an increased risk of suicide. To date no psychological intervention research specifically targeting men with advanced prostate cancer has been reported. In this paper we present the protocol of a current randomised controlled trial to assess the effectiveness of a professionally-led mindfulness-based cognitive therapy (MBCT) group intervention to improve psychological well-being in men with advanced prostate cancer.Methods/design: Ninety-five men per condition (190 men in total) will be recruited through clinicians in the Australian and New Zealand Urogenital and Prostate Cancer Trials Group and in major treatment centres in Queensland, New South Wales, Victoria and Western Australia. Patients are randomised to: (1) tele-based MBCT intervention or (2) patient education. A series of previously validated and reliable self-report measures will be administered to men at four time points: baseline/recruitment, and at 3, 6, and 9 months after recruitment and intervention commencement. Engagement with the principles of mindfulness and adherence to practice will be included as potential mediators of intervention effect. Primary outcomes are anxiety, depression and cancer-specific distress. Secondary outcomes are health-related quality of life (QoL) and benefit finding. Disease variables (e.g. cancer grade, stage) will be assessed through medical records.Discussion: This study will address a critical but as yet unanswered research question: to identify an effective way to reduce psychological distress; and improve the quality of life for men with advanced prostate cancer.	4
7	Chambers et al. (2016) The role of mindfulness in distress and quality of life for men with advanced prostate cancer	Objective: To examine the extent to which mindfulness skills influence psychological distress and health-related quality of life (HRQOL) in men with metastatic or castration-resistant biochemical progression of prostate cancer. Patients and methods: A cross-sectional survey of 190 men (46 % response; mean age 71 years, SD = 8.7, range 40–91 years) with advanced prostate cancer, assessed psychological and cancer-specific distress, HRQOL. Mindfulness skills were assessed as potential predictors of adjustment outcomes. Results: Overall, 39 % of men reported high psychological distress. One third had accessed psychological support previously although only 10 % were under current psychological care. One quarter had accessed a prostate cancer support group in the past six months. Higher HRQOL and lower cancer-specific and global psychological distress were related to non-judging of inner experience ($p < 0.001$). Higher HRQOL and lower psychological distress were related to acting with awareness ($p < 0.001$). Lower distress was also related to higher non-reactivity to inner experience and a lower level of observing ($p < 0.05$). Conclusions: Men with advanced prostate cancer are at risk of poor psychological outcomes. Psychological flexibility may be a promising target for interventions to improve adjustment outcomes in this patient group.	4

8	Chambers et al. (2019) Five-year outcomes from a randomised controlled trial of a couples-based intervention for men with localised prostate cancer.	OBJECTIVE: Psychosexual morbidity is common after prostate cancer treatment, however, long-term prospective research is limited. We report 5-year outcomes from a couples-based intervention in dyads with men treated for localised prostate cancer with surgery., METHODS: A randomised controlled trial was conducted involving 189 heterosexual couples, where the man received a radical prostatectomy for prostate cancer. The trial groups were peer support vs. nurse counselling versus usual care. Primary outcomes were sexual adjustment, unmet sexual supportive care needs, masculine self-esteem, marital satisfaction, and utilisation of erectile aids at 2-, 3-, 4- and 5-year follow-up., RESULTS: The effects of the interventions varied across the primary outcomes. Partners in the peer group had higher sexual adjustment than those in the usual care and nurses group at 2 and 3 years (P = 0.002-0.035). Men in usual care had lower unmet sexual supportive care needs than men in the peer and nurse groups (P = 0.001; P = 0.01) at 3 years. Women in usual care had lower sexual supportive care needs than women in the peer group at 2 and 3 years (P = 0.038; P = 0.001). Men in the peer and nurse group utilised sexual aids more than men in usual care; at 5 years 54% of usual care men versus 87% of men in peer support and 80% of men in the nurse group., CONCLUSION: Peer and nurse-administered psychosexual interventions have potential for increasing men's adherence to treatments for erectile dysfunction. Optimal effects may be achieved through an integrated approach applying these modes of support.	1
9	Chung & Brock. (2013) Sexual rehabilitation and cancer survivorship: a state of art review of current literature and management strategies in male sexual dysfunction among prostate cancer survivors.	INTRODUCTION: The challenges for prostate cancer survivors include the surveillance of prostate cancer recurrence and management of physical, cognitive, sexual, and socioeconomic quality of life issues. Sexual function remains an important issue in men, who often continue to be interested in sex after prostate cancer treatment. The various post-prostate cancer treatment-related sexual dysfunctions are penile deformities and erectile dysfunction (ED); sexual desire and mental health; ejaculatory and orgasmic dysfunctions; and changes in partner relationship and dynamics. AIMS: The aim of this study is to provide state of art review of the various male sexual dysfunctions in prostate cancer survivors and the management strategies in sexual rehabilitation. METHODS AND MATERIALS: A literature search for English language original and review articles either published or e-published was performed using PubMed database. Keywords included prostate cancer, prostate cancer treatment, prostate prostatectomy (RP), sexual dysfunction, erectile dysfunction (ED), sexual desire, mental health, ejaculation, orgasmic, climacturia, and relationship. RESULTS: There has been considerable volume of publication in recent years on prostate cancer-related male sexual dysfunction. Penile deformities and ED shared similar pathophysiology and that penile smooth muscle fibrosis ultimately results in structural alterations and end-organ failure. Penile rehabilitation using oral phosphodiesterase type 5 (PDE5) inhibitors is considered the standard of care especially in patients who received nerve-sparing RP and should be instituted as soon as possible to protect and prevent corporal endothelial and smooth muscle damage. However, there is no consensus on the exact timing, dose, and duration of PDE5 inhibitors and its impact in non-nerve-sparing RP and other forms of prostate cancer treatment modalities. Current literature on hypoactive sexual desire, ejaculatory, and orgasmic dysfunctions in patients who received prostate cancer treatment is limited. Psychological and sexual counseling play an important role in rehabilitation and treatment of various forms of male sexual	1,2,5

