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Acceptability of a nurse-led survivorship intervention for men with prostate cancer receiving androgen deprivation therapy: A qualitative exploratory study

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ABSTRACT

Purpose: To assess the acceptability of a five-session, nurse-led, survivorship intervention for men with prostate cancer receiving Androgen Deprivation Therapy (ADT), delivered via a specialist prostate cancer telehealth service.

Methods: A qualitative exploratory study using the Theoretical Framework of Acceptability. The study was undertaken in an established Australian specialist prostate cancer tele-nursing service. Study participants were men with a diagnosis of prostate cancer who: (i) were about to start or were within 3 months of commencing ADT; (ii) had a treatment plan for at least 12 months of continuous ADT; (iii) had no current psychiatric illness or history of head injury and/or dementia; and (iv) had no other concurrent cancer (excluding non-melanoma skin cancer). A purposive sampling strategy was used for recruitment.

Findings: Nineteen participants took part in semi-structured interviews, comprising men who had completed the program (n = 18) and the nurse who had delivered it (n = 1). Overall acceptability was high across all constructs of the TFA, and particularly strong across the domains of ethicality and self-efficacy. Quality of design, structure and content was seen as highly favourable, as was the strength of the therapeutic relationship that developed between the nurse and the participants. Clinically, the program delivered sizeable gains in knowledge about ADT impact on physical, psychological, and sexual wellbeing, and confidence to identify and proactively manage side effects.

Conclusions: Findings from this study suggest that a nurse-led, psychoeducation program for men on ADT is highly acceptable, with great potential for implementation at scale via a national specialist nursing program.

1. Introduction

Prostate cancer is the second most common cancer diagnosed globally in men and a major cause of morbidity and mortality (Sung et al., 2021). Androgen Deprivation Therapy (ADT), also known as hormone therapy, is a common treatment for high-risk localised or locally advanced disease, and a mainstay treatment for men with metastatic prostate cancer (Mottet et al., 2020). While effective in reducing tumour volume and disease progression by blocking testosterone production, ADT has a significant impact on physical, psychological, metabolic and sexual health, and overall quality of life (Rhee et al., 2015). Men on ADT lose muscle mass and bone strength, are at greater risk of falls and bone fracture, and have an increased risk of diabetes and cardiovascular disease (Rhee et al., 2015). Moreover, reduction in testosterone causes loss of sexual function and libido, genital shrinkage, weight gain, hot flushes, night sweats, insomnia, growth of breast tissue and changes to mood and cognition (Edmunds et al., 2020a).

An estimated 30%–50% of men with prostate cancer will receive ADT at some stage in their treatment trajectory (Bolla et al., 2009), with men on ADT reporting severe decrements to quality of life, and poorer psychosocial outcomes when compared to other prostate cancer treatments (Donovan et al., 2015; Drummond et al., 2015; Paterson et al., 2017). Of particular concern men diagnosed with prostate cancer have a 70% increased risk of suicide compared to the general population, with

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men on ADT predictive of higher rates of distress and a three-fold greater risk of depression compared to other prostate cancer treatments (Chambers et al., 2019; Paterson et al., 2020; Thomas et al., 2018). Furthermore, men dealing with prostate cancer report a range of unmet supportive care needs which suggests a need for new approaches to holistically delivered survivorship care (Mazariego et al., 2020; Paterson et al., 2015).

Survivorship care is a key tenet of quality cancer care, prioritising wellbeing across the cancer trajectory, incorporating physical, psychological, social, emotional, financial and spiritual impacts of cancer (National Cancer Institute, 2019). A key component to survivorship care is the provision of evidence-based interventions designed to address the physical and psychological consequences of cancer diagnosis and treatment (Denlinger et al., 2014). While there is an abundance of literature describing the effects ADT has on physical, psychological and sexual wellbeing, men still report significant unmet educational, informational and psychosocial needs (Chambers et al., 2017; Nguyen et al., 2018; Paterson et al., 2020). Beyond the use of exercise interventions to mitigate ADT side effects (Edmunds et al., 2020b), there is limited evidence evaluating the effectiveness of survivorship interventions addressing the educational and psychosocial needs of men on ADT, and the impact ADT has on quality of life (Sara et al., 2024). Of those reported in the literature, interventions tend to either be psychological with a cognitive behaviour approach or educational with limited or no psychoeducation components. A recent systematic review of randomised controlled trials (Sara et al., 2024) reported only two interventions demonstrating a statistically significant improvement on health-related quality of life measures, one of which was powered for a pilot trial only and did not report effect size.

With increasing numbers of prostate cancer survivors predicted over the next two decades (James et al., 2024) there is an urgent need for evidence-informed survivorship interventions that incorporate psychoeducation and cognitive behavioural approaches, and aim to reduce the impact of ADT on physical and psychological health, and overall quality of life. A large, national effectiveness-implementation hybrid (type 1) trial (PCEssentials) was developed to determine the effectiveness of a nurse-led survivorship care intervention, relative to usual care, for improving health-related quality of life in men on ADT (Green et al., 2024). Early acceptability was tested through this sub-study which comprised two components; firstly, patient-reported outcome measures were collected at baseline, 3-months, and 6-months post-enrolment; secondly, a stand-alone qualitative exploratory study to explore early intervention acceptability was conducted. This paper reports the qualitative exploratory component of the sub-study.

