Final report

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Project Title: Online Psychological support intervention for men with prostate cancer

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Overview of the research

Objectives:
In order to improve psychological outcomes following and during treatment for prostate cancer, and to reduce the risk of the development of mental health disorders such as anxiety disorders and major depression, easily accessible and timely support is required for prostate cancer patients. The overarching objective of this proposal is to develop and assess the efficacy of a unique online psychological intervention that is accessible, user friendly and engaging to men with prostate cancer and that reduces the stigma of psychological distress in the context of prostate cancer.

Aims:
This project will be conducted over three phases.

Phase 1: Development of resources
The aims of phase one are to:
- Develop an online assessment template to assess the psychological status of men with prostate cancer and to highlight specific areas of distress to the patient and the researchers.
- Develop an online CBT-based psychological intervention for men with prostate cancer.

Phase 2: Consumer evaluation of developed resources
The aims of phase two are to:
- Assess the usability and acceptability of the online program with a consumer population

Phase 3: Randomised controlled trial examining the efficacy of the online intervention
The aims of phase 3 are to:
- Assess the efficacy of the online intervention as compared to a combined intervention and moderated forum group and a moderated forum only group across a number of domains including:
  - Mental Health
  - Prostate-Specific Quality of Life (QoL)
  - Relationship satisfaction
  - Sexual Function and bother
Executive Summary

Overall the developed online psychological intervention for men following treatment for prostate cancer, My Road Ahead, appears to be engaging, user friendly and capable of providing a much needed accessible intervention to reduce mental health difficulties and improve quality of life. Data suggests that men experiencing symptoms of anxiety and depression are accessing and adhering to the program. The randomized controlled trial of this intervention has shown that the intervention is effective in reducing psychological distress and improving sexual satisfaction.

The outcomes of this project are reported in each planned phase.

Phase 1: Development of resources

- An online assessment tool was developed to measure the psychological, quality of life, sexual and relationship domains that are relevant to the prostate cancer experience. Two forms of assessment were developed:
  1. An online assessment using a series of validated measures
  2. An online assessment using a patient focused single item scale and graphing system to monitor progress over time.

- The resources were developed based on the validated content of a group-therapy intervention that the chief investigator had been involved in, called below the belt [1]. These resources were refined and modified for use in the online setting with significant input from two (2) consumer representatives. My Road Ahead was developed: www.myroadahead.org.

Phase 2: Consumer evaluation of developed resources

- 64 participants took part in the pilot phase of this project by participating in the program. This pilot aimed to evaluate the usability and acceptability of the developed program as well as the technical functionality of the program.
• 22.7% of pilot participants reported experiencing elevated symptoms of depression and 20.7% reported experiencing elevated symptoms of anxiety at baseline.

• Mean quality of life and sexual functioning scores at baseline indicated that participants were experiencing poor quality of life and significant difficulties with sexual functioning.

• Adherence to the program was moderate and feedback from participants recommended technical and structure modifications. However 78% of participants stated they would recommend the program to a friend.

• The main learning from this pilot phase was that early engagement of participants is vital to ensure adherence to the program, tailored access to the modules is essential in meeting the participant’s needs and regular feedback to participants is essential in maintaining engagement in a self-directed program such as My Road Ahead.

• My Road Ahead was refined and improved based on these outcomes of the pilot.

*Phase 3: Randomised controlled trial examining the efficacy of the online intervention*

• Participants were randomly assigned to one of three groups: 1) MRA only, where participants had access to the online 6-module intervention only. 2) MRA+forum, where participants had access to the online 6-module intervention plus the moderated forum. 3) Forum only, where participants had access only to the moderated forum.

• One hundred and fifty-two participants enrolled to participate in the study. Ten were excluded because they had advanced prostate cancer. A total of 142 participants were randomly allocated to one of the three intervention groups. The mean age of participants was 61 years and 88% had undergone a radical prostatectomy.

• A comparison of pre-treatment and post-treatment psychological distress and sexual satisfaction levels showed significant differences between the groups with the MRA+Forum group exhibiting the greatest improvement for both variables. A regression analysis exploring reductions in psychological distress suggested that the success of the MRA+Forum
treatment could be ascribed to three factors. Firstly it was particularly successful in reducing distress for those participants with high levels of distress at baseline. Secondly it also reduced Health-Worry and Regret, thereby reducing psychological distress further. Regression analyses exploring the factors associated with the improvements in sexual satisfaction for the MRA+Forum group indicated that improved sexual confidence and orgasm function both significantly contributed to improvements in overall sexual satisfaction for this group.

- In contrast to the MRA+Forum intervention the MRA-Only and Forum-Only interventions were, on average, not successful in reducing psychological distress or improving sexual satisfaction. However, when a reduction was achieved, this could be attributed to reductions in Health Worry for both these groups and to an increase in confidence in the case of the Forum-Only intervention. In particular, these interventions were not successful for the more distressed participants as was the case for the MRA+Forum treatment.

- Overall, it appears that the MRA+forum condition was the most successful in reducing psychological distress and sexual satisfaction. The unique combination of the structured online psychological intervention with access to the peer support and communication has provided the most benefit to participants.

- The current study is the first, to our knowledge, that has evaluated a self-directed online psychological intervention tailored to the specific needs of men with prostate cancer.
Research Report

Background

Cancer of the prostate (CaP) is the most common cancer diagnosis in Australia (excluding non-melanocytic skin cancer), with more than 18,000 new cases diagnosed each year [2]. New diagnoses of CaP have surpassed any other form of cancer, including breast cancer. Unlike other cancers, particularly breast cancer, there is no uniformity in care provision both for localised and for metastatic prostate cancer.

The major morbidities associated with treatment of localised prostate cancer include failed cancer control, incontinence of bladder and bowel, sexual dysfunction, and psychological trauma. These morbidities are extant in all of the different prostate cancer treatment modalities.

The psychological impact of prostate cancer

While the incidence of CaP is growing, treatment of localised disease has become very effective and many patients are reportedly living longer. However, with respect to localised CaP, all curative treatment interventions are known to impact considerably on quality of life (QoL), either temporarily or permanently. Survivorship issues in the prostate cancer population therefore pose unique challenges in terms of quality of life and the issues experienced by survivors could more accurately be classified into a chronic condition. As such, in order to support these cancer survivors, the Victorian healthcare system must understand the needs of this population. Research in this domain now needs to focus on the ways in which patients can be supported by the healthcare system so as to minimise the impact of CaP on their psychological health and overall well-being [3].