		dysfunctions. CONCLUSION: While several preventive and treatment strategies for the preservation and recovery of sexual function are available, no specific recommendation or consensus guidelines exist regarding the optimal rehabilitation or treatment protocol. While medical and surgical therapies are effective in erectile function recovery and/or preservation, psychological and sexual counseling are equally important in sexual rehabilitation.	
10	Couper et al. (2006) Psychosocial adjustment of female partners of men with prostate cancer: a review of the literature.	Advances in prostate cancer treatments since the 1990s have led to a growing proportion of patients living with the effects of the cancer. Various challenges face the man and his partner from the point of learning of the diagnosis: deciding among numerous diverse treatment options, dealing with side-effects of treatment and possibly facing the terminal phase of the illness. This invariably has an impact on the patient's family and, in view of the older age group of men usually affected, the experience of a partner is particularly relevant. A thorough review of the research literature reporting directly from partners of prostate cancer patients has not been undertaken previously. For this review, five databases were searched for the decade 1994-2005, during which most of the work in this field has been done. Very few evaluations of psychosocial interventions involving the partner were found, but there was a preponderance of qualitative studies involving small numbers of participants and quantitative surveys with little consistency in the measures used. The literature suggests that partners report more distress than patients, yet believe that patients are the more distressed, and the focus of concern of patients on their sexual function is not shared to an equal degree by their partners.	1
11	Faris et al. (2019) Perioperative Educational Interventions and Contemporary Sexual Function Outcomes of Radical Prostatectomy.	INTRODUCTION: Men undergoing prostatectomy can have unrealistic preoperative expectations regarding sexual function after surgery and may desire more education on recovery and symptom management. AIM: To present contemporary data on recovery of sexual function after prostatectomy and characterize how it is impacted by perioperative patient educational interventions. METHODS: A comprehensive review of the English-language literature available by PubMed search. MAIN OUTCOME MEASURES: Rates of sexual function recovery after prostatectomy and the impact of educational interventions on these and related outcomes. RESULTS: Available studies describe heterogeneous educational and support interventions that differ by patient selection, content, method of delivery, timing, and duration. Interventions with group-based education or peer support benefitted sexual satisfaction metrics. Many studies included men and their partners in supportive interventions. However, the few randomized controlled trials directly analyzing the effect of partner attendance revealed no additional benefit to outcomes. Interventions within 6 weeks of prostatectomy variably aided measures of sexual recovery. Some studies with greater time between prostate cancer treatment and interventions revealed only temporary improvements in outcomes. Yet durable improvements in sexual satisfaction and sexual function were observed in some men enrolled years after prostate cancer treatment. At times, web-based interventions had lower completion rates, but sexual function outcomes were comparable to traditional in-person interventions within randomized trials. CONCLUSION: Educational interventions imparted	3

		variable benefit to sexual function and satisfaction, with group-based designs mostly benefitting satisfaction outcomes. Despite standardized interventions, men reported worse-than-expected outcomes, suggesting an emphasis on counseling regarding changes in erectile function at multiple time points before surgery and during the recovery period may be helpful. Earlier interventions may help with recovery by establishing more accurate patient expectations. Regarding accessibility, future endeavors may be improved with internet-based educational content, as such interventions appeared to provide comparable benefits to in-person sessions.	
12	Fernandez-Sola et al. (2020) Social Support in Patients With Sexual Dysfunction After Non-Nerve-Sparing Radical Prostatectomy: A Qualitative Study.	This study aimed to explore men's experiences of social support after non-nerve-sparing radical prostatectomy. A qualitative study based on Gadamer's hermeneutic phenomenology was designed. In-depth interviews were conducted with 16 men who had undergone a non-nerve-sparing radical prostatectomy. Data analysis was performed using ATLAS.ti software. From this analysis, two main themes emerged: "The partner as a source of support and conflict after a prostatectomy," which includes empathetic reconnection with the partner and changes in sexual and cohabitation patterns and "The importance of social and professional circles," which addresses the shortcomings of the healthcare system in terms of sexual information and counseling as well as the role of friends within social support. The study suggests the need to establish interventions that address interpersonal communication and attention to social and informational support and include both the patient and those closest to them.	1,2
13	Glina (2011) Erectile dysfunction after radical prostatectomy: treatment options.	Erectile dysfunction is a common problem after radical prostatectomy, with almost all men experiencing this complication for at least a short period after such surgery. There is evidence that early use of phosphodiesterase type 5 inhibitors, intracavernous vasoactive drugs, intraurethral alprostadil or vacuum devices can improve the recovery of postoperative erectile function. The same therapeutic modalities can be used to treat erectile dysfunction after radical prostatectomy. Physicians must be active and counsel patients and partners to improve adherence to penile rehabilitation or erectile dysfunction treatment.	2
14	Grondhuis Palacios et al. (2018) Suitable sexual health care according to men with prostate cancer and their partners.	PURPOSE: To determine which health care provider and what timing is considered most suitable to discuss sexual and relational changes after prostate cancer treatment according to the point of view of men and their partners. METHODS: A cross-sectional survey was conducted among men diagnosed with prostate cancer or treated after active surveillance, who received laparoscopic radical prostatectomy, brachytherapy, intensity-modulated radiotherapy, and/or hormonal therapy. If applicable, partners were included as well. RESULTS: In this survey, 253 men and 174 partners participated. Mean age of participating men was 69.3 years (SD 6.9, range 45-89). The majority (77.8%) was married and average length of relationship was 40.3 years (SD 14.1, range 2-64). Out of 250 men, 80.5% suffered from moderate to severe erectile dysfunction. Half of them (50.2%, n = 101) was treated for erectile dysfunction and great part was partially (30.7%, n = 31) up to not satisfied (25.7%, n = 26). Half of the partners (50.6%, n = 81) found it difficult to cope with sexual changes. A standard consultation with a urologist-sexologist to discuss altered sexuality is considered preferable by 74.7% (n = 183). Three months after treatment was the most suitable timing according to 47.6% (n = 49). CONCLUSIONS: During follow-up consultations, little attention is paid to	1