2. Methods

Ethical approval for this study was obtained through the University of Southern Queensland Human Research Ethics Committee (HREC: H22REA002). Study reporting was guided by the Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist (Tong et al., 2007) and the study conforms to ethical standards set out in the Declaration of Helsinki (World Medical Association, 2001).

2.1. Study design

A qualitative exploratory study using the Theoretical Framework of Acceptability (TFA) (Sekhon et al., 2017) to assess the acceptability of a nurse-led psychoeducation intervention for men on ADT. The TFA encompasses seven constructs that assess intervention acceptability from the perspectives of those delivering the intervention and those receiving it (Textbox 1).

2.2. Intervention

The intervention ('program') encompassed a multi-session, telephone-based, men-centred, psychoeducation program that is grounded in a problem-solving approach (Table 1). It is underpinned by an existing prostate cancer survivorship essentials framework (Dunn et al., 2020a) ('Essentials Framework') guiding the provision of integrated quality survivorship care across six domains: personal agency, vigilance, care coordination, shared management, health promotion and advocacy, and evidence-based survivorship interventions.

Table 1
Program structure.

Session	Timing	Content
Session 1	Week 1	*Focuses on ADT education and preparedness for physical and psychological side effects using a problem solving and flexible approach.* • Distress Screen and agenda setting • Brief overview of 5-session program • ADT Education • Introduction to side effect management • Introduce Exercise • Resources and Tip Sheets • Next steps/homework
Session 2	2 weeks after Session 1	*Focuses on managing the physical and psychological impacts of ADT including stress managing and exercise strategies.* • Distress screen and agenda setting • Expand on managing physical and psychological impacts • Expand on Exercise • Resources and Tip Sheets • Next steps/homework
Session 3	2 weeks after Session 2	*Focuses on the impact of ADT on sexual wellbeing and intimacy.* • Distress screen and agenda setting • Sexual function and intimacy • Stress management techniques • Resources and Tip Sheets • Next steps/homework
Session 4	4 weeks after Session 3	*Focuses on survivorship, accessing support and tailored wellbeing strategies.* • Distress Screen and agenda setting • Coping strategies • Managing fatigue • Strategies for accessing support • Resources and Tip Sheets • 'My Wellbeing Plan' • Next steps and homework
Booster Session	12 weeks after session 4	*Focuses on concepts learned in sessions 1–4 and reinforces strategies for managing the physical and psychological impacts of ADT.* • Distress Screen and agenda setting • Check-in regarding Wellbeing Goals • Check-in regarding side effect management • Check-in regarding exercise/physical activity and social activity

ADT = Androgen Deprivation Therapy.

The program was designed in collaboration with a multidisciplinary and consumer working group, incorporating masculine values utilising problem-solving and coping strategies and goal-setting approaches (Folkman, 2008; Lazarus, 1984; Nezu et al., 1998). It was delivered by a specialist prostate cancer nurse ('the nurse') via telephone and involved four sessions staggered over 10 weeks, with a fifth booster session three months later. The intervention was manualised to ensure consistent delivery across sessions, and training of nurses occurred to enable delivery in a trial setting.

Sessions were approximately 45 min in length, included distress screening at the start of each session and incorporated components such as: information about the psychological, physical, and sexual impact of ADT; side effects and management strategies; exercise and dietary

advice; information about impact on sexual wellbeing and intimacy; self-management and coping strategies; survivorship care planning and goal setting; and problem solving. Participants received an onboarding kit prior to commencing the first session which contained pre-reading, specific resources relevant to the content planned for each session plus supplementary educational materials. The nurse has an identical copy of the onboarding kit to allow for mirroring of resources through the program. At the conclusion of each session the nurse has the option to provide additional tailored resources to participants to address any problems or specific topics of interest raised in the session. All men were also offered referral to a free exercise program.

2.3. Study setting and population

The study was undertaken in an established Australian specialist prostate cancer tele-nursing service, managed by the Prostate Cancer Foundation of Australia (PCFA). Study participants were men with a diagnosis of prostate cancer who: (i) were about to start or were within 3 months of commencing ADT; (ii) had a treatment plan for at least 12 months of continuous ADT; (iii) had no current psychiatric illness or history of head injury and/or dementia; and (iv) had no other concurrent cancer (excluding non-melanoma skin cancer).

2.4. Recruitment and data collection

Men were recruited through clinicians and prostate cancer specialist nurses in health centres nationally. Men were also able to self-refer through media promotion and the PCFA community networks. Men who consented to participate in the nurse-led survivorship program were invited to take part in a semi-structured interview on completion of the final ('booster') session to investigate their experiences undertaking the five-session program. The nurse delivering the program was also invited to participate in a semi-structured interview to explore acceptability from a clinician's perspective.