There has been limited research examining psycho-social interventions for this group of cancer patients. Attention to the need for men’s health initiatives is growing but urgently in need of further research. Furthermore, a recent NSW Cancer Council population-based study identified that more than 54% of prostate cancer patients expressed some form of unmet psychological need [4]. These
studies highlight the need for improved psycho-social interventions for CaP patients. Despite the higher rate of diagnosis of CaP the care of prostate cancer patients is substantially lagging behind the level of care delivered to breast cancer patients.

_Prostate Cancer and QoL:_

It is well-known that the treatment of prostate cancer with prostatectomy or radiotherapy can result in residual symptoms post-treatment [5, 6]. These may include sexual, urinary and bowel dysfunction [6-8], with changes often occurring up to two years post-treatment [9]. Coping with these residual symptoms can be very difficult for the patient [10] and has been found to significantly impact on the patient’s quality of life [11].

Psycho-social implications of prostate cancer have been documented. Depression is at least two to three times more common in patients with cancer [12], with the prevalence of general psychological disorders (including depression and anxiety) estimated at 25-47% [13-15]. It is also noted that depressive symptoms are believed to be under-diagnosed and under-reported among cancer patients [16]. Suicide in older men with prostate cancer has also been documented with one study reporting that older men with prostate cancer were over four times more likely to complete suicide than an age and gender matched cohort without prostate cancer [17].

To date, quality of life research has generally focussed on the physical impact of treatments on prostate cancer patients. However, research investigating the impact of prostate cancer treatment on psychological well-being is increasing [15, 16, 18-21]. The results of these studies have revealed that among those who have had prostate cancer treatment, the prevalence of mood disorders (i.e. anxiety, depression, adjustment disorders) ranges from 9-24% [19, 20, 22, 23]. The results from other studies suggest that physical side effects of prostate cancer treatment (such as incontinence and sexual dysfunction) are associated with anxiety and depression [16]. While the long-term psychological outcomes have been less researched, one study has shown that these patients
experience increased mood disturbance compared to geriatric norms, even up to two or more years post treatment [15]. This suggests that the outcomes of prostate cancer and its treatment can be long-term and can, therefore, have ongoing consequences for not only physical well-being but also mental health.

Interventions targeting the psycho-social or quality of life of men with prostate cancer have not been well researched. Two recent systematic reviews indicate an urgent need to develop and evaluate interventions for this population [24, 25].

Ahmad, Musil, Zauszniewski, and Resnick [26] have proposed that the health care of patients treated for localised prostate cancer should take a more holistic approach. Rather than focussing on treating the initial stages of the disease, Ahmad et al. [26] concluded that health care services should focus on the longer term survival issues of the prostate cancer patient and target all aspects of health, including the QoL of the patient [26].

**Patient-reported needs:**

In a large population based Australian study, 1,067 men diagnosed with prostate cancer between 2000-2001 in NSW, were surveyed between 3 and 12 months after diagnosis [4]. This study found that 74% of men reported some form of unmet need in relation to their prostate cancer diagnosis. Fifty-four percent of men reporting poor health stated that they had unmet needs in relation to their health and the rate rose to 74% in men under the age of 50 years. Men reported a range of areas of unmet support needs. The most commonly reported area of unmet support need was in the psychological support domain where 54% of men expressed that they felt some level of unmet psychological support need [4]. Sexuality was reported by 47% of men as an area where they had some level of need for assistance or support and more than 20% of men reported a moderate to high need in the “uncertainty for the future” domain. The authors of this study strongly recommended improved access to the spectrum of support services for prostate cancer patients,
including nursing specialists, psychological counselling, peer support groups and consumer information [4].

Inadequate patient and spouse knowledge has also been implicated in poor prostate cancer outcomes and increased distress experienced by the patient and spouse. A recent study found that inadequacies in patient and spouse knowledge of prostate cancer contributed to delayed contact, shock at diagnosis, preferences regarding decision making, health judgements and patient coping [27]. This study highlighted the common misunderstandings and misinformation about prostate cancer in the wider community. The findings of this study indicated an apparent lack of awareness of treatment options or side-effects and a reliance on general practitioner (GP) assistance, highlighting the need for consistent information and support provision. The authors of this study recommended the involvement of a Prostate Cancer Liaison Nurse across a number of domains: (1) assistance in the assessment of patient preferences; (2) response to inadequate knowledge and (3) involvement of the patient in their care [27].

A tele-based supportive care and decision support intervention was evaluated in Queensland which showed promising outcomes [28]. This study showed good patient engagement (77%) and promising outcomes in terms of decisional conflict but interestingly these patients also reported a high level of satisfaction with the support received and particularly emphasized the benefit of anonymity and accessibility with the program, indicating that these factors are important to men in accessing support. This study has lead to a larger randomized controlled trial, ProsCan, a decision support intervention to further evaluate this style of tele-based support intervention [29]. This study also shows promising results and it appears that men and couples are engaging in this style of support. An online intervention could follow on from this decision focused intervention to provide ongoing support to patients following treatment.

Current provision of psychological intervention and support in the Victorian healthcare sector
Whilst the recognition that there is a strong link between the experience of cancer and increased rates of mental health disorders is growing, there is no standard model of care in terms of accessibility of appropriate and timely psycho-social support services for patients or their families. Prostate cancer ‘Standard care’ centres primarily on a medical focus with patients seeing additional support staff in some institutions only, including prostate cancer specialist nurses or a physiotherapists. In most instances referral to psychiatry, psychology or social work services only occurs when acute distress is evident or when the patient directly requests such services and often these services, if available, must be accessed outside the hospital setting in the community if available. Rural and regional patients often have the most difficulty in accessing appropriate support and referral is often made on an ad-hoc basis. Screening for mental health disorders within this population is not routine.

Support groups are available for prostate cancer patients and their partners to attend. The Prostate Cancer Foundation of Australia (PCFA) offer consumer-led groups across many regions of Australia and are usually conducted monthly. The topics covered in these groups are predominantly physical symptom focussed and offer information and support in terms of management of physical symptoms (e.g. where and how to access continence products or ED aides). The Cancer Council of Victoria (CCV) offers telephone and internet based support groups for different groups of prostate cancer patients and their partners (e.g. young men with prostate cancer or advanced prostate cancer). CCV also offers the telephone support line for patients and their families as well as a service called Cancer Connect, where patients can speak with people who have previously received treatment for the same type of cancer. These services offer excellent social support for patients and their families but do not provide specific psycho-social interventions that aim to reduce the risk of mental health disorders in this population.