		the impact of treatment-induced sexual dysfunction on the relationship of men with prostate cancer and their partners. A standard consultation with a urologist-sexologist 3 months after treatment to discuss sexual and relational issues is considered as most preferable.	
15	Huber et al. (2009) The complex interplay of physician, patient, and spouse in preoperative counseling for radical prostatectomy: a comparative mixed-method analysis of 30 videotaped consultations.	Objectives: Spouses of cancer patients play a crucial role in deciding on therapeutic choices. The aim of our study was to assess their role in counseling for radical prostatectomy.Methods: We analyzed 30 videotaped preoperative consultations prior to radical prostatectomy. Thereof, 14 included the patients' female partner and 16 took place without partner attendance. We performed quantitative and qualitative conversation analysis to compare both settings.Results: Mean age of patients was 61 (47-73) years; 13% (4/30) did not have a partner. Duration of preoperative consultations was 20 (10-32) min. Physicians spoke most of the time (93%, range 71-99%), followed by patients (7%, range 1-20%) and spouses (2%, range 0-8%). Patients whose spouse was present at the consultation tended to have a more averted posture (50% vs. 25%, $p = 0.04$) and tended to speak less often (5% vs. 8%, $p = 0.02$). In 4 of 14 (29%) consultations, the spouses tended to be more dominant, speaking more frequently. Qualitative analysis showed several examples of emotional support and helpful contributions by spouses. Difference of opinion occurred when pros and cons of a nerve-sparing approach were discussed. The spouses' impact appeared to influence the final decision of men contemplating a nerve-sparing approach in 1 of 14 conversations.Conclusions: Spouses appear to play a complex and sometimes ambivalent role in counseling for radical prostatectomy. Especially when discussing a nerve-sparing approach, urologist should focus on the patients' true needs while interacting with both partners. Personalized decision aids might help to identify possible conflicts in advance.	1
16	Karlsen et al. (2017) Feasibility and acceptability of couple counselling and pelvic floor muscle training after operation for prostate cancer.	BACKGROUND: Radical prostatectomy is often followed by long-lasting erectile dysfunction and urinary incontinence, with adverse effects on the quality of life and intimate relationship of patients and partners. We developed the ProCan intervention to ameliorate sexual and urological dysfunction after radical prostatectomy and examined its feasibility, acceptability and changes in sexual function. MATERIAL AND METHODS: Between May 2014 and October 2014, seven couples attending the Department of Urology, Rigshospitalet, were included 3-4 weeks after radical prostatectomy in the ProCan intervention, which consists of up to six couple counselling sessions, group instruction in pelvic floor muscle training (PFMT), up to three individual PFMT sessions and a DVD home training program. We examined its feasibility on the basis of the recruitment rate, adherence to and acceptability of the intervention, the response rate and changes in erectile and sexual functioning measured on the International Index of Erectile Function at baseline and at eight and 12 months. RESULTS: The recruitment rate was 14%. One couple withdrew, six couples attended 1-4 counselling sessions, and all patients attended PFMT until continence was achieved. The response rate on outcomes was 85% for patients and 71% for partners. The couples reported that counselling improved their sex life but it did not improve their ability to talk openly about sex. Most patients found that the physiotherapist improved their motivation and the quality and intensity	1

		of PFMT. Erectile dysfunction improved from severe at baseline to moderate at eight months' follow-up, and mean sexual functioning improved from 18.4 to 37.1 points at eight months' follow-up, but decreased slightly to 31.4 at 12 months. CONCLUSION: Our results suggest that the recruitment procedure should be adapted and minor revisions are needed in the intervention. The key components, couple counselling and PFMT, were well accepted and achievable for the patients.	
17	Katz (2005) What happened?: sexual consequences of prostate cancer and its treatment.	OBJECTIVE To describe the sexual consequences of prostate cancer and its treatments (prostatectomy, external beam radiation, brachytherapy, androgen deprivation therapy) and to suggest treatments for sexual side effects of these therapies.QUALITY OF EVIDENCE Most studies of the sexual consequences of prostate cancer treatments and studies of therapy for these side effects provide level II evidence.MAIN MESSAGE Diagnosis of prostate cancer in itself can cause sexual dysfunction. All forms of treatment for this cancer cause serious sexual problems for men. Treatments for the erectile dysfunction that results have varying success rates. Prostatectomy has been shown to cause erectile dysfunction in 30% to 98% of men, depending on whether both, one, or neither nerve bundles was spared. Radiation therapy results in erectile dysfunction in more than 70% of those treated; brachytherapy produces the least amount of sexual deficit. Hormone ablation therapy has serious consequences: more than 80% of men report loss of erections at 1 year after therapy in addition to profound loss of libido.CONCLUSION Family physicians are ideally placed to provide anticipatory guidance to men with prostate cancer on the sexual consequences of both the cancer and its treatments. Family physicians can also assist men and their partners in managing these sexual side effects.	2, 3
18	Lin (2011) Treatment decision regret and related factors following radical prostatectomy.	BACKGROUND: : Issues such as physical and psychological distress impact the quality of life of patients after a radical prostatectomy (RP). It is important to understand the regret that patients often report following a RP and the factors that influence their regret. OBJECTIVE: : The objective of the present study was to understand the regret that patients report following a RP and the influencing factors for their regret. METHODS: : Patients who had a diagnosis of prostate cancer and who underwent a RP between 2004 and 2010 were recruited for this study. The data gathered included a regret scale; the University of California, Los Angeles, Prostate Cancer Index; and demographic and disease-related information. RESULTS: : A total of 100 patients participated in our study. Of those who participated, 31% regretted that they had received an RP. Stepwise regression showed that the following 5 variables were predictors of patient regret after an RP: whether the patient would choose to have an RP again, understanding the treatment and complications, bothersome adverse sexual effects, age, and bothersome adverse bowel effects. CONCLUSION: : We found that 31% of the participants reported experiencing regret after receiving an RP. Our data suggest that urologists and nurses should carefully portray the risks and benefits of RPs during preoperative counseling to minimize patient regret and maximize patient satisfaction. IMPLICATIONS FOR PRACTICE: : Patient regret after an RP is common. Urological nurses should therefore counsel patients regarding the impacts of complications associated with RPs and seek appropriate nursing interventions to reduce patient regret following an RP.	2, 3, 4