Interview questions (supplementary material S1) were informed by the TFA and underwent pilot testing by representatives from PCFA's consumer and health professional network. All interviews were undertaken within four weeks of men completing the booster session and occurred over an eight-month period between June 2023 and February 2024. Interviews were conducted by phone, audio-recorded and transcribed by an external transcription service. One researcher (NH), external to the Telenursing Service, with extensive qualitative interviewing experience, conducted the interviews with all participants providing written informed consent prior to participating.

2.5. Data analysis

All recordings were checked for accuracy through concurrently reading the transcripts and listening to the original audio recordings. Data familiarisation was obtained through multiple readings of the transcripts and the process of thematic analysis (Braun and Clarke, 2006). Preliminary coding was guided by the seven TFA constructs. Potential themes were identified inductively, both within the TFA constructs, and from collated data and preliminary codes. The preliminary themes and constructs were identified independently (SS, NH), and were refined collaboratively (SS, NH, SC, JD, VT).

3. Findings

A total of 19 participants took part in semi-structured interviews. All except two of the 20 men who completed the program in the sub-study, consented to taking part in a semi-structured interview. In addition, the nurse (n = 1) participated in a semi-structured interview within four weeks of the 20th man completing the program.

Men had a mean age of 71.6 (±9.3) years (range 53–85) with the majority diagnosed with locally advanced prostate cancer (44%, n = 8), and living in a metropolitan area (72%, n = 13) (refer Table 2). Interviews averaged 25 (±13) minutes (range 11–47).

Table 2
Demographics men on ADT.

Demographics			
		N = 18	**(100%)**
Age (years)	Mean (SD)	71.7 (±9.3)	
	Range	53–85	
Cancer stage	Localised	6	(33.3)
	Locally advanced	8	(44.4)
	Metastatic	3	(16.6)
	Unknown	1	(5.5)
Modified Monash Model [a]	MM1 (metro area)	13	(72.2)
	MM2 (regional centre)	2	(11.1)
	MM3 (large rural town)	2	(11.1)
	MM5 (small rural town)	1	(5.5)
Interview duration (minutes)	Mean (SD)	25	(±13)
	Range	11–47	

ADT = Androgen Deprivation Therapy; **MM** = Monash Model; **N** = number of participants; **SD** = Standard Deviation.

[a] Australian Government Department of Health (2024). Modified Monash Model. https://www.health.gov.au/topics/rural-health-workforce/classifications/mmm Accessed November 2024.

Findings are described for each TFA construct below. Quotes from men who completed the intervention are represented as (ID_00) and the specialist nurse who delivered the intervention is identified as (RN_01). Further quotes supporting each TFA construct are provided in Supplementary Material 2.

3.1. Affective attitude (how an individual feels about taking part in the intervention)

The vast majority of participants reported feeling positive and enthusiastic about participating when they first heard about the intervention, *'I was all for it … I was willing to help'* (ID_03). Meeting informational needs was a common driver for men, including learning about how ADT worked, why they were undergoing this type of treatment, what impact it could have on their physical and mental health, and how to manage side-effects. In addition to information, some men were looking specifically for support and advice:

> I suppose at the beginning of the program I was concentrating on staying alive … I did feel probably the need for support early … as it went on the program became part of my lifestyle (ID_15)

A desire to help others through research was a recurring theme, with these altruistic motives also confirmed by the intervention nurse. Interestingly, several men reported that they gained more from the study personally than they were expecting, including information that they had not been able to get from others in their healthcare experience.

> I was meant to be giving information to help others … [but] I got more out of this [program] myself than anyone else in this whole journey has given me so far. I've been very happy to be part of it … I'm just so pleased because it answered a lot of questions for me where other people weren't forthcoming … I was getting more than giving (ID_11)

3.2. Intervention coherence (the extent to which the participant understands the intervention and how the intervention works)

Men expressed a comprehensive understanding of what the program was designed to achieve and how it would work, including focusing on living well through and beyond treatment. Men described how the multi-session approach increased their knowledge and awareness about

the effects of ADT, including how to recognise and manage physical and psychological impacts, and where to go for further help and support.

> It was really about looking at people's survival and survivorship … the side effects of treatment … physical and mental wellness … the information you need so you can actually pick up on your own wellbeing … knowing what to look for within yourself. (ID_09)

In terms of knowledge acquisition to manage the adverse effects of ADT, men reported the program left them well-equipped to manage any issues ADT may cause. No men reported any information about managing ADT that they felt was missing. Knowledge was gained through nurse instruction, question and answer opportunities, and supplementary reading material.