The Urology department at the Royal Melbourne Hospital have recently completed a randomised controlled trial examining the efficacy of a structured 8-week group psychotherapy program for men
with localised prostate cancer [1]. The results of this study indicate that the men significantly benefitted from the psychological intervention across a number of domains including sexual drive and relationship quality, sexual confidence, masculine self-esteem and perceived cancer control (unpublished). This study also indicated that men engaged very well with the structured psycho-education component of the group program and enjoyed the opportunity to discuss the difficulties they had been experiencing.

Clinical Impressions

- There are significant stigma/shame barriers in terms of men accessing support
  - Psycho-social care is still often seen as unacceptable for many men and more education needs to be given to inform the general population that it is ok for men to need support.
  - Support seeking needs to be normalised.
- Men often feel marginalised and this is often a great source of distress
- Men do not know how, where or when to access support and it is often the partner who initiates contact with support services.

Internet-based intervention as a means to facilitating increased support

The efficacy of psycho-social support has been repeatedly reported in the general cancer setting. Unfortunately, access to appropriate and timely psycho-social support is often limited, particularly in rural and remote regions of Australia but also in public hospitals across the entire country. It has been reported that only 14 to 21% of women in Australia attend face-to-face support [30, 31] and it is estimated that far fewer men access appropriate support services.

Mental and behavioural health promotion, prevention, treatment and management-oriented interventions that are delivered via the internet or other electronic technologies (“e-Interventions”), with or without human support [32] can overcome many of these barriers. Whilst the use of e-
Interventions has grown in both the mental health and general health setting (e.g. [33, 34]) it has received limited attention in the cancer setting.

van den Brink et al. [35] developed an online information and support program for head and neck cancer patients in the Netherlands with the aim of overcoming the communication and information bottlenecks in supportive head and neck cancer care. These authors reported that patient use and satisfaction with the program was very high despite patients having recently undergone intensive surgical treatment. Patient age was not a barrier (mean age 59 years and range 38-78) and despite 56% of participants having limited computer experience prior to the use of the program, consistently positive feedback was received. This online support program showed improved QoL outcomes in participants as compared to a control group who did not access the program [35].

e-Interventions do have limitations as some people prefer a face-to-face therapy modality. However, as Klein [32] comments “the major concern levelled at e-Interventions is the belief that the therapeutic alliance will be compromised by employing remote methods with which to engage and interact. However, emerging evidence demonstrates that consumers using e-Interventions rate the quality of their relationship and satisfaction with the e-Intervention as high and at similar rates to their face-to-face counterparts. Continued investigation of these issues is important.” In addition, a recent Australian general public survey (Klein & Cook, in preparation) regarding the use of e-mental health services demonstrated that less than 10% of the sample reported that they would not use e-mental health services should they have a mental health condition. This clearly suggests that the bulk were agreeable to using e-mental health services.

e-Interventions therefore can provide the majority with an acceptable alternative support modality medium. Psycho-education and self-directed therapeutic techniques can easily be formatted onto an online environment and may also break down the barriers that many people face in terms of accessing support, both in terms of available resources and in terms of stigma, fear and uncertainty in accessing mental health services, factors that deter many people in accessing support [36, 37].
Furthermore, men are low utilisers of health care services generally, and for sufferers of CaP, our clinical experience indicates that help seeking behaviour is low or, often, non-existent. Numerous factors likely account for this phenomenon, however, stigma associated with both the nature of the physical condition (CaP) and also the concomitant morbidities (sexual dysfunction, incontinence, anxiety, depression) serve as formidable barriers to support for this vulnerable population.

In terms of data regarding the use of online psychotherapeutic interventions by men it appears that men can be engaged to access this style of support. In a randomised controlled trial examining the efficacy of the online depression prevention program, MoodGym, of the 2794 registrants 34% (n=948) were men [38]. Preliminary data from the National eTherapy Centre’s Anxiety Online treatment programs for anxiety disorders indicate that of the 1866 participants who have started the online pre-assessment questionnaire 30.4% (n=497) have been male, 69.6% (n=1139) have been female (unpublished data). This data suggests that these programs have been able to engage a large number of men to the program, despite women still predominating engagement in the intervention. This style of psychotherapeutic support appears to be acceptable to men.

There is also a growing interest in the utilisation of online interventions in the cancer setting. Schover et al. [39] developed and assessed the efficacy of an online sexual counselling intervention in comparison to traditional face-to-face sexual counselling for couples following treatment for localised prostate cancer. Sexual counselling involved three face-to-face sessions with a therapist while the online intervention delivered the therapy via email contact with a therapist. This study found that the delivery of the intervention via the internet was as effective as the traditional face-to-face intervention in producing enduring improvements in sexual outcomes [39]. While this study highlighted the potential utility of online interventions in this population, to date, no online self-directed intervention with minimal support has been developed and evaluated for localised prostate cancer with a focus on a range of identified problem areas.
A recent review by Leykin et al [40] explored the role of online interventions in supporting people with cancer. This review highlighted that e-Interventions can provide the majority of people with an acceptable alternative support modality medium in a systematic and scalable way. Research has found that telephone and internet-based support is particularly important for men with cancer, predominately prostate cancer, living outside metropolitan regions in Australia [41]. Psycho-education and self-directed therapeutic techniques can easily be transferred to an online environment and may also break down the barriers that many people face in terms of accessing support, including lack of available resources and perceived stigma, fear and uncertainty in accessing mental health services [37, 40]. Leykin et al. [25] criticised current online resources for being predominately information and support based, with a need for evidenced-based treatment interventions.

Therefore, this project’s major objective was to develop an online intervention that aimed to improve psychological outcomes following and during treatment for prostate cancer, and to reduce the risk of the development of mental health disorders such as anxiety disorders and major depression. The overarching objective of this proposal is to develop and assess the efficacy of a unique online psychological intervention that is accessible, user friendly and engaging to men with CaP and that reduces the stigma of psychological distress in the context of prostate cancer.

This project was implemented across three (3) phases of research and development and the methods and outcomes are reported below.

**Phase 1: Development of resources**

**Online psychological assessment:**

Two forms of assessment were developed as part of the online intervention.