19	Lomas et al. (2019) How informed is our consent? Patient awareness of radiation and radical prostatectomy complications.	Objective: To evaluate patient's recall of pretreatment counseling for radical prostatectomy and radiation therapy for the treatment of prostate cancer. Material and methods: A retrospective review of all patients presenting to our reconstructive urology clinic for the management of the complications of prostate cancer treatment was conducted over 24 months. Patients treated with only surgery or radiotherapy were included in the study. Patients were asked a standard series of questions to assess their recall of their pre-prostate cancer treatment counseling. Results: We identified 206 patients that met inclusion criteria. Of those, 153 underwent radical prostatectomy and 53 patients received radiation therapy. Median age at presentation was 72 years in the surgery group and 75 in the radiation therapy group. Mean time since treatment was 8.8 years in those that recalled being counseled and 9.9 years in those who did not ($p=0.21$). In the surgery group, the adverse effects experienced by 119 (77.8%) patients recalled, and counselled were related to the risk of treatment. In the surgical patients that had records with documentation of pretreatment counseling, 41/48 (85.4%) endorsed recall. In the surgery group, 117 (76.5%) stated that their treating physician was aware of their complication. In the radiation group, 5 patients (9.4%) endorsed recall ($p<0.0001$). In the subgroup of radiation patients with documentation of pre-treatment counseling, no patients endorsed recall. In the surgery group, 117 (76.5%) patients stated that their treating physicians were aware of their complication, while in the radiation group, only 16 (30.2%) of treating physicians were aware of the complications ($p<0.0001$). Conclusion: Patient recall of potential complications of prostate cancer treatment is poor. It's unclear if this is secondary to poor recall, selective memory loss or inadequate counseling.	2, 3
20	McCorkle et al. (2007) Effects of advanced practice nursing on patient and spouse depressive symptoms, sexual function, and marital interaction after radical prostatectomy.	Female sexual dysfunction is a prevalent problem. Although newer studies are implicating medical risk factors and possible treatments, most patients are currently treated by psychotherapists. The evaluation and treatment of female sexual dysfunction are reviewed from a therapist's perspective.	1
21	Molton et al. (2008) Promoting recovery of sexual functioning after radical prostatectomy with group-based stress management: the role of interpersonal sensitivity.	Objective: Treatment for localized prostate carcinoma (PCa) is frequently associated with decrements in sexual functioning and satisfaction. Given the highly interpersonal nature of these decrements, interpersonal problems (such as interpersonal sensitivity) may affect recovery of sexual functioning after PCa treatment through interference with physician and partner communication and through distorted cognitions surrounding sexual dysfunction. The objective of the present study was to determine the effect of interpersonal sensitivity on several treatment indicators, including response to a group-based psychosocial intervention.Methods: Participants were 101 older men recovering from radical prostatectomy who were enrolled in a randomized controlled trial of a 10-week group-based cognitive-behavioral stress management (CBSM) intervention. Measures included the Inventory of Interpersonal Problems and the sexual functioning subscale of the University of California-Los Angeles quality-of-life	2, 4

		measure.Results: At baseline, interpersonal sensitivity was related to a belief linking sexual dysfunction to core male identity (r=.29, P<.05). Using hierarchical regression, we found that (a) the CBSM intervention was effective in promoting sexual recovery in all participants, and (b) this effect was moderated by interpersonal sensitivity, such that individuals with higher levels of interpersonal sensitivity made larger improvements in sexual functioning in response to CBSM.Conclusions: CBSM was effective in improving sexual function after radical prostatectomy. Individuals with higher levels of interpersonal sensitivity were more likely to perceive sexual dysfunction as a threat to masculine identity and made larger gains in the CBSM intervention. Results and relevance to the older male cancer patients are discussed from the perspective of interpersonal theory.	
22	Monturo et al. (2001) Beyond sexual assessment: lessons learned from couples post radical prostatectomy.	PurposeTo share selected experiences of advanced practice nurses (APNs) who implemented a homebased nursing protocol related to psychosexual function for couples following radical surgery for prostate cancer.Data SourcesSelected research-based articles, the PLISSIT Model for sexual rehabilitation counseling, and the authors' experiences.ConclusionsFive lessons related to communicating about sexuality and intimacy were synthesized from the experience, including examining knowledge and self-awareness regularly, using a structured interview guide to facilitate the process, developing a trusting relationship with the couple, attending to verbal and nonverbal cues, and providing information about the full range of sexual expression.Implications for PracticeInclude an assessment of sexual health as an integral part of a general health assessment. Patients do not generally volunteer information about their sexual concerns unless the subject is introduced by the APN.	1,2,3
23	Naccarato et al. (2016) Psychotherapy and phosphodiesterase-5 inhibitor in early rehabilitation after radical prostatectomy: a prospective randomised controlled trial.	The aim of this study was to evaluate the impact of group psychotherapy and the use of a phosphodiesterase-5 inhibitor (PDE-5i) in the early rehabilitation stage of patients with prostate cancer undergoing radical prostatectomy (RP). Fifty-six patients undergoing RP for prostate cancer were randomised into four groups, and 53 completed the protocol: Group 1 - control (n = 11), Group 2 - group psychotherapy (n = 16), Group 3 - lodenafil 80 mg/one tablet per week (n = 12) and Group 4 - group psychotherapy + lodenafil 80 mg/one tablet per week (n = 14). The groups were individually evaluated for erectile function (IIEF-5) and quality of life - QoL (SF-36) weekly, with two meetings held a week apart before the RP and 12 weekly meetings after surgery. The ages ranged from 39 to 76 years, average 61.84. There were no significant medication side effects. Only Group 4 showed improvement in intimacy with a partner and satisfaction with their sex life (P = 0.045 and P = 0.013 respectively), and with no significant worsening of the IIEF-5 (P = 0.250) reported. All groups showed worsening in the final result of the role limitations caused by physical problems (P = 0.009) and role limitations caused by emotional problems (P = 0.002) of the SF-36, but Group 4 had a significantly higher score for the role limitations caused by physical problems (P = 0.009) than the other groups. In conclusion, precocious integral treatment involving group psychotherapy and PDE-5i before and after RP led to less deterioration of erectile function and other domains related to physical aspects (SF-36), with improvement in intimacy with their partner and satisfaction in their sex life, being superior to single treatments.	2