> It was about clearer communication and better awareness … learning about prostate cancer and having more knowledge to fight the fight … more information about the side effects … it was about information, and balance, and the big picture now and into the future. (ID_04)

Men described the most helpful information in the management of adverse effects was advice related specifically to their individual side-effect profile (e.g. insomnia, hot flushes, fatigue, weight gain, loss of muscle strength). This included implementing preventative actions such as exercise and lifestyle changes to prevent loss of muscle mass and bone strength, and to minimise weight gain. They also valued help discerning between what is normal and what is not, and what side effects may be occurring due to treatments other than ADT *"… the nurse would say 'well this is normal, that is not normal, you should see your GP about that' … it helped"* (ID_02). Men noted the benefit of reinforcing key themes and messages through the sessions, and ongoing opportunities to ask the nurse questions in each session, plus signposting to additional resources and support services.

> A highlight of this program was to point me in the right direction … where to go and who to talk to at any point … the program left me in no doubt, if you've got a problem, this is what you do about it. (ID_12)

Men also found the supplementary reading material helpful in enhancing the education and support delivered by the nurse, and a valuable resource to refer back to. They enjoyed obtaining information *' … from different angles in different ways … it gives a better, fuller understanding of what is happening and why'* (ID_17). Men spoke highly of the structured program, appreciating session agendas, question and answer opportunities, homework activities, pre-reading, and commented on the benefit of repetition across sessions, *'The course cemented my knowledge, and then reinforced it … [the booster] was a conclusion to the whole program. It was all about reinforcing'* (ID_04).

The nurse reported that the program was logical, comprehensive and had clear goals. She applauded the utility and supportive nature of the intervention training program which inspired confidence and set the scene early in terms of establishing a therapeutic relationship with participants.

> The intentions of the program were clear, very early on … an intervention manual was provided and clearly set out … goals of the program … resources and references … how the intervention was to be delivered … the training … the preparation, the meetings, and the conversations that were held were very supportive and clear. (RN_01)

Both the nurse and men spoke to the effectiveness of having the same intervention nurse across all five sessions, which provided continuity and enhanced early development of trust and rapport with participants. The nurse felt that this enabled discussion of more personal or sensitive topics such as sexual wellbeing to be raised mid-way through the program, at a time that participants reported being more comfortable with the program and the nurse.

3.3. Self-efficacy (The participants confidence that they can perform the behaviours required to participate in the intervention)

Collectively men expressed a high degree of confidence participating in and completing the full program, with many describing a corresponding growth in their ability to manage their own health situation. They perceived the intervention to be authentic, felt a high degree of trust in the program content, quickly established a rapport with the nurse, and were confident in her knowledge to deliver the program and her skills to assess and monitor their physical and psychological health.

> I had no reason to doubt it from the very first phone call I had with the nurse … so easy to talk to and that set the pattern of it, she would ring some weeks later and it was just as though you spoke to her the other day and away you go … when you look at the overall journey there's ups and downs and things that apply one week and don't apply the next because you are having different symptoms. I was able to gain confidence, not get anxious about it. (ID_13)

Several program delivery factors were described by men as influencing their confidence to participate in the program. This included flexible appointment scheduling and the anonymity and ease of use offered by telephone-based delivery, *' … we can be more ourselves by phone … we just feel a bit more at ease'* (ID_10). Men appreciated the fact they could participate in the comfort and location of their choosing, *' … I liked the phone calls … at home with the fan on'* (ID_18), with opportunities to take a break in the case of bothersome urinary or bowel symptoms. No men described barriers to participation.

Overwhelmingly, men reported an increase in self-efficacy through the course of the program, with gains in personal agency maintained at the time of interview. Men appreciated the preventative care approach and felt empowered to be more pro-active in seeking help, describing a greater understanding of who and where they could go to access additional support and guidance relevant to their individual needs.

> [The nurse] suggested that I think about contacting the GP or other numbers she have me and I said 'well, yeah, I can tell you that once the session is over and it's time for me to contact them, I'll talk myself out of it, I'll find a way not to do it' … [the program] gave me the kick I needed … it sort of opened doors and prompted me to take things further, which is what I needed … One of the things I did after the program was I decided to find some more avenues of support … I joined a prostate cancer support group. I've been to a couple of their meetings now since we finished the sessions. (ID_02)

Men described improvements in lifestyle behaviours, *'Well I've stepped up my exercise, which is integral to my wellness … more conscious of my diet … [and] I'm very aware of the importance of mind, body health … a balanced lifestyle* (ID_04), and enhanced personal agency when communicating with other health professionals, such as requesting access to allied health professionals through a GP initiated healthcare plan or requesting services such as bone density testing. Some men were already involved in exercise programs, but several men took up the offer of enrolment in a virtual exercise physiology program and indicated their intention to continue.

> I've tried to keep doing the things they assured me would help me, like trying to maintain a level of fitness and also eating right as much as I can … I feel like everyone's working towards improving my situation so it's up to me to do my share. (ID_07)

Importantly men also described an increase in their self-awareness through the completion of course-related exercises and guidance from the nurse in relation to thought-feeling connections and understanding that thoughts trigger emotions: *' … I figured out that I probably wasn't coping … and just dealing with it on my own, which wasn't working'* (ID_02). Some men described a profound period of self-discovery as a consequence of thinking about and describing emotional thoughts and feelings. With the support of the nurse, they developed new coping skills

with some also looking upon the distress screening process as a way of monitoring their emotional and physical wellbeing, looking for opportunities to set goals to address self-identified problems and needs.