The first was an online assessment to screen and assess the mental health status of the participants, as well as specific prostate-cancer related needs and quality of life utilising validated questionnaires.
This includes domains such as:

- Psychological distress: measured using the DASS-21 [42] and providing three subscale measurements:
  - Anxiety
  - Depression
  - Stress

- Prostate Cancer Specific quality of life: measured using the The Prostate Cancer-related Quality of Life scales (PCa-QoL)[43] and providing 11 subscales:
  1. Urinary control (behavioural and interpersonal implications of impaired control of one’s bladder);
  2. Sexual ability - sexual intimacy (ability to perform sexually and feelings of frustration, embarrassment or failure);
  3. Sexual confidence (confidence and anxiety about intimate activity and sexual thoughts);
  4. Spouse affection (misgivings about demonstrations of affection with one’s spouse),
  5. Masculine self-esteem;
  6. Health worry (uncertainty about one’s health);
  7. PSA concern;
  8. Cancer control;
  9. Informed decision;
  10. Regret; and,

- Sexual function: measured with the international index of erectile function (IIEF)[44] and providing five subscales:
  - Erectile function
- Orgasm function
- Sexual desire
- Intercourse satisfaction
- Overall satisfaction

- Relationship satisfaction: measured using the Kansas Marital Satisfaction Survey (KMS) [45].

- Communication patterns: measured using the Communication Patterns Questionnaire-Short Form (CPQ-SF) [46, 47] and the Dyadic Sexual Communication Scale (DSC) [48].

This assessment takes the form of an online survey that the participant completes at each assessment point. This provides a comprehensive assessment of the participants mental health and quality of life and forms the basis of the outcome measures used to evaluate the program.

The second assessment developed is a participant focussed assessment used to track emotional wellbeing across the course of the program, this is called the mood monitor in the program. This assessment provides visual feedback to participants in the form of a graph plotting scores over time.

Five domains are measured including participant self report of general happiness, anxiety, anger, a feeling of being informed and a sense of control. All items are scored on an analogue rating scale. This mood monitor is logged at the start and the end of each module of the program.
My Road Ahead: The online psychological intervention:

A structured sequential series of six online interactive modules was developed, based around the validated resources developed for the 8-week group psychotherapy program conducted at Royal Melbourne Hospital called “below the belt”[1].

The My Road Ahead program aims to offer a way for men to process the challenges often faced by men following treatment for localised prostate cancer and facilitate their ability to identify their own ways of coping and improving how they feel, in terms of their emotions as well as their psychology as well as how they experience their relationships and connections with others.
The My Road Ahead program is a six (6) module online program that offers a range of topics to work through at an individual pace. It is anticipated that each module will take one (1) to two (2) weeks to complete, participants are provided access to the program for a duration of six (6) weeks.

Specific modules include:

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<td>1. Prostate cancer and you</td>
<td>• Psycho-education about common emotional responses to prostate cancer</td>
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<td>• Normalisation through other men’s stories</td>
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<td>• Interactive reflective exercises aimed at</td>
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<td>encouraging self-reflection and</td>
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<td>acknowledgement of emotional responses</td>
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<td>2. Effective communication</td>
<td>• Common communication challenges in context of prostate cancer</td>
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<td>• Strategies to improve general and relationship</td>
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<td>• Communication enhancement exercises to</td>
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<td>3. Physical changes</td>
<td>• Common physical changes following treatment for localised prostate</td>
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<td>• Exercises to overcome anxiety and avoidance in</td>
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<td>relation to incontinence</td>
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<td>• Introduction to relaxation strategies</td>
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<td>4. Sexuality and masculinity</td>
<td>• Education and exercises targeting negative</td>
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dysfunction (ED)

- Skills training in general and sexual communication
- Education and exercises addressing masculinity and identity issues

5. Sexuality and intimacy

- Sexual problems and cancer
- The impact of ED and cancer on the relationship
- Education and exercises designed to broaden definitions of sexuality and sexual behaviour to enhance sexual intimacy
- Education about the use of medical aids for ED

6. Planning for the future

- Education and exercises related to fear and uncertainty about the future
- Planning for the future
- Encouragement of continued use of the skills developed from the intervention

The program has been designed to engage users by using graphics, video content and interactive exercises.

The main home screen:
Information about the program is presented with a video of David Parkin, a well-known AFL football identity who generously agreed to endorse the program free of charge.

Once a participant has signed up and completed the consent and questionnaire assessment process they are directed to the dashboard or homepage. This depicts the program using a roadmap illustrating the series of modules to work through. This map is also used to illustrate the participant’s progress through this series of modules.
The program features heavy use of video materials illustrating other men’s experiences of prostate cancer with the aim of normalisation of experiences and engagement.

The program also features a number of videos from clinicians designed to impart credible information to participants.
The program also includes a logbook which allows participants to track their experiences and responses to the interactive exercises.

Interactive exercises are evident throughout the program. These are designed to engage participants in the content of the program and offer them an opportunity to reflect, challenge or trial new strategies.
Illustrations are also used where possible to present information in an engaging manner.

The moderated forum:

A moderated forum is also hosted on the website. This forum is moderated by a psychologist as part of the research team and offers a ‘virtual space’ for participants to ask questions of each other as well as the researchers and psychologist. The content of the information displayed on the forum is guided by the types of questions and comments received from the participants and is only moderated in the form of answering questions and making sure that all content is not offensive.
Phase 2: Consumer evaluation of developed resources

The developed program and forum was pilot tested. Participants were recruited to pilot test the content and technical functionality of the program.

64 participants took part in the pilot phase of this project by participating in the program. This pilot aimed to evaluate the usability and acceptability of the developed program as well as the technical functionality of the program. 22.7% of pilot participants reported experiencing elevated symptoms of depression and 20.7% reported experiencing elevated symptoms of anxiety at baseline. Mean quality of life and sexual functioning scores at baseline indicated that participants were experiencing poor quality of life and significant difficulties with sexual functioning.

Adherence to the program was moderate and feedback from participants recommended technical and structure modifications. However 78% of participants stated they would recommend the program to a friend.

The main learning from this pilot phase was that early engagement of participants is vital to ensure adherence to the program, tailored access to the modules is essential in meeting the participant’s needs and regular feedback to participants is essential in maintaining engagement in a self-directed program such as My Road Ahead.
Of the 64 participants who participated in the pilot, 30 did not complete post-test satisfaction questionnaires. This left a total of 35 participants who gave satisfaction responses.

**My Road Ahead feedback**

Twenty-three men provided feedback on their satisfaction with the program. Reasons for using the program included anonymity (n=7), curiosity (n=9), convenience (n=7), a preference for self-help methods of support (n=6), wanting to contribute to research (n=6) and feeling there was no other support available (n=2). In terms of overall satisfaction, 47.82% of men were satisfied with the program (score of 6 or more on a scale from 1-10) and 78.26% said they would recommend it to a friend, colleague or family member with prostate cancer.

While the program was designed so men could involve their partners only 4 men reported doing so. Reasons for not involving partners were given by 16 men and included: partner being not able to or not interested in (n=6), wanting to work through the program independently (n=4), the idea of involving their partner didn’t occur to them (n=2), feeling uncomfortable discussing the program with partner (n=2); not possible due to time or illness (n = 2).