24	Naccarato et al. (2018) Quality of life and sexual health in men with prostate cancer undergoing radical prostatectomy.Naccarato et al. (2018) Quality of life and sexual health in men with prostate cancer undergoing radical prostatectomy.	The aim of this study was to evaluate the relationship between quality of life, erectile function and group psychotherapy in patients with prostate cancer undergoing radical prostatectomy. Sixty patients were evaluated for erectile function (IIEF-5), quality of life (SF-36SF), urinary incontinence (ICQI-SF and ICQI-OAB). Thirty of them had group psychotherapy two weeks before and 12 weeks after surgery. Patients who underwent group psychotherapy had better scores in IIEF-5, satisfaction with life in general, satisfaction with sexual life and in partner relationship; better results of SF-36SF, excepting two domains: bodily pain and role emotional. There were significant correlations between IIEF-5 and perception of discomfort (p = .030), physical functioning (p = .021), physical component (p = .005) and role emotional (p = .009) in patients undergoing group psychotherapy. In patients who didn't have group psychotherapy there were significant correlations between ICQI-OAB and perception of discomfort (p = .025), social functioning (p = .052) and role emotional (p = .034); between ICQI-SF and perception of discomfort (p = .0001). Group psychotherapy has a positive impact in quality of life and erectile function. There was no difference in the urinary function of the two groups. Further studies are necessary to identify the impact of self-perception and self-knowledge in the postoperative management of radical prostatectomy.The aim of this study was to evaluate the relationship between quality of life, erectile function and group psychotherapy in patients with prostate cancer undergoing radical prostatectomy. Sixty patients were evaluated for erectile function (IIEF-5), quality of life (SF-36SF), urinary incontinence (ICQI-SF and ICQI-OAB). Thirty of them had group psychotherapy two weeks before and 12 weeks after surgery. Patients who underwent group psychotherapy had better scores in IIEF-5, satisfaction with life in general, satisfaction with sexual life and in partner relationship; better results of SF-36SF, excepting two domains: bodily pain and role emotional. There were significant correlations between IIEF-5 and perception of discomfort (p = .030), physical functioning (p = .021), physical component (p = .005) and role emotional (p = .009) in patients undergoing group psychotherapy. In patients who didn't have group psychotherapy there were significant correlations between ICQI-OAB and perception of discomfort (p = .025), social functioning (p = .052) and role emotional (p = .034); between ICQI-SF and perception of discomfort (p = .0001). Group psychotherapy has a positive impact in quality of life and erectile function. There was no difference in the urinary function of the two groups. Further studies are necessary to identify the impact of self-perception and self-knowledge in the postoperative management of radical prostatectomy.	2
25	Nesese et al. (2003) Finding help for sexual problems after prostate cancer treatment: a phone survey of men's and women's perspectives.	As part of a larger postal survey, 320 survivors of prostate cancer who reported they were likely to seek help in the next year for a sexual problem were interviewed by phone about their strategies for finding help and the types of treatment that would help resolve post-cancer sexual problems. In addition, 164 sexual partners (including 160 wives, three female partners in committed relationships, and one gay male partner) were interviewed. Educational materials were used by patients and partners to answer questions about sexual dysfunction but were less useful in helping to find professional referrals or in actually resolving sexual problems, particularly for African-American couples. Men's preferred method of finding help was to consult a urologist or prostate cancer specialist to find a medical treatment for erectile dysfunction. Ninety-one percent of men had already tried to find medical help for erectile dysfunction, but previous attempts remained unsuccessful. Men wanted an oral medication that would resolve their sexual problem	1

		naturally, without major side effects. Only 43% of men said their partners had encouraged them to find help, and indeed a large minority of women had resigned themselves to having unsatisfying sex lives. These data suggest that including the partner in counseling about medical treatments for sexual function, and giving both men and partners realistic expectations about the limitations of existing treatments could boost the success of sexual rehabilitation after prostate cancer.	
26	Paterson et al. (2019) Development of a Prehabilitation Multimodal Supportive Care Interventions for Men and Their Partners Before Radical Prostatectomy for Localized Prostate Cancer.	Supplemental digital content is available in the text. Background: An important question revolves around when the most opportune time is to introduce recovery-optimizing behaviors for men opting for radical prostatectomy (RP) for localized prostate cancer (PCa). An emerging field of research describes the role of preoperative strategies to improve treatment tolerance and overall physical and psychological recovery. Objective: The aim of this study was to explore the perceptions of a multimodal prehabilitation intervention for men and their partners before RP for localized PCa. Methods: Thirty-four patients who opted for RP for localized PCa and their partners (19) were identified and recruited into the study. The multimodal intervention was composed of educational materials, physiotherapy instruction, and a self-management group-based seminar. Results: The multimodal prehabilitation intervention was perceived as overall helpful with demonstrated acceptability (91.9%). Beneficial themes related to the quality of the information provided to support self-management, open forum questions with multidisciplinary healthcare professionals, and increased knowledge among partners to help with their understanding of how to look after their partners. Conclusion: The intervention was feasible and beneficial for the PCa dyad. A future pilot randomized controlled trial study is needed to provide sufficient evidence on the long-term physical and psychological outcomes and cost-effectiveness. Implications for Practice: Oncology nurses play a key role in the development of prehabilitation care delivery. Prehabilitation interventions can have a positive effect on improving health outcomes for cancer patients and their partners after surgery and into survivorship.	3
27	Peltier et al. (2009) Current management of erectile dysfunction after cancer treatment.	PURPOSE OF REVIEW: Erectile dysfunction has a major impact on quality of life. Treating sexual dysfunction after cancer treatment requires special concern because of specific medical, psychological and social factors. This article presents the relevant experimental and clinical recent literature on rehabilitation of erectile function after surgery, external beam radiotherapy, brachytherapy or hormonal deprivation therapy for prostate cancer as it is the most studied model for erectile dysfunction management. RECENT FINDINGS: Counseling and reeducation with a multidisciplinary approach seems to be both mandatory and effective in achieving erectile function recovery. Administration of proerectile drugs nightly or on-demand early after cancer treatment is probably the key factor of erectile rehabilitation. Several studies have highlighted the presumption of a potential role for phosphodiesterase type 5 inhibitors (PDE5-Is) in the prevention of endothelial damage related to ischemia-reperfusion and denervation following surgery or pelvic radiation. Larger multicancer, randomized, controlled trials are needed to assess the role of PDE5-Is in erectile dysfunction pharmacological prophylaxis and rehabilitation strategy. SUMMARY: Erectile dysfunction postcancer treatment requires multimodal management with early administration of PDE5-Is, combined therapy to maintain erectile tissue oxygenation if necessary with PDE5-Is, intracavernosal	2, 4