> The fact that I had to write down my emotional thoughts, that was a big learning curve for me … and then share them, and talk about them … that was an eye opener because I thought I had pretty good understanding of my emotional health, but the old saying, 'The test of the spirit is the storm', and I've gone through a stormy patch … constantly changing emotionally … and some of the things like the Wellbeing Plan has made me realise that I am a survivor now … so those little things … those are the diamonds because it makes you strong, it makes you powerful, it makes you informed. (ID_04)

Participants valued the strength of the therapeutic relationship with the nurse that enabled them to share emotions and thoughts they had not been able to previously discuss:

> It's a pretty lonely journey. It doesn't matter how close you are to a partner … it is good to actually share with somebody who's completely at arm's length … that was the biggest benefit for me … it just forces you to actually look a little bit more than superficially at where you were at physically and mentally … it's self-learning more than anything else … it's been really well managed and from a personal point of view I've found it quite beneficial. (ID_09)

Other men spoke of the high degree of trust they felt talking to the nurse, *'I was able to bring up anything and everything … it put my mind at ease … I felt I could ask her any questions and I could tell her anything'* (ID_01). This trust also facilitated discussion about the impact of ADT on sexual wellbeing, *' … we did talk about some intimate details … when it came to sexuality, we were very open'* (ID_13). For some men this did not mean they expected a solution, but they valued the opportunity to discuss it with someone who cared about the impact this had had on their overall quality of life, *' … having someone to talk to about what was going on was helpful … just being able to talk about it'* (ID_06). When asked whether there was any unhelpful information about managing adverse effects, a minority commented that the offer of a discussion in relation to sexual wellbeing was not helpful to them but appreciated that they were given the option as to whether they wanted this included *' … it just didn't apply to me at 83 … I just don't talk about these things like others do nowadays'* (ID_10).

Several described the value of goal-setting using 'My Wellbeing Plan', a survivorship care plan that utilises a tailored approach to support individual preferences and goals. It is designed to be owned and updated by men themselves, with support from their healthcare team when required. For some, being able to participate in goal setting provided hope and optimism for the future, *'I like the goals … goals are always going to happen but the goal posts change … really helpful that … spot on'* (ID_03).

The nurse felt that the program's preventative care approach, and focus on problem solving, aided growth in self-efficacy where men became, *' … aware of [the side effects], how to manage them … how to raise conversation with their treating health professional … that was very valuable'* (RN_01). The multi-session design enabled the nurse to revisit goals and priorities in subsequent sessions, aiding *' … discussion and developing of actions as part of the wellbeing plan'* (RN_01). The nurse observed incremental changes in personal agency as sessions progressed, and an increase in men's confidence to manage their own health issues. This included positive changes in personal agency such as enrolling in exercise programs and discussing other health issues with their General Practitioner or other members of their healthcare team.

> The number of times men said to me 'I hadn't considered that' or 'I hadn't thought about asking my doctor that question', and then to hear them come back the next call and say they had approached their doctor ….and sometimes they were really things that don't take long … it might have been about Vitamin D or calcium levels … but to see men adding that to their list, then seeing them have that level of agency and increasing their confidence about how and when to ask … you know there were just so many benefits. (RN_01)

3.4. Burden (The perceived amount of effort that is required to participate in the intervention)

When asked, men were unable to suggest any changes that would reduce the effort required to participate in the intervention, nor did they consider the effort they invested to be burdensome, *' … it wasn't an inconvenience, it was something to look forward to … someone to talk to'* (ID_02). Similarly, men were grateful that they were participating in a program where the nurse was checking in on them, *'I'm damn lucky that someone is showing an interest in me … checking up on me … making sure I'm a-ok'* (ID_07).

In relation to pre-reading and homework, men commented that this was straightforward, took little effort, and prompted a degree of self-reflection in preparation for the next session.

> It wasn't an inconvenience … I did read what I was needed to read, I thought about responses to the questions … it required some effort, but it was worthwhile because I was the beneficiary. I was doing the reading and pondering on it all for my own benefit, and that was helpful for sure. (ID_13)

3.5. Opportunity costs (The extent to which benefits, profits or values must be given up to engage in the intervention)

None of the participants felt they had to give up or miss out on anything to take part in the program. They appreciated the portability of phone-based delivery and having flexibility with session appointments so they could be scheduled around other personal, business and treatment commitments, *'I knew there was time available and those times suited … and we even changed it around a bit … I went over and visited my kids over East, I took all the books with me. (ID_03)*.