Reasons for not completing the program included men being too busy (n=9), unmotivated (n=3), finding the program boring (n=2), computer or internet difficulties (n=2) and being unsure how to access the program (n=1). Suggestions for helping men engage more with the program included the use of email support or reminders (n=6), SMS reminders (n=2), a chat room (n=5), telephone support (n=3) and the use of more online activities (n=3). Opinions about the best parts about the program included learning about oneself (n=4), being able to help research (n=3), the program being easy and convenient to use (n=3), and getting support from other men (n=2). Some of the worst features of the program were reported as the time commitment involved (n=3), the questionnaires being too long (n=3), and the lack of feedback or support (n=3).

Qualitative feedback included:
• “It encouraged me to think about issues that have an impact on life and relationships”

• “Learning how others felt and what they experienced. Made me realise that I was not the only one”

• “Learning the relationship between thoughts, feelings and behaviour was useful”

• “It gave me better insight into my issues and thought processes, and how to manage them constructively”

• “The offline exercises were helpful as they resulted in my wife and I communicating - this was the real benefit for me (and her too I think) - we talked about the issues”

• “Should be used when first diagnosed”

• “Being unable to bypass certain parts & return to them later was annoying. I just became frustrated with this aspect of the program, this was the reason for me failing to complete the program on time.”

**Forum feedback**

Twenty-nine men gave feedback on the forum. Satisfaction with the moderated forum was lower than that for the program (41.38% rated their satisfaction as 6 or more on a scale from 1-10). Most (65.52%) said the forum was easy to use. However only 37.93% reported that other men’s posts were useful and 31.03% reported that moderator posts were useful (ratings of 6 or more on 10 point scale). Several (n=5) men reported that the worst part about the forum was the little information posted by others. Reasons for not using the forum included a lack of motivation (n=7), being too busy (n=6), not finding the forum useful (n=6) and technical difficulties (n=5).

**Improvements to the Program and Forum**

As a result of the findings of the pilot randomised controlled trial, and qualitative feedback from users and technical consultants, a number of changes to the program and forum were implemented. These are discussed below.
Sequential progress through modules. The original design of the intervention required participants to work through all 6 modules sequentially and most initial users only progressed through two modules. Feedback from users indicated that an open approach to navigation would be preferable so that men could focus on topics of particular interest, strengthening their motivation to use the program.

Commitment to program. At the beginning of the program a section called “Your pledge” was added to encourage men to commit to working on the program. This provided a clear outline of the requirements and expectations of participants taking part in the research. To encourage users to complete all modules, the program was altered so that participants were given feedback about the proportion of the program they had completed.

Program access time. Feedback indicated that users required longer than 6 weeks to complete the program. The program was altered so that men could access it for 10 weeks. A fixed time period was considered useful to encourage participants to work through the program at a consistent rate. A timer has been added to the program to show users their remaining access time. Participants were asked to commit to the program for 10 weeks.

Weekly emails. User feedback indicated that reminders and encouragement to continue to use the program would be beneficial. The program was altered so that each participant would receive a weekly email from the researcher. This was a simple reminder email acknowledging where they were up to in the program and encouraging them to return to the program. No therapeutic intervention is delivered via these emails.

Moderator posting on the forum. Participant feedback about the forum was that more discussion was needed. Hence, the forum was altered so that the moderator posted a weekly topic to generate discussion.
These changes required further technical changes and the implementation of these changes delayed the project for a period of 3 months. These changes, however, were deemed vital in producing a program that would be engaging and effective.

**Phase 3: Randomised controlled trial examining the efficacy of the online intervention**

Ethical approval to conduct the study was obtained from Melbourne Health, Swinburne University of Technology, Deakin University and Peter MacCallum Cancer Centre Human Research Ethics Committees.

**Eligibility and Recruitment**

Participants were eligible to participate in the study if they had been diagnosed with localised prostate cancer and had received, or were currently receiving, treatment with curative intent within the last 5 years. They were not eligible to participate if they had a diagnosis of advanced or metastatic disease, did not have access to a computer or an internet connection at least once per week for up to one hour or were not able to read, write and understand the English language without the assistance of an interpreter.

Participants were recruited using a variety of methods. All methods relied on self-referral following invitation to participate in the study. Letters were sent from urologists and radiation oncologists practising at Epworth Hospital, Royal Melbourne Hospital and Peter MacCallum Cancer Centre. Postcards were also given to patients at the same hospitals during consultations. Advertisements and information about the study were also placed in various newsletters and websites including the Prostate Cancer Foundation of Australia, beyondblue, and Mens Shed Online.

**Study Design**

Participants were required to complete the consent process online and create a personalised account on the dedicated program website (www.myroadahead.org). After consenting to participate in the study, participants completed the baseline questionnaires and were randomised to one of the
three intervention groups using a computer generated sequential 1:1:1 allocation across the three (3) groups. Group 1 participants received access to My Road Ahead (MRA Only). Group 2 participants received access to My Road Ahead plus access to the moderated forum (MRA+Forum). Group 3 participants received access to the moderated forum only (Forum only). Participants in all groups received a weekly email reminder to return to the program and/or forum and to encourage them to continue to participate in the research over the course of the 10 weeks that comprised the intervention phase. Participants in all groups were required to complete the online assessment at three time points; baseline, week 5 and post-intervention (week 10 for group 3) (see Figure 1 for study flow).

**Figure 1.** Flow chart of participant movement through RCT
**Statistical Analyses**

Descriptive statistics were generated from the pre- and post-intervention questionnaires and the three groups were compared in terms of demographics and baseline outcome measures. A repeated measures multivariable analysis of variance was first conducted using the pre and post assessment data. Linear regression analyses were then conducted to examine changes in psychological distress for each group. A structural model was then used to illustrate the mechanisms by which improvement was achieved for the intervention group which showed significant changes in psychological distress (MRA+Forum group).

**RESULTS**

**Participants**

Of the 152 participants recruited, 10 were excluded because they reported that they had advanced or locally advanced prostate cancer. The remaining 142 patients were randomly allocated to the three treatment groups with close to 33% in each group. Sixty-two percent of participants were referred by a doctor or other health professional and 14% were referred by a support group. The remaining 24% of participants heard about the program from friends, family, advertisements, the internet, media and other means. Table 1 provides a summary of the demographic details of the sample.