		injection and transurethral alprostadil or even vacuum erect device, psychological counseling considering erectile dysfunction as a couple's issue. The best modality to optimize postcancer erectile dysfunction management has not yet been standardized and is still challenging.	
28	Polito et al. (2012) Erectile rehabilitation with intracavernous alprostadil after radical prostatectomy: refusal and dropout rates.	Study Type--Therapy (outcomes) Level of Evidence 2a. What's known on the subject? and What does the study add? Erectile dysfunction (ED) is a well known implication of radical prostatectomy (RP). Despite the search for technical improvement in the surgical procedure (e.g. nerve-sparing surgery, robot-assisted RP), many patients still suffer from an inability to achieve a satisfactory erection after surgery. In the last 20 years a great effort has been made to re-establish good sexual function in these patients. Many different approaches have been used, such as intracavernous prostaglandin E1 (PGE1), phosphodiesterase-5 inhibitors, vacuum devices and penile prostheses. Although many studies have addressed the main questions about efficacy of different approaches to ED, there is a lack of data about adherence to therapy and the main reasons why patients drop out of these treatment programmes. In the present study, a cohort of men treated with RP underwent a postoperative rehabilitation protocol with PGE1 intracavernous injections. During the follow-up period, we were able to assess a real-life practice pattern of adherence and dropout, evaluating the main causes of therapy discontinuation. This could be of help in the counselling of these patients during the path towards erection recovery. OBJECTIVES: • To assess the rate of compliance in the first 6 months of a rehabilitation protocol that includes intracavernous alprostadil administration in patients undergoing radical retropubic prostatectomy. • To determine the reasons for and timings of dropout from the protocol by the patients and their subsequent outcomes. PATIENTS AND METHODS: • All patients undergoing radical prostatectomy (RP) at our institution between 1 January 2007 and 31 December 2009 were considered for a protocol of postoperative intracavernous sexual rehabilitation and were administered entry questionnaires to evaluate their preoperative sexual activity. • Four weeks after surgery, the patients were invited to return for a first visit, where the aim of the protocol and possible risks and benefits were explained. For those who agreed to attend, subsequent visits to include assisted self-administration of increasing doses of intracavernous alprostadil and a period of autonomous homely self-administration were planned. • Patients were followed up at 3-month intervals, where data on functional outcomes, patient satisfaction, and the number of patients who dropped out and their reasons, were recorded by means of appropriate questionnaires. • Statistical analysis was performed using Student's t-test or a chi-squared test, where appropriate. RESULTS: • Of 430 patients, 157 (36.5%) refused to undergo the protocol of rehabilitation and 18.6% of the patients who began the protocol dropped out over the first 6 months. • Reasons for refusal were: patient's lack of sexual interest (51.6%); lack of interest by the partner (30.2%); and presence of transitory incontinence (26.7%). • Reasons for dropout were: disappointment	1,2

		with treatment efficacy (64.7%); injection pain (45%); and difficulties with or fear of performing the injection by themselves or by the partner (35.2%). No patient claimed the cost of the drug to be a cause for dropout. CONCLUSIONS: • The protocol we used, involving intracavernous alprostadil injection, proved to be a safe and efficient way of achieving sexual rehabilitation in patients who have undergone RP. Nevertheless, high patient motivation and adherence to the protocol were required. • Factors influencing patients refusal and early-to-medium time dropout were both patient- and partner-related. Appropriate information, counselling and support of the couple before the beginning and at all stages of the rehabilitation play a fundamental role in reducing the dropout rate. • The situation regarding those patients who still need adjuvant therapy after surgery is less clear and further research on this is required.	
29	Rush & Sharma (2017) Mindfulness-Based Stress Reduction as a Stress Management Intervention for Cancer Care: A Systematic Review	Cancer is acknowledged as a source of stress for many individuals, often leading to suffering, which can be long-lasting. Mindfulness-based stress reduction offers an effective way of reducing stress among cancer patients by combining mindfulness meditation and yoga in an 8-week training program. The purpose of this study was to inspect studies from October 2009 to November 2015 and examine whether mindfulness-based stress reduction can be utilized as a viable method for managing stress among cancer patients. A systematic search from Medline, CINAHL, and Alt HealthWatch databases was conducted for quantitative articles involving mindfulness-based stress reduction interventions targeting cancer patients. A total of 13 articles met the inclusion criteria. Of these 13 studies, 9 demonstrated positive changes in either psychological or physiological outcomes related to anxiety and/or stress, with 4 describing mixed results. Despite the limitations, mindfulness-based stress reduction appears to be promising for stress management among cancer patients.	4
30	Santa Mina et al. (2014) Prehabilitation for men undergoing radical prostatectomy: a multi-centre, pilot randomized controlled trial.	BACKGROUND: An emerging field of research describes the role of preoperative health behaviours, known as prehabilitation. The preoperative period may be a more physically and emotionally salient time to introduce and foster chronic adherence to health behaviours, such as exercise, in patients compared to post-treatment during recovery. Moreover, physical and psychosocial improvements during the preoperative period may translate into an enhanced recovery trajectory with reduced operative complications and postoperative adverse effects. No studies have assessed prehabilitation for men with prostate cancer undergoing radical prostatectomy. METHODS/DESIGN: This is a multi-centre, pilot randomized control trial conducted at two Canadian urban teaching hospitals. 100 men undergoing radical prostatectomy for prostate cancer with no contraindications to exercise will be recruited and randomized to the prehabiliation program or usual care. Prehabilitation participants will engage in a preoperative, individualized exercise program including pelvic floor muscle strengthening instructions and a healthy lifestyle guide for men with prostate cancer. These participants will be asked to engage in 60 minutes of home-based, unsupervised, moderate-intensity exercise on 3-4 days per week. Usual care participants will receive the same pelvic floor muscle strengthening instructions and healthy lifestyle guide only. We will assess the feasibility of conducting an adequately powered trial of the same design via recruitment rate, programmatic adherence/contamination, attrition, and safety. Estimates of intervention efficacy will be	3