3.6. Ethicality (The extent to which the intervention has a good fit with the individual's values system)

Men expressed the view that the program was a sound fit with their personal needs and individual values. They described benefits in terms of gaining knowledge and guidance so they could recognise and communicate issues affecting them personally and felt reassured that they were not alone while dealing with prostate cancer.

> I was shattered mentally, just shipwrecked … I felt isolated … I didn't want to speak honestly about how I was … thinking that others would think I was just complaining, but it was confirmed for me, no you're not, this is normal. And that made me feel better … in the end I was probably a bit more honest with [the nurse] … I could be very open with how I was feeling, and why I was feeling a certain way … [the nurse] helped me walk through that and made me understand things like no one else did … I could discuss things that I've never discussed anywhere with anyone because of how it was structured and how she made me feel (ID_11)

Similarly, the nurse perceived the program to be a good fit with her own professional values.

> The intervention was comprehensive … and aligned with how I frame conversations as a prostate cancer nurse … we usually start with that building of rapport, and then checking the person's level of distress and the key contributing factors …. that was the structure in the manual … it was really integral to that sense of confidence to deliver it. (RN_01)

There was a strong theme expressed by the men about the value of

acknowledging and sharing personal feelings with the nurse, who they felt they could trust, ' … *talking helped clarify things … to someone who knows what you're going through'* (ID_05). They described situations where they had been hesitant to raise personal thoughts and emotions with friends and family but felt they could talk openly with the nurse.

> One thing I've been frightened to do is talk about anything … I'll start talking, some guys … they say 'well, there's too much information' … so in a way, [the program] has opened me up a fair bit too, and I don't hold anything back now. (ID_03)

Men commented that they felt the program, and the nurse provided a safe, comfortable, and trusted space in which to learn and to grow, *' … it's been a pleasure and a blessing and a help … with a person that understands what guys like me are going through'* (ID_13). They liked the fact that the nurse was going to call them regularly as part of the program, and described the trust and confidence created by the therapeutic relationship, *'I found it easy to work through … very helpful … and sometimes it was just that voice at the end of the phone'* (ID_16).

3.7. Perceived effectiveness (The extent to which the intervention is perceived as likely to achieve its purpose)

Men described the intervention as highly acceptable and effective in improving their knowledge and understanding of what ADT does, why they have been prescribed it, and the impact ADT can have on their physical, psychological, and sexual health. Men felt better equipped to identify and manage side-effects when they occurred and had a greater understanding of where they could obtain additional help and support services if needed. The nurse also considered the intervention to be well accepted, with notable growth in participants' levels of trust, engagement and personal agency as the sessions progressed.

> I can see [the program] moving forward as a dedicated service. I think men would engage with the service because of the way it's delivered …. there were just so many benefits, so I think to have this as part of the suite of support that's available to men with prostate cancer … this is life changing. (RN_01)

Importantly, men highlighted the therapeutic benefit the program had on better understanding their psychological well-being and the subsequent personal growth that came from that.

> I think the best part about it overall … in all the stuff that we discussed … it was nice to know that I didn't need to feel that I was a weak man … my feelings were validated … normalised … I could be very open with the [program nurse], I could discuss things that I've never discussed anywhere with anyone because of how it was structured and how she made me feel. (ID_11)

Men also spoke favourably about the design, structure, and timing of the program, with staggered sessions across a five-month period which they acknowledged to be a key driver of effectiveness.

> I reckon the programme set-out is just so well-structured … it all worked well … it was a bit of an eye-opener too … The steps were in the right order, every time we had a new session, I was learning something new, and it was all good … I reckon the whole structure of the programme was awesome, I would not change a thing. (ID_14)

Men liked the session length and felt that having the first two sessions spaced closer together built foundational knowledge and a valued rapport with the nurse. Staggering subsequent sessions at increasing intervals helped when *' … you're feeling a bit more on top of things … and you've got a lot more knowledge'* (ID_02). Moreover, men felt that increasing gaps between sessions gave them time to absorb knowledge from the previous session and opportunity for reflection and preparation for the next one. The nurse also highlighted the utility of the structured, multi-session design and appreciated the guidance the intervention manual provided in terms of timing, agenda, and content. Importantly she felt that the intervention allowed for flexibility so that *' … through identifying their key concerns, I was bringing together what was needed to address these … remaining client centred'* (RN_01).

In addition, men commented on the quality of the content and resources, *'I've read all the books, they're good, I'm going back and looking up stuff and writing it down'* (ID_18). Further, the quality of resources played a key factor for the nurse, *' … we had all the resources at our fingertips … and I had men who were circling and highlighting and bookmarking … so that showed me that these resources were really meeting their needs.* (RN_01). The nurse also stressed the importance of mirrored resources where men and the intervention nurse could view the same resource simultaneously, which she felt was *' … incredibly beneficial … to navigate together … it was almost like collaborating with the man* (RN_01). Similarly, men appreciated the benefits of having set homework reinforcing session themes:

> When I look back … the homework consistently causes you to read and think about it and gain understanding … then talking to [the nurse] reinforces it and so forth. I'm very confident that it made the journey much more easy to accept than it would've been had I just gone along by myself … having a listening ear … it gives you a bit of reassurance along the way … I came away feeling more confident. (ID_13)

Men expressed views that telephone was the best mode of delivery in terms of convenience, comfort, and ease of scheduling, ' … *phone is best … most men would not be keen to do a videoconference, especially talking about erectile dysfunction, because you don't have to look at anyone (ID_15)*. Phone delivery reduced travel burden, offered flexibility in scheduling, especially when dealing with multiple medical appointments, and convenience in the case of troublesome side effects requiring mid-session toilet breaks. Similarly, the nurse felt that telephone delivery was accessible, flexible, and acceptable. Of note, several men commented favourably of the anonymity they felt telephone delivery offered, giving them the confidence to discuss personal topics by phone that they would not have felt comfortable to do in a face-to-face setting.

> The phone's good … one-on-one on the phone … I'd probably be reluctant to go and face up in person … I'm a relatively shy person, on the phone is easier. (ID_08)

When asked to reflect on whether any improvements could be made to the program, a small number suggested additional sessions timed for *' … near the end of their ADT treatment'* (ID_12), or a second 'booster' session *' … later down the track … I'd love to get a phone call in* 12 months*'* (ID_16). One man suggested allocating a session where partners could attend*, 'I think openness is a big deal … I've got a rough idea of what my wife thinks, but she should be able to express this … because she is living with it too'* (ID_01).

Feasibility was high, both from the nurse's perspective delivering the intervention, and from the perspective of the men who participated in the program:

> … based on the feedback I was receiving from the participants, the feasibility seems very high. From the perspective of a nurse delivering the sessions, here are a number of things I can see with this lens … it is accessible … it doesn't matter where the man lives … it doesn't matter where the nurse is located … because of the way it is delivered ….it enables healthcare professionals to reach more men because you're not needing to be in a number of centres, on the road travelling ….you can run a number of sessions per day so lots of benefits ….men really appreciated that convenience of being called. (RN_01)

4. Discussion

Acceptability of this nurse-led survivorship program for men on ADT was excellent across all constructs of the Theoretical Framework of Acceptability (Sekhon et al., 2017), and particularly strong in the

domains of ethicality and self-efficacy. Men reported experiencing increases in knowledge and understanding about the mode of action and impact of ADT on physical, psychological, and sexual wellbeing, and in their understanding of how to identify and proactively manage side-effects. In addition, the program increased self-efficacy and personal agency. Participants described negligible burden in participating in the program and felt that any effort required to take part was outweighed by personal gain.

From participants' feedback it was apparent that the program's appeal lay across two core elements. First, the quality of design, personalised multi-session approach, flexibility, and acceptability of resources. Second, the therapeutic relationship with the nurse. The telephone as mode of delivery was also important with many men preferring the convenience and anonymity the telephone offered as opposed to a face-to-face consultation, especially when discussing sensitive or personal issues and concerns. Telephone-delivered sessions ensured equitable access for men who live in regional areas or locations without reliable internet access. Telephone delivery also has convenience and cost-effectiveness advantages when considering scalability options, in alignment with other literature findings in relation to nurse delivered telehealth programs (Cox et al., 2017; Dasgupta et al., 2019; Heneka et al., 2023).

The program was designed utilising a men-centred approach with a focus on structured problem-solving, goal-setting and help-seeking strategies, which align with common male responses to stress such as stoicism, self-reliance, knowledge-seeking, and limiting expression of emotions (Chambers et al., 2017; Goodwin et al., 2020). Programs that incorporate a gender-centric methodology, taking into account the role of masculine behaviours and needs, have been shown to deliver higher participation rates and levels of engagement (Montiel et al., 2024) (Galdas et al., 2023). Underpinning the program with masculine values that reflect men's coping styles and help-seeking, resonated with participants and was central to the success of the program. The nurse viewed the program as a valuable addition to the prostate cancer nursing service and felt that the structured guidelines for delivery, validated assessment tools, flexibility in terms of content and scheduling, and continuity of nurse had a positive influence on clinician acceptability.

It is important to highlight the value of the therapeutic relationship between the nurse and the men and the acceptability of the nurse as deliverer of survivorship care. The development of trust and rapport facilitated personalised care centred on men's individual values and enhanced program engagement. Men spoke highly of the sense of connection they felt with the nurse and how comfortable it made them feel when discussing personal issues, especially those they would hesitate to discuss with others. Having the same nurse deliver each session, and the privacy of delivering the program by phone were also contributing factors. Similarly, the nurse felt that establishing a strong therapeutic relationship early led to discussions that felt collaborative in nature providing men with confidence to navigate and actively participate in each session.

The quality of the relationship between patients and health professionals is associated with greater quality of life in people with advanced cancer (Thomas et al., 2021) and also when caring for men undergoing other types of prostate cancer treatment (Orom et al., 2014). Men clearly placed a high value on the strength of the therapeutic relationship with the nurse. It enhanced knowledge acquisition, and their ability to learn and apply problem solving and coping skills. Men confirmed that they had put their newly learned skills and knowledge to good use since completing the program and were able to better navigate their own health situation.