<table>
<thead>
<tr>
<th>Table 1. Demographic details of participants</th>
<th>N (%)</th>
<th>Mean (SD)</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td>-</td>
<td>61 yrs (7)</td>
<td>42-82</td>
</tr>
<tr>
<td><strong>Time since diagnosis</strong></td>
<td></td>
<td>3.5 yrs (1.8)</td>
<td>6 mths-5 yrs</td>
</tr>
<tr>
<td><strong>Highest level of education</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tertiary schooling</td>
<td>40 (28%)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Certificate or diploma</td>
<td>43 (30%)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Undergraduate university</td>
<td>27 (19%)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Postgraduate university</td>
<td>32 (23%)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Employment status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>72 (51%)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Part time</td>
<td>10 (7%)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------</td>
<td>----------------</td>
<td>-----</td>
<td>----</td>
</tr>
<tr>
<td></td>
<td>Retired</td>
<td>42</td>
<td>30%</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>18</td>
<td>12%</td>
</tr>
<tr>
<td>Country of birth</td>
<td>Australia</td>
<td>106</td>
<td>75%</td>
</tr>
<tr>
<td></td>
<td>Great Britain</td>
<td>16</td>
<td>11%</td>
</tr>
<tr>
<td></td>
<td>New Zealand</td>
<td>9</td>
<td>6%</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>11</td>
<td>8%</td>
</tr>
<tr>
<td>Location of residence</td>
<td>Major metropolitan</td>
<td>102</td>
<td>71%</td>
</tr>
<tr>
<td></td>
<td>Inner regional</td>
<td>21</td>
<td>15%</td>
</tr>
<tr>
<td></td>
<td>Outer regional</td>
<td>12</td>
<td>9%</td>
</tr>
<tr>
<td></td>
<td>Remote</td>
<td>2</td>
<td>1.4%</td>
</tr>
<tr>
<td></td>
<td>Missing</td>
<td>5</td>
<td>3.6%</td>
</tr>
<tr>
<td>Relationship status</td>
<td>Married</td>
<td>112</td>
<td>79%</td>
</tr>
<tr>
<td></td>
<td>De Facto</td>
<td>13</td>
<td>9%</td>
</tr>
<tr>
<td></td>
<td>Casual</td>
<td>4</td>
<td>3%</td>
</tr>
<tr>
<td></td>
<td>Single</td>
<td>13</td>
<td>9%</td>
</tr>
<tr>
<td></td>
<td>Relationship duration &gt; 10 years</td>
<td>116</td>
<td>82%</td>
</tr>
<tr>
<td>Sexual orientation</td>
<td>Heterosexual</td>
<td>133</td>
<td>94%</td>
</tr>
<tr>
<td></td>
<td>Homosexual or bisexual</td>
<td>9</td>
<td>6%</td>
</tr>
<tr>
<td>Prostate cancer treatment</td>
<td>Radical prostatectomy</td>
<td>125</td>
<td>88%</td>
</tr>
<tr>
<td></td>
<td>External beam radiotherapy</td>
<td>18</td>
<td>12%</td>
</tr>
<tr>
<td></td>
<td>Hormone therapy (in combination with hormone therapy)</td>
<td>9</td>
<td>6.3%</td>
</tr>
<tr>
<td>Co-morbidities</td>
<td>Previous cancer diagnosis</td>
<td>16</td>
<td>11%</td>
</tr>
<tr>
<td></td>
<td>Diabetes</td>
<td>13</td>
<td>9%</td>
</tr>
<tr>
<td></td>
<td>Heart disease</td>
<td>17</td>
<td>12%</td>
</tr>
<tr>
<td></td>
<td>Current anti-depressant use</td>
<td>17</td>
<td>12%</td>
</tr>
<tr>
<td>Previous access to support or clinical services</td>
<td>Psychologist/psychiatrist/counsellor</td>
<td>27</td>
<td>19%</td>
</tr>
<tr>
<td></td>
<td>Support group</td>
<td>21</td>
<td>15%</td>
</tr>
<tr>
<td></td>
<td>Urology/prostate nurse</td>
<td>72</td>
<td>51%</td>
</tr>
<tr>
<td></td>
<td>Physiotherapist</td>
<td>45</td>
<td>32%</td>
</tr>
</tbody>
</table>

No significant differences were found between the three intervention groups in terms of any of the above demographic variables. In particular the age distributions were very similar for the groups (F(2,139) = .297, p=.743). However, there was a significant difference in terms of country of birth (Chi-Sq = 6.96, df=2, p=.031). Australian born patients were disproportionately represented in the MRA-Only group (85%), compared to 79% in the Forum-Only group and 63% in the MRA+Forum group.
Psychological outcome measures at baseline

Mean scores at pre-intervention for the outcome measures were similar for all three groups and a Between Subjects MANOVA test showed no significant differences between the groups (F(12,268)=.903, p=.545), again demonstrating that the group allocation was appropriate. Some of the variables showed skewness so a non-parametric Kruskal-Wallis test was used to confirm similar distributions across the three groups. In all group comparisons, Country of Birth (Australia, Other) and age were controlled for.

Intervention completion rates

The rate of intervention completion by participants who received access to the My Road Ahead modules was calculated using page view data. The mean percentage of content completed by participants was 59%. Participants in the MRA-only group completed on average 60% of the content while participants in the MRA+forum completed 57% of the content. Content completion rates reduced as participants moved through the modules. On average participants completed 87% of module 1, 72% of module 2, 60% of module 3, 56% of module 4, 41% of module 5 and 36% of module 6.

Questionnaire Completion Rates

There were similar rates of questionnaire completion for all three conditions with an overall completion rate of 87% at week 5 of treatment and 73% post-treatment.

Group comparison analyses for psychological outcomes

A MANOVA analysis was conducted to investigate the pre-post intervention changes in psychological distress with country of birth and age controlled. This showed significant group differences for psychological outcome measures (F(12,188)=1.91, p=.035). The follow-up ANOVA tests shown in
Table 3 suggests significant group differences only for psychological distress, with the MRA+Forum group experiencing a significant improvement ($t(34)=2.683$, $p=.011$), but no significant change for the MRA Only ($t(32)=.082$, $p=.935$) or the Forum-Only group ($t(35)=.808$, $p=.424$). The Kruskal-Wallis test confirmed the significance of the group differences for changes in psychological distress. In addition, the data suggested group differences in terms of health worry and informed decision with the MRA+Forum group also performing the best on these measures.