		captured through measurements at baseline (4-8 weeks preoperatively), within 1 week prior to surgery, and postoperatively at 4, 12, and 26 weeks. Efficacy outcomes include: fatigue, quality of life, urinary incontinence, physical fitness, body composition, aerobic fitness, pain, and physical activity volume. DISCUSSION: The primary outcome of this study is to determine the feasibility of conducting a full-scale, randomized controlled trial of prehabilitation versus usual care and to estimate effect sizes that will inform sample size determinations for subsequent trials in this field. To our knowledge, this is the first study to examine a structured presurgical exercise program for men undergoing radical prostatectomy for prostate cancer. This trial will advance our understanding of strategies to efficiently and effectively use the preoperative period to optimize postoperative recovery.	
31	Santa Mina et al. (2018) Prehabilitation for radical prostatectomy: A multicentre randomized controlled trial	INTRODUCTION: Preoperative exercise and fitness are predictors of surgical recovery; however, little is known of the effect of preoperative exercise-based conditioning, known as prehabilitation, in this for men undergoing radical prostatectomy. Our study examined the feasibility and effects of prehabilitation on perioperative and postoperative outcomes in men undergoing radical prostatectomy., METHODS: This feasibility RCT compared prehabilitation (PREHAB) versus a control condition (CON) in 86 men undergoing radical prostatectomy. PREHAB consisted of home-based, moderate-intensity exercise prior to surgery. Both groups received a preoperative pelvic floor training regimen. Feasibility was assessed via rates of recruitment, attrition, intervention duration and adherence, and adverse events. Clinical outcomes included surgical complications, and length of stay. The following outcomes were assessed at baseline, prior to surgery, and 4, 12, and 26-weeks postoperatively: 6-min walk test (6MWT), upper-extremity strength, quality of life, psychosocial wellbeing, urologic symptoms, and physical activity volume., RESULTS: The recruitment rate was 47% and attrition rates were 25% and 33% for PREHAB and CON, respectively. Adherence to PREHAB was 69% with no serious intervention-related adverse events. After the intervention and prior to surgery, PREHAB participants demonstrated less anxiety (P=0.035) and decreased body fat percentage (P=0.001) compared to CON. Four-weeks postoperatively, PREHAB participants had greater 6MWT scores of clinical significance compared to CON (P=0.006). Finally, compared to CON, grip strength and anxiety were also greater in the PREHAB at 26-weeks (P=0.022) and (P=0.025), respectively., CONCLUSION: While feasible and safe, prehabilitation has promising benefits to physical and psychological wellbeing at salient timepoints relative to radical prostatectomy.	3
32	Siddons et al. (2013) A randomised, wait-list controlled trial: evaluation of a cognitive-behavioural group intervention on psycho-sexual adjustment for men with localised prostate cancer.	OBJECTIVE: To examine the effectiveness of a cognitive-behavioural therapy (CBT) group intervention to facilitate improved psycho-sexual adjustment to treatment side effects in prostate cancer survivors post-radical prostatectomy., METHODS: A randomised, wait-list controlled trial was conducted with a total of 60 men who participated in a manualised 8-week cognitive-behavioural group intervention 6 months to 5 years post-radical prostatectomy for localised prostate cancer. Participants completed standardised questionnaires pre-intervention and post-intervention, which assessed mood state, stress, general and prostate cancer anxiety, quality of life and areas of sexual functioning., RESULTS: Paired samples t-tests identified a significant improvement in sexual confidence, masculine self-esteem, sexual drive/relationship and a significant decline in sexual behaviour from pre-intervention to post-intervention. Hierarchical	5

		regression analyses revealed that after controlling for covariates, participation in the group intervention significantly improved sexual confidence, sexual intimacy, masculine self-esteem and satisfaction with orgasm., CONCLUSIONS: This group-based CBT intervention for men post-radical prostatectomy for localised prostate cancer shows promising results in terms of improving quality of life.	
33	Terrier et al. (2018) Decrease in Intercourse Satisfaction in Men Who Recover Erections After Radical Prostatectomy.	INTRODUCTION: Recovery of erections after radical prostatectomy (RP) is assumed to lead to recovery in sexual satisfaction. Although data suggest a relationship between sexual function and sexual satisfaction, it is unclear whether presurgical levels of sexual satisfaction are attained for men who "recover" erections post-RP. AIM: The goal of this analysis is to determine whether the recovery of erectile function restores presurgical levels of sexual satisfaction. METHODS: We assessed 229 men pre-RP and 24-months post-RP. At both time points, participants completed the Erectile Function Domain (EFD) and the Intercourse Satisfaction Domain (ISD) of the International Index of Erectile Function (IIEF). Erectile function recovery at 24 months was defined as (1) (EFD≥24) or (2) EFD back to baseline (BTB). One hundred sixty-six men with penetration hardness erections (PHEs) at baseline (EFD >24) were included in the analyses. Repeated measure t-tests were used to compare changes in ISD scores and effect size (Cohen's d) was calculated to determine the clinical significance of these changes. Multivariable analyses (MVA) were used to test the relationship between EFD and ISD. RESULTS: The mean age of men was 58 (SD = 7) years. The mean EFD score at baseline was 29 (SD = 2), which declined significantly to 20 (SD = 10) at 24 months. ISD also decreased significantly between baseline and 24 months (12 to 8.3, P < .001, d = 0.87), even among men with PHEs at 24 months (12.3 to 11.3, P < .001, d = 0.50) and men who achieved BTB erections at 24 months (12.4 to 11.7, P = .02, d = 0.35). For men with PHEs at 24 months, MVAs identified baseline ISD (beta = 0.46) and 24-month EFD (beta = 0.23) as the only significant predictors of 24-month ISD. However, among men who achieved BTB erections at 24 months, baseline ISD (beta = 0.49) was the only significant predictor of 24-month ISD. CLINICAL IMPLICATIONS: These findings underscore the importance of the integration of psychological support and medical care to best meet the needs of patients. Furthermore, these results can be used to facilitate pre-RP communication and counseling with patients to improve understanding and manage post-RP expectations. STRENGTHS & LIMITATIONS: The study methodology, specifically the use of BTB as a means of defining erectile function and the longitudinal, prospective study design are relative strengths. Despite the longitudinal design, the study did not include a control group of healthy, age-matched men. CONCLUSION: Results highlight the enduring impact of sexual dysfunction, namely erectile dysfunction, on intercourse satisfaction following RP and suggest that restoration of function in and of itself does not ensure the restoration of satisfaction. Terrier JE, Masterson M, Mulhall JP, et al. Decrease in intercourse satisfaction in men who recover erections after radical prostatectomy.	2