Men with prostate cancer report significant unmet needs and have higher rates of anxiety and depression when compared to the general population (Dunn et al., 2020b; Paterson et al., 2017). Supported by the strength of the therapeutic relationship, men described improved self-efficacy, and growth in personal agency as a result of the program. Several men described entering the program with unmet informational, psychosocial, and supportive care needs with several men not even aware of the type of ADT they had been prescribed or the expected duration of treatment.

While distress screening in prostate cancer is already recommended as best practice (Chambers et al., 2019) it became evident in the study that many participants had not undergone previous distress screening elsewhere. Distress screening and utilisation of the survivorship care plan, important components of the program, were shown to facilitate identification of each man's individual needs, so that the nurse could tailor educational content and support and facilitate psychological interventions to address personal, informational, and supportive care needs. Men described feeling informed and empowered to actively participate in, and make changes to their health situation, with the goal of reducing the impact ADT has on their quality of life and wellbeing in the longer term.

4.1. Implications for clinical practice

It is important that nurse-led interventions implemented in cancer settings have a high degree of acceptability, both in terms of the nurse delivering the intervention and the participants receiving it, if they are to be considered successful. While these are early preliminary findings from an ongoing trial, acceptability of this program was high across all constructs, with all sub-study participants completing the program. Men had equitable access to the program, irrespective of location, insurance status, or stage of disease and there were clear advantages in terms of cost and convenience by using a telephone mode of delivery. At this stage, participation in this nurse-led psychoeducation survivorship program has been shown to enhance personal agency, provide men with the confidence and tools they need to recognise and manage treatment-related side-effects, and allowed them to seek timely additional support where needed.

Education about the impact ADT will have on a man's life cannot adequately be provided by a health professional in a single consultation, nor by the provision of a pamphlet or booklet alone. Learning about the mode of action and psychological, physical, and sexual side-effects of ADT, and understanding potential preventative strategies to manage these is unlikely to be achieved in a one-session, one size fits all consultation. However, specialist prostate cancer nurses are uniquely positioned to lead survivorship care through the delivery of nurse-led, men-centred, evidence-informed survivorship programs providing education, personalised care, self-management strategies, and sign-posting to additional services and community supports (Sara et al., 2023; Soon-Rim Suh and Lee, 2017). The larger, national effectiveness-implementation hybrid (type 1) trial (PCEssentials) (Green et al., 2024) will determine the effectiveness of the nurse-led survivorship care intervention, relative to usual care, for improving health-related quality of life in men on ADT, and evaluate outcomes such as cost-effectiveness, appropriateness, feasibility, penetration and sustainability. These important measures will further inform implementation strategies and scalability.

4.2. Study limitations

While the sample size for this study was small, there are promising preliminary findings about the acceptability and implementation potential for this intervention. Findings are specific to an already established national Telehealth setting which may limit generalisability to local health service settings without existing infrastructure.

5. Conclusions

For men with high risk prostate cancer, ADT is effective in slowing prostate cancer progression and increasing survival. However, for many men ADT brings with it severe decrements to physical and psychological health and overall quality of life. With limited evidence in the literature

of interventions that effectively address the decrements of ADT on physical, psychological, and sexual health, this study has provided important insights into the acceptability of a nurse-led survivorship care program designed to address this gap. Our findings suggest that delivery of a multi-session psychoeducation program by telephone is highly acceptable to participants, and to the nurse delivering it.

CRediT authorship contribution statement

Sally A.M. Sara: Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Conceptualization. **Nicole Heneka:** Writing – review & editing, Validation, Supervision, Methodology, Investigation, Formal analysis, Conceptualization. **Suzanne K. Chambers:** Writing – review & editing, Supervision, Methodology, Formal analysis, Conceptualization. **Jeff Dunn:** Writing – review & editing, Supervision, Methodology, Formal analysis, Conceptualization. **Victoria R. Terry:** Writing – review & editing, Supervision, Methodology, Formal analysis, Conceptualization.

Declaration of competing interest

The authors have no conflicts of interest to declare.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ejon.2025.102836.

Text box 1
Theoretical Framework of Acceptability (Sekhon et al., 2017) constructs for evaluation of the nurse-led survivorship intervention

1. **Affective attitude:** how did the participant feel about taking part in the nurse-led survivorship intervention?
2. **Intervention Coherence:** to what extent did the participant understand the intervention and how it works?
3. **Self-efficacy:** How confident was the participant that they could do what was needed to participate in (take part of deliver) the intervention?
4. **Burden:** how much effort was required to participate in or deliver the intervention?
5. **Opportunity costs:** did participants feel they had to give up anything to participate in or deliver the intervention?
6. **Ethicality:** was the intervention a good fit with the participants' value system?
7. **Perceived effectiveness:** how effective was the intervention?

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