Table 2: Comparison of pre-post change scores for the psychological outcomes for the 3 groups

<table>
<thead>
<tr>
<th>Measures</th>
<th>MRA Only (n=33)</th>
<th>MRA + Forum (n=35)</th>
<th>Forum Only (n=36)</th>
<th>ANOVA test</th>
<th>Kruskal-Wallis</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health worry</td>
<td>-1.26</td>
<td>10.60</td>
<td>-3.69</td>
<td>14.43</td>
<td>3.59</td>
<td>15.31</td>
</tr>
<tr>
<td>Informed Decision</td>
<td>8.03</td>
<td>23.22</td>
<td>-7.29</td>
<td>33.35</td>
<td>2.92</td>
<td>12.61</td>
</tr>
<tr>
<td>Regret</td>
<td>3.03</td>
<td>12.99</td>
<td>-2.43</td>
<td>13.63</td>
<td>5.69</td>
<td>14.89</td>
</tr>
<tr>
<td>Outlook</td>
<td>10.23</td>
<td>28.20</td>
<td>-1.07</td>
<td>21.73</td>
<td>-6.94</td>
<td>22.84</td>
</tr>
<tr>
<td>General Confidence</td>
<td>-.06</td>
<td>.75</td>
<td>.20</td>
<td>.72</td>
<td>.00</td>
<td>.79</td>
</tr>
<tr>
<td>Psychological Distress</td>
<td>-.18</td>
<td>12.79</td>
<td>-7.14</td>
<td>15.75</td>
<td>1.67</td>
<td>12.37</td>
</tr>
</tbody>
</table>

A conservative intention-to-treat analysis was then applied using the pre and post data and controlling for country and age. The MANOVA result was still significant ($F(12,266)=2.039$, $p=.021$, partial $\eta^2=.084$).

In order to understand why the MRA+Forum arm of the study was so successful in reducing psychological distress, a regression analysis was then undertaken.

**Regression Analysis for Psychological Distress**

Pre-intervention to post-intervention change scores were calculated and entered into a linear regression analysis to examine the relationship of these factors on changes in psychological distress (DASS-21 total score) for each intervention group. The results of the regression analysis, presented
in table 3, suggest that while reductions in Health Worry are associated with reductions in psychological distress in the case of all groups, increased confidence appears to play a role only for the Forum-Only group. For the MRA+Forum group, reduced regret also appears to play a role and, interestingly, it is only in the case of this group that reductions in psychological distress are larger for those participants who had higher levels of psychological distress at baseline. In all, 71.6% of the variation in the changes in psychological distress are explained by this regression model for the MRA+Forum group, falling to 53.2% and 36.6% for the Forum-Only and MRA-Only groups.

Table 3: Regression Analysis for changes in psychological distress (DASS-21 total score) pre-to-post intervention, after controlling for initial level of psychological distress (Standardised β Weights)

<table>
<thead>
<tr>
<th>Pre-post intervention change scores</th>
<th>MRA Only</th>
<th>MRA+Forum</th>
<th>Forum Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Worry</td>
<td>.473*</td>
<td>.304*</td>
<td>.375*</td>
</tr>
<tr>
<td>Informed Decision</td>
<td>-.140</td>
<td>-.032</td>
<td>-.144</td>
</tr>
<tr>
<td>Regret</td>
<td>.144</td>
<td>.272*</td>
<td>.083</td>
</tr>
<tr>
<td>Outlook</td>
<td>-.131</td>
<td>.162</td>
<td>-.050</td>
</tr>
<tr>
<td>Confidence</td>
<td>.062</td>
<td>-.047</td>
<td>-.419**</td>
</tr>
<tr>
<td>Baseline Psychological Distress</td>
<td>-.195</td>
<td>-.614**</td>
<td>-.065</td>
</tr>
<tr>
<td>R-Square</td>
<td>36.6%</td>
<td>71.6%</td>
<td>53.2%</td>
</tr>
</tbody>
</table>

*p<.05, ** p<.01, *** p<.001 for 1000 bootstrap samples

Structural equation modelling was then used to develop a model of the mechanism of reductions in psychological distress for the MRA+Forum group, figure 2. The model suggests that people with high pre-treatment levels of distress are likely to also have high levels of health-worry and high levels of regret. The MRA+Forum treatment has a direct effect on psychological distress as seen by the strong standardised weight (β = -.69) linking psychological distress pre-treatment with the change in psychological distress. However, additional reductions in psychological distress are achieved through a reduction in health-worry and regret. This model describes the data well (Chi-Square = 7.54, df=8, p=.480), explaining 75% of the variation in changes in psychological distress.
Figure 2: Final Model for MRA+Forum group (Standardised β Weights and R-Square Values Shown

Group comparison analyses for sexual outcomes

A MANOVA analysis was conducted to investigate the pre-post intervention changes with country, initial marital affection and age controlled showed nearly significant group differences for the IIEF variables (F(10,188)=1.568, p=.119, p=.077) but no significant group differences for the sexual relationship variables (F(8,190)=.924, p=.498). The follow-up ANOVA tests shown in Table 4 suggested significant group differences only for overall sexual satisfaction, with the MRA+Forum group experiencing a significant improvement (t(34)=3.61, p=.001) but no significant change for the MRA Only (t(32)=.186, p=.853) or the Forum Only group (t(35)=1.21, p=.235). The Kruskal-Wallis test confirmed the significance of the group differences for changes in overall sexual satisfaction. In addition it suggested nearly significant group differences in terms of sexual confidence with the MRA+Forum group also performing the best on this measure.

Table 4: Post-Pre Change Comparison for 3 groups
In order to further understand why the MRA+forum intervention arm was so successful in improving sexual satisfaction a regression analysis was conducted.

**Regression Analysis for sexual satisfaction**

The regression analysis presented in Table 5 suggests that improvement in sexual confidence has a positive impact on overall sexual satisfaction for the MRA+Forum group. Improved orgasm function and masculine self-esteem also has a beneficial effect for overall sexual satisfaction but these factors are less significant in their prediction of sexual satisfaction.

**Table 5: Regression Analysis for changes in overall sexual satisfaction after controlling for initial level of overall sexual satisfaction (Standardised β Weights)**

<table>
<thead>
<tr>
<th>Pre–Post Change in outcomes measures</th>
<th>MRA+Forum group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual Intimacy</td>
<td>-.040</td>
</tr>
<tr>
<td>Sexual Confidence</td>
<td>.537***</td>
</tr>
<tr>
<td>Masculine Self Esteem</td>
<td>.303*</td>
</tr>
<tr>
<td>Marital Affection</td>
<td>-.107</td>
</tr>
<tr>
<td>Erectile Function</td>
<td>.059</td>
</tr>
<tr>
<td>Orgasm Function</td>
<td>.309*</td>
</tr>
<tr>
<td>Sexual Desire</td>
<td>.170</td>
</tr>
<tr>
<td>Intercourse Satisfaction</td>
<td>.184</td>
</tr>
<tr>
<td>Initial Overall Sexual Satisfaction</td>
<td>.118</td>
</tr>
</tbody>
</table>
Structural equation modelling was then used to develop a model of the mechanism of improvements in sexual satisfaction for the MRA+Forum group, figure 3. This model suggests that participants with low levels of sexual confidence, orgasm function and masculine self esteem at the commencement of the intervention were likely to benefit the most from the program. The MRA+Forum treatment achieves improvements in overall sexual satisfaction through improvements in sexual confidence and orgasm function. This model describes the data fairly well (Chi-Square = 18.32, df=12, p=.106), but explaining only 51% of the variation in changes in overall sexual satisfaction, suggesting that other sexual outcomes are playing a role as well.