34	Ussher et al. (2019) Sexual Rehabilitation After Prostate Cancer Through Assistive Aids: A Comparison of Gay/Bisexual and Heterosexual Men.	The use of assistive aids in sexual rehabilitation after prostate cancer (PCa) was examined in 124 gay, bisexual, and other men who have sex with men (GBM) and 225 heterosexual men. GBM were significantly more likely to use assistive aids (79% versus 56%), to try multiple assistive aids (M = 1.65 versus M = 0.83) including medication, penile injection, penile implant, vacuum pump, and nonmedical sex aids, and to seek information about sexual rehabilitation on the Internet, through counseling, or in a support group. There were no differences between the groups in satisfaction with the use of assistive aids. However, use of aids was a significant negative predictor of sexual functioning for GBM and a significant positive predictor for heterosexual men. Interview accounts described satisfaction with assistive aids in terms of maintaining erectile functioning and relationships. The majority of men in the study also described hindrances, both physical and social, resulting in discontinuation of assistive aids, including perceived artificiality, loss of sexual spontaneity, side effects, failure to achieve erectile response, cost, and lack of access to information and support. It is concluded that the specific needs and concerns of GBM and heterosexual men regarding sexual rehabilitation after PCa need to be addressed by clinicians.	5
35	Wassersug & Wibowo (2017) Non-pharmacological and non-surgical strategies to promote sexual recovery for men with erectile dysfunction.	Erectile dysfunction (ED), the most commonly reported sexual problem for men, reduces the quality of life for both patients and their partners. Even when physiologically effective, long-term adherence to ED treatments is poor. We review here the implication of having patients' partners involved in ED treatment, starting with treatment selection. We suggest that having partners engaged from the outset may promote an erotic association of the treatment with the partner, i.e., conceptually linking the aid to the sexual pleasure that the partner provides. We hypothesize that this erotic association should enhance the sexual aid's effectiveness and might potentially help improve long-term adherence. The primary focus of this review, though, is non-pharmacological and non-surgical options for maintaining sexual activity for men with ED. Though not ED treatments per se, anecdotal data suggest that these options may be effective for some patients and their partners in regaining a satisfying sex life. The aids discussed include external penile prostheses, penile sleeves, and penile support devices. These devices can allow men to participate in penetrative sexual intercourse despite moderate to severe ED. External penile prostheses can be personalized so they match in size and shape a man's normal full erection. Penile sleeves can similarly be customized with a lumen that fits best a patient's penis for optimal tactile stimulation. We review how multi-sensory integration can enhance sexual arousal for men who use such devices, allowing them to achieve orgasm despite intractable ED. Patients are not always advised within ED clinics about these options nor why and how they can facilitate non-erection dependent sexual recovery. Clinicians need to be aware of these devices and their positive attributes, so they can objectively counsel and encourage couples to explore their use as an alternative to more invasive treatments. The most commonly promoted non-medical ED aid offered to patients is the vacuum erection device. We discuss how erections achieved with the vacuum erection device have a "hinge effect", that is an underappreciated barrier to the effectiveness of the erection. With a hinged erection, the penis points downward rather than upward. We show how the normal kinematics of the penis during coitus is not strictly linear (i.e., not uniaxial; not just in-and-out), and is impeded by hinging. Positional adjustment, such as the receptive partner being on top, may help overcome this problem for some couples. Lastly, we suggest that, in the case where ED can be anticipated	1, 2, 5

		from a pending medical treatment, such as a prostatectomy, pre-habilitative approaches may potentially improve adherence to sexual aid use in the long-term. In conclusion, non-pharmacological and non-surgical options for sexual recovery are available. Scientific studies on the effectiveness of these interventions in restoring satisfying sex are warranted.	
36	Wittmann et al. (2009) The psychosocial aspects of sexual recovery after prostate cancer treatment.	Prostate cancer affects one in six American men. Erectile and sexual dysfunctions are long-term side effects of prostate cancer treatment. PubMed database was searched for papers on prostate cancer-related sexual recovery for men and couples. The search yielded articles on (1) the treatment of erectile dysfunction, (2) men's psychological and culturally diverse adaptation to the sexual side effects; (3) the impact of prostate cancer on couples' relationships; and (4) interventions to promote sexual function. Erectile dysfunction after prostate cancer treatment has been widely studied. Research on the sexual recovery of men and couples or understanding it in a cultural context is scarce. Greater focus on the impact of sexual sequelae of prostate cancer treatment on men as well as couples in diverse groups is needed. Clinical implications for treating sexual dysfunction and promoting sexual recovery for prostate cancer survivors and their partners are discussed. Recommendations for future research are provided.	1
37	Wittmann et al. (2011) A biopsychosocial approach to sexual recovery after prostate cancer surgery: the role of grief and mourning.	Erectile dysfunction is a common side-effect of prostate cancer surgery that causes men suffering and hinders their sexual recovery. There are studies that describe men's and partners' distress and couples' difficulties engaging in sexual recovery. A few studies show a short-term benefit of brief psycho-social interventions such as psychoeducation and counseling. However, there is no conceptual framework to guide psychosocial treatments. We propose a model of intervention in sexual recovery that incorporates grief and mourning as a gateway to new and satisfying sexuality after prostate cancer treatment.	1, 4
38	Wootten et al. (2017) An online psychological intervention can improve the sexual satisfaction of men following treatment for localized prostate cancer: outcomes of a Randomised Controlled Trial evaluating My Road Ahead.	BACKGROUND: Prostate cancer treatment often results in significant psycho-sexual challenges for men following treatment; however, many men report difficulty in accessing appropriate care., METHODS: A randomized controlled trial was undertaken to assess the efficacy of a 10-week self-guided online psychological intervention called My Road Ahead (MRA) for men with localized prostate cancer in improving sexual satisfaction. Participants were randomized to 1 of 3 conditions MRA alone or MRA plus online forum, or forum access alone. Pre, post, and follow-up assessments of overall sexual satisfaction were conducted. Mixed models and structural equation modeling were used to analyze the data., RESULTS: One hundred forty-two men (mean age 61 y; SD = 7) participated. The majority of participants had undergone radical prostatectomy (88%) and all men had received treatment for localized prostate cancer. Significant differences were obtained for the 3 groups (P = .026) and a significant improvement in total sexual satisfaction was observed only for participants who were allocated to MRA + forum with a large effect size (P = .004, partial eta2 = 0.256). Structural equation modeling indicated that increases in	5

		sexual function, masculine self-esteem, and sexual confidence contributed significantly to overall sexual satisfaction for the MRA + forum plus forum condition., CONCLUSIONS: This study is the first, to our knowledge, that has evaluated a self-guided online psychological intervention tailored to the specific needs of men with prostate cancer. The findings indicate the potential for MRA to deliver support that men may not otherwise receive and also highlight the importance of psychological intervention to facilitate improved sexual outcomes.	
39	Zahavich et al. (2013) Mindfulness-Based Stress Reduction as a Stress Management Intervention for Cancer Care: A Systematic Review	Cancer is acknowledged as a source of stress for many individuals, often leading to suffering, which can be long-lasting. Mindfulness-based stress reduction offers an effective way of reducing stress among cancer patients by combining mindfulness meditation and yoga in an 8-week training program. The purpose of this study was to inspect studies from October 2009 to November 2015 and examine whether mindfulness-based stress reduction can be utilized as a viable method for managing stress among cancer patients. A systematic search from Medline, CINAHL, and Alt HealthWatch databases was conducted for quantitative articles involving mindfulness-based stress reduction interventions targeting cancer patients. A total of 13 articles met the inclusion criteria. Of these 13 studies, 9 demonstrated positive changes in either psychological or physiological outcomes related to anxiety and/or stress, with 4 describing mixed results. Despite the limitations, mindfulness-based stress reduction appears to be promising for stress management among cancer patients.	4