**Figure 3**: Final Model for MRA+Forum group (Standardised β Weights and R-Square Values Shown)

**Summary of results**

A comparison of pre-treatment and post-treatment psychological distress and sexual satisfaction levels showed significant differences between the groups with the MRA+Forum group exhibiting the
greatest improvement for both variables. A regression analysis exploring reductions in psychological distress suggested that the success of the MRA+Forum treatment could be ascribed to three factors. Firstly it was particularly successful in reducing distress for those participants with high levels of distress at baseline. Secondly it also reduced Health-Worry and Regret, thereby reducing psychological distress further. Regression analyses exploring the factors associated with the improvements in sexual satisfaction for the MRA+Forum group indicated that improved sexual confidence and orgasm function both significantly contributed to improvements in overall sexual satisfaction for this group.

In contrast to the MRA+Forum intervention the MRA-Only and Forum-Only interventions were, on average, not successful in reducing psychological distress or improving sexual satisfaction. However, when a reduction was achieved, this could be attributed to reductions in Health Worry for both these groups and to an increase in confidence in the case of the Forum-Only intervention. In particular, these interventions were not successful for the more distressed participants as was the case for the MRA+Forum treatment.

Marital relationship and communication variables were not significantly changed by any of the intervention groups.

Discussion

The combination of the intervention, My Road Ahead, with access to the forum showed significantly better improvements in participant psychological distress and sexual satisfaction from pre- to post-intervention than the other two intervention conditions, My Road Ahead alone or Forum alone. A significant improvement in psychological distress and sexual satisfaction was seen for participants who had access to both the online intervention and the moderated forum while no significant
change in psychological distress or sexual satisfaction was seen for the other two intervention conditions. Reductions in psychological distress for participants in the My Road Ahead plus forum condition appeared to be driven by reductions in health worry and regret. Furthermore participants with higher levels of psychological distress at the commencement of the intervention showed the largest reductions in psychological distress as a result of this condition, and this was not seen in the other two conditions. Improvements in sexual satisfaction for participants in the My Road Ahead plus forum condition appeared to be driven by increased sexual confidence and orgasm function and again this intervention appeared to be most beneficial for those participants with low levels in these domains at the commencement of the intervention.

Given that psychosocial support provision is not routine in standard prostate cancer care, in part due to a lack of available resources, the findings of this study are promising in terms of the potential for this program to deliver support that men may not otherwise get access to. Men located in rural and regional areas may be particularly disadvantaged in terms of access to psychosocial services[49]. It is interesting that 25% of participants in the current study reported that they lived in rural or regional locations, indicating that this intervention is equally appealing to men living in metropolitan and rural areas and that the use of this program could be a means to improve access to psychosocial support for men in rural locations.

The current study is the first, to our knowledge, that has evaluated a self-directed online psychological intervention tailored to the specific needs of men with prostate cancer. While there is considerable evidence for the effectiveness of online CBT-based interventions in mental health generally [e.g.,[33, 34, 50]] and for the psychosocial impact of chronic illnesses and for health behaviour change[51, 52], research on online psychological interventions for patients with cancer is still in its infancy[40, 53, 54]. The combination of CBT-based psychological therapy online and peer support has also received limited attention in the cancer literature. Although it is widely accepted that peer support can play a major role in supporting men with prostate cancer, there has been
limited research on the role of online support such as internet support groups and moderated forums[53]. Research examining online peer support has primarily focused on the benefit of this support alone, not in combination with a structured psychological intervention. Unfortunately results have been inconsistent[53, 55-58]. The current study allowed an analysis of each of the components of the intervention separately, allowing a greater understanding of the components of a successful intervention. It appears that the combination of peer support alongside a structured CBT-based intervention was the most successful in reducing distress.

While this study has demonstrated preliminary evidence for the efficacy of this intervention there are a number of limitations of the study that should be acknowledged. Firstly the sample size is relatively small and may have reduced the power of detecting effects. Furthermore, the bias towards men who had undergone radical prostatectomy as their primary treatment for prostate cancer also reduces the generalisability of findings to men who have undergone other treatment modalities. Further evaluation with a larger sample size and improved treatment representation is warranted. Follow-up of participant outcomes is also important and this data will be collected and reported. Overall, this study demonstrates preliminary efficacy for the My Road Ahead intervention in combination with access to a moderated forum in reducing psychological distress.

**Publications and presentations**

<table>
<thead>
<tr>
<th>Paper area</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lit review of intervention studies for prostate cancer</td>
<td>Published, see reference 24</td>
</tr>
<tr>
<td>Paper outlining the development and pilot testing of the online intervention</td>
<td>In revision and to be submitted for publication within 1 month</td>
</tr>
<tr>
<td>Methodology paper for the RCT</td>
<td>Published see reference [59]</td>
</tr>
</tbody>
</table>
Baseline data of demographic details of participants of the program - i.e. uptake rate and profile of participants engaging in the online program

Outcome paper reporting the efficacy of the intervention across the three groups using 2 assessment points - pre-post intervention

Outcome paper reporting the efficacy of the intervention across the three groups using longer term follow up (12 weeks and 6 months post completion of program)

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A. Wootten. 12th *Australasian Prostate Cancer Conference* (Melbourne, Australia; August 2011). Introducing My Road Ahead: A randomised controlled trial.

Summary and conclusions

My Road Ahead is the first self-directed online psychological intervention for men with prostate cancer worldwide. User testing indicates that the program is engaging and useful and the RCT outcome data indicates that the My Road Ahead plus forum condition successfully improved psychological distress and sexual satisfaction.

Many other institutions have contacted us to learn about our experiences developing and evaluating this program and we are proud to be the first group to provide such a program. beyondblue’s support has been instrumental in achieving this and we recognize the support provided by beyondblue.

For those interested in looking at the program please go to www.myroadahead.org.

Username: healthprovider

Password: health
References:


