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Title:
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Date:
2025-05-01

Citation:
King, A. J., Phillips, T. R., Plummer, E. L., Wild, N., Fairley, C. K., Chow, E. P. F., Vodstrcil, L. A. & Bradshaw, C. S. (2025). Getting Everyone on Board to Break the Cycle of Bacterial Vaginosis (BV) Recurrence: A Qualitative Study of Partner Treatment for BV. Patient, 18 (3), pp.279-290. https://doi.org/10.1007/s40271-025-00731-z.

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The Patient - Patient-Centered Outcomes Research (2025) 18:279–290
https://doi.org/10.1007/s40271-025-00731-z

ORIGINAL RESEARCH ARTICLE

Getting Everyone on Board to Break the Cycle of Bacterial Vaginosis (BV) Recurrence: A Qualitative Study of Partner Treatment for BV

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Accepted: 27 January 2025 / Published online: 14 March 2025
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Abstract

Introduction Bacterial vaginosis (BV) is a common condition that affects the sexual wellbeing of women and other people with a vagina. Recurrence following individual treatment is frequent and exerts a cumulative burden over time. Researchers at the Melbourne Sexual Health Center have recently completed the first successful trial of male partner treatment (MPT) for BV, demonstrating the superior effectiveness of concurrent MPT in reducing recurrence.

Method Using a case study design, semi-structured interviews with trial participants explored the views and experiences of nine men who had received MPT and nine women whose partners had received MPT. Action and emotion coding were employed to create an explanatory model of experiences of BV recurrence and MPT.

Results Three key themes within this model related to the cycle of recurrent BV: the physical, psychological, and relationship impacts of BV (“experiencing BV”); the importance of healthcare providers exploring different options and understanding individual context (“seeking care”); and the frustration, cost, and inconvenience of individual treatment (“dealing with it alone”). This cycle was broken by “Getting everyone on board” with MPT. This involved women, men, and healthcare professionals understanding BV and MPT, overcoming barriers to access, and open communication between partners. These factors, in combination, resulted in couples “dealing with BV together”, undertaking a week of inconvenience to share the responsibility of preventing recurrence.

Conclusion These findings suggest that the widescale adoption of MPT for BV will require multilevel approaches to address gaps in the awareness of BV with sensitivity to the relational, social, and structural context of delivering care.

Key Points for Decision Makers

Recurrent bacterial vaginosis exerts a cumulative physical, emotional, and relationship burden on women and other people with vaginas and their regular sexual partners.

Partner treatment was well tolerated by men who wished to support their partner’s physical and emotional wellbeing and their mutual sexual wellbeing.

Promotion of partner treatment by healthcare professionals requires sensitivity to individual factors that have an impact on acceptability and adherence and the provision of evidence-based patient information to support decision-making.

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1 Introduction

Bacterial vaginosis (BV) is a common vaginal condition that affects 30% of women and other people with a vagina globally [1]. It is caused by a shift in the composition of the vaginal microbiota from one dominated by optimal *Lactobacillus* spp. to one consisting of diverse, strict, and facultative anaerobic bacteria [2, 3]. Symptoms can include vaginal malodor and a homogenous thin discharge, impacting individuals' health and wellbeing [4]. BV has been associated with increased risk of preterm birth [5], pelvic inflammatory disease, and endometritis [1], sexually transmitted infections (STIs) [6, 7], and HIV acquisition [8, 9] and transmission [10]. Treatment with antibiotics is recommended, but more than 50% of people experience BV recurrence within 6 months of individual treatment [11]. Although the onset and recurrence of BV may be associated with factors other than sexual contact, recurrence of BV is associated with ongoing exposure to untreated sexual partners [12]. Furthermore, the risk of BV recurrence among women with an ongoing partner is 2- to 3-fold higher than among those without a partner [11, 13]: recurrence of BV in women with an ongoing partner is reported to be > 60–80% [11, 14]. These data support the notion that reinfection from an untreated sexual partner may be a key driver of post-treatment recurrence. Qualitative studies further support the role of sexual contact in the onset and recurrence of BV symptoms [15, 16].

Researchers at the Melbourne Sexual Health Center (MSHC) have recently completed the first successful randomized controlled trial of male partner treatment (MPT) to improve BV cure (hereafter referred to as "the StepUp trial"; Australian and New Zealand Clinical Trial Registry: ACTRN12619000196145) [17, 18]. Male partners of women with BV were treated concurrently with combination therapy consisting of oral and topical antibiotics. Specifically, the intervention regimen consisted of oral metronidazole 400 mg twice daily and 2% clindamycin cream applied twice daily to the glans, sub-preputial space, and upper shaft of the penis, each for 7 days. This strategy significantly improved cure for female partners with BV over a 3-month period compared with the current standard practice of only treating women (i.e., individual treatment). The findings of the StepUp trial represent a leap forward in our understanding of BV and its treatment. However, previous qualitative research with men undertaking MPT suggested potential barriers to MPT uptake, including the perception of BV as a "lady problem," relationship status, masculine norms relating to illness, and STI-related stigma [19].

In light of the StepUp trial findings, this study aimed to explore the resources needed to support the implementation of MPT for BV from the perspectives of people enrolled in the StepUp trial who had participated in MPT. The primary objective of the study was to inform the development of information resources for people experiencing BV and their partners. A secondary objective was to make recommendations for healthcare providers and the wider implementation of MPT in clinical practice.

2 Methods

This manuscript was prepared with reference to the *Consolidated Criteria for Reporting Qualitative Studies* [20] (Supplement 1 in the electronic supplementary material [ESM]). Please note, the term "male partner treatment," or MPT in this paper refers to the treatment of a person with a penis, whose regular sexual partner has been diagnosed with BV. All participants in this study were cisgender men and women, so the terms "women" and "men" are used for participants throughout; we acknowledge that not all people diagnosed with BV and their partners will identify with these terms.

2.1 Research Design

This qualitative study used a case study design [21, 22] to compare the experiences of women affected by BV and their partners. A social constructionist paradigm informed our understanding of the uptake of MPT, as shaped by factors such as access to health information and care, gender roles, and stigma. AK is a cisgender female, PhD-qualified research fellow with an interest in lived experience of healthcare as a resource for improving health outcomes. The research was designed in collaboration with researchers who conducted the StepUp trial (CB, LV, EP), another with experience in qualitative sexual health research, and consumer advisors who had participated in the StepUp trial. Consumer advisors reviewed study materials and provided feedback that resulted in changes to the recruitment strategy, participant information, and interview questions.

2.2 Recruitment and Sampling

MSHC is a large, publicly funded sexual health service in metropolitan Melbourne, Australia. The service provides free sexual health care in approximately 60,000 consultations per year. A co-located research center employs the team of sexual health researchers who conducted the StepUp trial and this research.

Participants were recruited from among previous participants in the StepUp trial. Full eligibility criteria for the StepUp trial are published [17, 18]. In brief, women and other people with vaginas were eligible for the StepUp

trial if they were diagnosed with BV at a trial site (sexual health or family planning service) and were in an exclusive sexual relationship at the time of diagnosis with a man or other person with a penis who was willing to participate in the trial. Males were referred to the trial team and were further eligible if they confirmed that they had no additional partners and had no contraindications to therapy.

Researchers conducting the StepUp trial (LV, ND) provided AK with the contact details of recent male StepUp participants who had received MPT, and female participants whose partners had received MPT, and had consented to being contacted for further research. Contact details were provided in batches of approximately 10 participants at a time, beginning with the most recent participants and working backwards, until recruitment was ceased. Purposive sampling was used to ensure a balance of male and female participants and a mix of participants who had and had not experienced recurrence following MPT. Potential participants remained eligible even if their partner was unwilling or unable to participate.

AK contacted potential participants via SMS and email. Those who responded were then contacted by telephone or called AK directly. During this conversation, AK provided an overview of the study, answered questions, and scheduled an interview. Participants were emailed participant information, draft patient information resources on BV and MPT (Supplement 2 and 3 in the ESM), and interview questions (Supplement 4 and 5 in the ESM). Participants were asked to review the participant information and patient information resources before the interview and were advised that they could withdraw if they did not wish to proceed.

2.3 Data Collection

AK conducted individual semi-structured interviews from June to August 2024 via the participant's choice of telephone, videoconference, or in person at MSHC. A demographic questionnaire (Supplement 6 in the ESM) was administered before the interview. Participants were informed of AK's research interests and that she is not a sexual health clinician. AK was not known to the participants before the research or involved in their clinical care. Two male participants chose to participate while their female partner was present. No repeat interviews were conducted.

During the interview, all participants were invited to provide feedback on draft versions of two patient information resources for MPT. The first, targeted at couples, was developed to summarize the supporting evidence for MPT and provide an overview of what the treatment involves (Supplement 2 in the ESM). The second, targeted at men and other people with a penis, was developed to provide medication instructions for MPT (Supplement 3 in the ESM). The revised versions of this information, including additional resources suggested by participants, are now available via the MSHC website (https://www.mshc.org.au/Bacterial-vaginosis-in-focus).

Interviews were audio recorded and transcribed by an Australian-based transcription service. AK checked the completed transcripts for accuracy, and identifying autobiographical information was removed. AK documented field notes after each interview [23]. One participant requested a transcript, and an interview summary was sent once initial coding was completed to participants who requested it (n = 15). No changes were suggested.

2.4 Data Analysis

Interview transcripts were uploaded to NVivo 20 Software (QSR International) and manually coded by AK, using action, emotion, and descriptive coding [24]. Action coding involved the allocation of phrases beginning with gerunds (-ing words) to sections of text relating to participants' thought processes and actions when seeking information and care for BV. Emotion coding was used to identify the explicit and implicit emotional context of participants' experiences. Descriptive coding was used to capture participant suggestions regarding the content and formatting of patient information resources. Codes were derived inductively from the data, and pattern codes were used to group similar codes through a constant comparison [24]. Reflective action and emotion coding memos were written for each interview.

Data analysis occurred concurrently to data collection to monitor for saturation of meaning derived from interviews. A map of key concepts was produced after six interviews had been analyzed and was progressively refined at 12 and 18 interviews [25, 26]. AK met with TP, CB, and LV to review the concept maps; at 18 interviews, it was agreed to cease recruitment, after no new concepts were identified in the last two interviews. TP also reviewed the interview transcripts, coding memos, interview summaries from four participants' interviews (two women and two men) and the codebook, and provided feedback that was incorporated into the analysis.

A final stage of analysis involved grouping pattern codes related to each of the concepts in the concept map into coding sets in NVivo. The data within each set were then re-reviewed to produce the concept descriptions [25] provided in the results (see Supplement 7 in the ESM for example). Minor changes were made to the concept map throughout this process to produce the explanatory model shown in the results.

2.5 Ethical Review and Consent

Ethics approval was obtained from Alfred Hospital Ethics Committee, Melbourne, Australia (approval no. 231-24).

Written participant information was provided before interviews, and informed consent was confirmed verbally (for phone or Zoom interviews) or in writing. Research data were de-identified and accessible only to researchers named on the ethics application. Participants received financial reimbursement of $50AUD (as an e-gift voucher) for their time.

3 Results

3.1 Participant Characteristics

Of 38 StepUp participants contacted, 23 responded. Of these, three were unable to be re-contacted, one did not wish to go ahead, and another cancelled because of other commitments. No participants withdrew after providing consent. In total, 18 remaining individuals participated in an interview of 28–61 min duration (mean 43) via phone (n = 12), videoconference (n = 5), and in person (n = 1). Within this group, four couples (n = 8) who had received treatment together participated in individual interviews. The intervening period between treatment and interview was 2–16 months. Further characteristics of those who were interviewed are summarized in Table 1.

Table 1 Participant characteristics (n = 18)

Participant characteristics	No. of participants
Age groups, years	
18–24	3
25–34	10
35–44	5
Gender identity[a]	
Woman or female	9
Man or male	9
Non-binary	0
Different term	0
Recorded sex at birth	
Female	9
Male	9
Sexual identity[a]	
Straight (heterosexual)	11
Gay or lesbian	0
Bisexual	4
I use a different term	1
Do not know	2
Region of birth	
Australia	12
United Kingdom	2
South America	2
Southeast Europe	1
Southern Asia	1
Years in Australia	
Born in Australia	12
≥ 5 years	2
< 5 years	5
Aboriginal or Torres Strait Islander	
Aboriginal	0
Torres Strait Islander	0
Both	0
Neither	18
Recurrence of bacterial vaginosis after male partner treatment	
Yes	6[b]
No	12

[a]Participant reported

[b]Including men whose partners experienced recurrence (n = 3) and women who experienced recurrence with a new partner (n = 1)

3.2 Perspectives on BV and Male Partner Treatment

Participants' experiences of BV recurrence and MPT are summarized in Fig. 1. In brief, experiencing BV had physical, emotional, and relationship impacts for women and their partners. Women's experiences and views on seeking care for recurrent BV identified the importance of exploring options available to them and considering their individual context. Failure of individual treatment resulted in increasing frustration, cost, and inconvenience for women, further contributing to the burden on women and their partners. Couples who were offered MPT wanted evidence-based information about the causes of BV and the likelihood of recurrence with individual and partner treatment. Open communication between partners and overcoming barriers to access supported men's uptake of MPT. Further description of these themes and sub-themes with exemplary quotes are provided in the following sections. Participant names are pseudonyms.

3.2.1 Experiencing BV

Participants reported physical, emotional, and relationship impacts of BV, which worsened with repeated episodes. For women, physical impacts included uncomfortable symptoms such as malodor, changes in vaginal discharge, persistent discomfort and pain, pain during and after sex, and bleeding after sex. Although many men experienced no symptoms themselves, some reported sensitivity, odor, and penile skin changes, which did not prompt them to seek medical advice independently. One female misattributed symptoms of itching to BV, in the context of a concurrent candidiasis infection. Her partner and one other male participant also reported itching, likely attributable to candidiasis, although this could not be confirmed. Women and their partners noted impacts on women's wellbeing associated with repeated

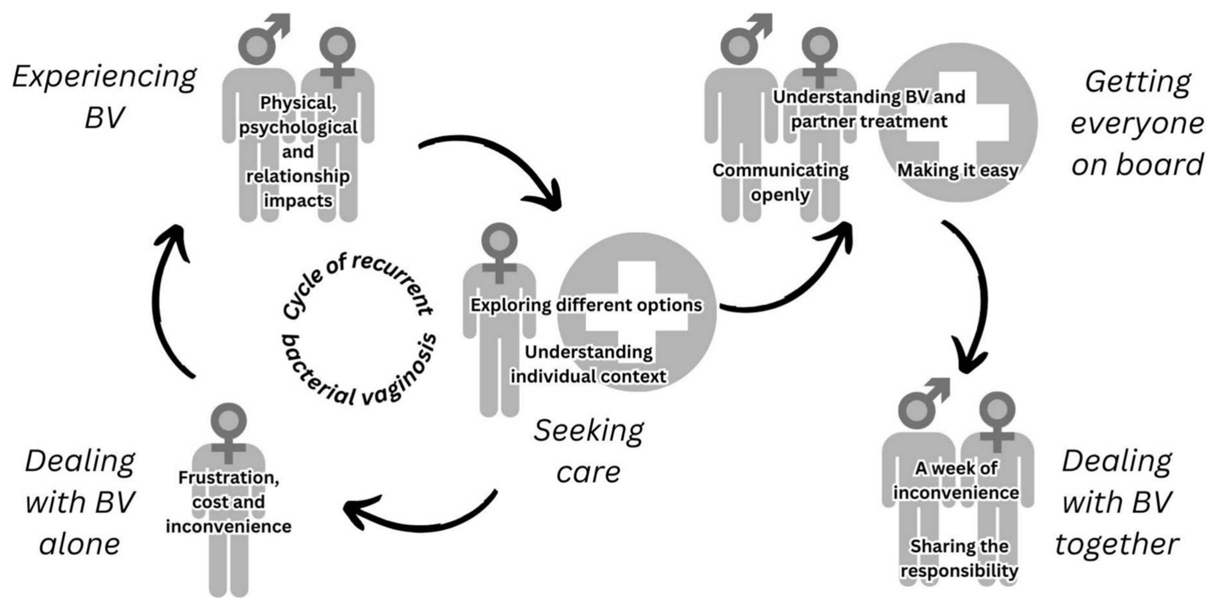

Fig. 1 Explanatory model of experiences of bacterial vaginosis (BV) recurrence and male partner treatment derived from concept maps (n = 18)

infections and multiple courses of individual antibiotic treatment.

Physical symptoms of BV in women prompted feelings of embarrassment and reduced their desire to engage in sex.

> It's not a nice feeling when you have a smelling vagina and it has impacts on your sex life, it impacts on your confidence. I was just like; I hope I'm not going to get chronic BV ... It's not the life I want to be living. (Ana)

Both women and men noted the impact on their sexual relationship, which sometimes led to "strain" and conflict.

> It was affecting my relationship. My boyfriend was so good about it … He was like, "It doesn't make me think any different of you, babe. It's fine." But, especially as a woman, sex is very much in your head, and you have to be feeling good within yourself … I think it makes him feel like I'm not attracted to him … he's like, "Why are you never in the mood?" or "Why do you turn me down?"… Literally, the tears that have been shed over this – my God. (Taylor)

3.2.2 Seeking Care

Women reported actively seeking resolution of their BV symptoms with mixed results. Their experiences suggest considerations for healthcare professionals providing care to people with BV and their partners, represented by the subthemes of "exploring different options" and "understanding individual context".

Key to positive experiences of care were healthcare professionals who supported women by exploring different options to repeated individual antibiotic treatment. Before MPT became available to them through the StepUp trial, women actively sought alternatives.

> Once I got to the fourth round of antibiotics, I pretty much demanded a referral to the Royal Women's [outpatient clinic] and wasn't going to leave until I got one … [The clinic doctors and I] discussed some options that I hadn't heard of before. I went on to do those options. (Nicole)

Being offered MPT, as part of the StepUp trial, was a welcome alternative to repeated individual treatment. Several participants felt that all people diagnosed with BV should be made aware of evidence supporting MPT, regardless of whether they had experienced recurrence or were in an exclusive relationship.

> I think if a woman tests positive, it should be mentioned … It's definitely easier if they're in a relationship because they can just go home and speak to their partner. But I think it should be mentioned to everyone, regardless. Even if it's just a QR code that they can read and go through and it explains those things. (Zach)

Participants felt it important that women knew what other options were available to them should their partner be unwilling to undertake the treatment, they did not feel safe raising it with them, or where they experienced recurrence after MPT. Those who experienced recurrence of BV after

MPT appreciated exploring alternative individual treatments and advice on what they could do to support a healthy vaginal or penile microbiome (e.g., avoiding synthetic and close-fitting clothing, male circumcision) and prevent partner-to-partner transmission (e.g., using condoms). Awareness of available options provided women with a sense of agency and safety.

Healthcare professionals "understanding individual context", disclosed and undisclosed, of women and their partners, was important in considering factors affecting the acceptability or outcome of MPT. Women's feelings of embarrassment and men's unwillingness to undertake treatment were raised as potential barriers to MPT. Women noted that they were able to discuss MPT with their partner because of the dynamic of their current relationship, contrasting this with past relationships or those of their peers.

> I had a pretty understanding partner … but I feel like I'm more of an exception to the … How am I going to say this? I know there's a lot of straight men, as someone who has dated them, that … I remember thinking that, in the past, if I had tried to do this with previous partners, it might not have been a supportive approach in doing it. (Georgia)

Participants also noted the potential implications of describing BV as sexually transmitted in relationships where trust was lacking or intimate partner violence was a risk.

> You wonder how that might be received by the partner, especially considering we're going "Oh, partner treatment, BV." You know, someone might think that's an STI. If you're in an unsafe relationship that potentially "Oh, where did you get this from? Who are you sleeping with?", you know, rah, rah, rah. Like, I could see how this could be really taken the wrong way. (Chloe)

Other factors highlighted by participants that healthcare professionals should be aware of were past adverse reactions to medications, alcohol dependence, and mental health concerns exacerbated by BV. Participants felt that opportunities for men to discuss concerns directly with healthcare professionals were helpful.

3.2.3 Dealing with BV Alone

Women who undertook individual treatment for BV bore the burden of BV recurrence: "All treatments that I tried up until the StepUp trial, every single treatment, it worked but it always came back" (Nicole). As well as physical impacts associated with repeated infection and antibiotic use, participants reported time and financial costs of having to repeatedly attend healthcare providers. These burdens were sometimes preceded by difficulties gaining an initial diagnosis of BV or delaying care because of not recognizing BV symptoms. In the absence of an explanation for their recurring symptoms, women described increasing frustration over time.

> I, maybe, got the BV once or twice treated by the GP [general practitioner] but, obviously, that cycle kept repeating and it was just like unsatisfactory to me … Kind of going, well, we're doing the same thing. I'm actually not feeling great about this, on many levels. And, yeah, we're not actually changing what's happening. (Ana)

Though the burden of BV recurrence was mainly born by women, men who were aware of their partners' experiences reported a sense of growing concern.

> We were getting desperate, in the end, and I hated seeing her in pain and discomfort … We were just running out of ideas, and we were just getting impatient and just trying to figure out what was going on. (Lachlan)

3.2.4 Getting Everyone on Board

Participants in our study, who had all undertaken MPT, described factors that supported their uptake of the treatment. These were broadly grouped into the themes of "understanding BV and partner treatment", "communicating openly", and "making it easy", representing factors that supported women, men, and healthcare providers to "get on board" with partner treatment.

"Understanding BV and partner treatment" was central to both men and women undertaking MPT. Both women and men reported poor knowledge of BV before their own or their partner's diagnosis, often resulting in delays in seeking treatment. Some recalled past symptoms that they now recognized as BV.

> I've seen this discharge before, this same discharge that women have. I kind of remember some other sexual relationships that I've had in my past that I've seen the same. So, I think it's not the first time I've seen BV before. (Franco)

Some women reported attributing BV symptoms to thrush and using over-the-counter treatments. Finding out how common BV is helped both men and women feel less shame associated with the diagnosis and made them question why they had not heard of BV beforehand. Some suggested that social media could have a role to play in reducing shame and improving awareness associated with BV symptoms, giving examples of social media influencers and podcasts they followed.

In addition to men experiencing minimal or no symptoms, the term "vaginosis" contributed to the perception of BV as a "woman's problem".

> The last word, "vaginosis" … it just fully implies that it can only infect women or those with vaginas. So, of course men, 99% of men are probably thinking like it can't infect me so I'm not affected … I don't have any symptoms, therefore I can't get it; I can't spread it. (Lachlan)

Understanding the role of sexual contact in BV onset and recurrence motivated women and men to undertake MPT.

> How it was explained to me was … there might be too much of one bacteria and not enough of the other … and therefore it causes the bacterial vaginosis … it's just an imbalance, but then once the infection is there I'm pretty much giving it to you and you're giving it back to me. (Nicole)

For some, this was new information, but others reported feeling it to be intuitive, based on past experiences of BV onset with new partners or their understanding of treatment for STIs. Comparison of the recurrence rate in individual and partner treatment further supported men's decisions to undertake the latter: "It's odds in your favor [of preventing recurrence], then it's worth a chance, isn't it?" (Jack).

Men who were aware of the association between BV and reproductive health outcomes felt that this information might also motivate men in relationships to undertake MPT.

> Did [the patient information resources] mention stuff about pregnancy and stuff down the line? … you know, leaving it untreated for a long time, it could potentially lead to a higher risk and stuff … Information is key and it's good to be in the know. (Zach)

Both men and women felt that it was important to know from the outset what MPT involved to support informed decisions and address concerns. They made a range of suggestions relating to the accessibility of information, including advocating for a range of mediums (e.g., talking to a healthcare professional, online, printed), and design elements to convey information effectively (e.g., use of bullet points, graphics, minimizing text). Although participants valued concise communication, access to more detailed information via QR codes on printed resources or hyperlinks in online resources were also suggested. Both men and women emphasized that information provided to men should be concise.

> Even though men are the carriers, it sounds like you don't get as many symptoms. So, I think men may be not as worried about it. Their partners asked them to do it, and they'll just do it … I think certainly you want to make sure all the important facts are conveyed, but you also want to make sure it's condensed so that people actually read it. (Samuel)

Attending to the accessibility of information to gender and sexually diverse people, and those in consensually non-monogamous relationships, was also recommended.

> Before I was in a relationship with my current partner, I was in a long-term relationship with a female partner, so I was curious about … female–female sexual relationships … I feel like there's a lot of people who have relationships that are more open or not completely straight … I'm in a very committed relationship with my partner but, if it did break up … I feel like having the information would be kind of good to know. (Georgia)

"Communicating openly" about BV symptoms and the effects of BV recurrence also played a key role in men's decisions to undertake MPT. Female participants who had previously shared their experiences with their male partners were more comfortable in raising partner treatment. Both men and women who described communication in their relationships as "open" intimated that undergoing MPT was an obvious choice.

> I kind of knew he would be completely fine with it, from the beginning. So, I honestly didn't really even consider that he'd say no … I'd been having all these problems with sex and pain and all this sort of stuff … We were always very good at communicating, always pretty open about things (Chloe)

Other participants described embarrassment in discussing symptoms of BV. Men also reported initial feelings of "defensiveness" in response to the implication that they were "unclean" or to blame for their partner's BV. Overcoming these feelings through open communication and provision of information had positive effects: "It took a bit of leap to get the courage up to talk about it, I guess, but, on both fronts, I think it just made the communication a lot more open" (Beth). Regardless of previous discussions about BV, participants emphasized the importance of women first raising MPT with their partners in conversation. Advice on how to broach the topic with their partner and access to resources (e.g., telehealth, information on BV and MPT) was recommended to support women in navigating these conversations, including deciding to not raise partner treatment with their partner.

Further factors raised by participants that facilitated their uptake of MPT related to "making it easy" for men to access treatment. Male participants in the StepUp trial could have a telehealth appointment to receive MPT. This helped to overcome barriers related to the inconvenience and discomfort of attending in-person care. Participants suggested that this could be replicated elsewhere through expedited partner therapy or e-scripts, supported by telehealth consultations.

> I think there should be an option for the woman to receive the treatment for her partner … I think it would make that process so much easier than “I'm going to a clinic. I have BV. Now I need to send my partner to the clinic to … receive his own treatment.” (Ana)

3.2.5 Dealing with BV Together

Partner treatment was described by participants as “a week of inconvenience”, a short-term sacrifice to help the female partner achieve symptom resolution and improve their sexual relationship. Both men and women described the inconvenience of using medications (i.e., applying cream and taking tablets), avoiding alcohol and sex, and potential side effects as minor compared with the inconvenience of repeated BV infections.

> It was just taking like an antibiotic two times a day and just applying the [cream], so it wasn't super complicated … So, I was like, yeah, might as well do it for a week … Having it come again and again is a bit bothersome, especially with her health, as well. So, you're like, oh, we'll just wait for a week [to have sex] then. Wasn't something too massive to worry about. (Rohaan)

Participants reported varying degrees of adherence with treatment instructions. Some stated that they were able to abstain from sex with the goal of achieving BV cure, especially those who had ceased sexual contact because of BV symptoms. Others reported difficulty avoiding sex for the duration of the treatment, opting to use condoms or have oral sex, and one participant reported having sex without condoms. Most participants did not have difficulties avoiding alcohol, reporting that their alcohol intake was typically low or none, but some found abstaining a challenge, opting to drink less.

Men universally reported that the medications were straightforward to use: “Initially I probably thought, ‘That sounds like a bit of a pain to have to do that twice a day, and maybe it'd be uncomfortable,’ but then it was like, ‘That's not a problem. That takes two minutes.’” (Kurt). However, some reported difficulties remembering or scheduling doses around other activities. Some couples supported each other with reminders, feeling a sense of “team effort” or “bonding” as a result.

> You can remind each other to take your medication … I think it was good just for us, too – I mean, it’s probably a bit of an exaggeration to call it a bonding experience but, I guess, it was something we both had to do at the same time. (Daryah)

MPT was described by participants as a fundamental shift from seeing BV as a “woman's problem” to “sharing the responsibility” of resolving BV symptoms: “That ended up being positive for the relationship … a shared responsibility rather than it being on just one … just me, I guess” (Beth). Couples for whom BV had recurred after MPT had initiated strategies that reflected this shift, including using condoms to prevent recurrence and exploring male circumcision: “I've actually been considering circumcision … I think it's more hygienic, for me anyway, I must have some sensitivity down there.” (Hayden). Although participants varied in their endorsement of treating BV like other STIs, many drew upon their experiences of STI testing, partner notification, and treatment when discussing MPT for BV.

> I think that it just needs to be stressed that this is not just a woman’s problem. Just because you might not have symptoms, you do have this, and you need to get it fixed … I think just viewing it and articulating it as something that is just a regular STD [sexually transmitted disease] is just going to help. (Emily)

This was reflected in comments supporting testing for BV-associated bacteria in men, abstinence from sexual contact until treated, and treatment for non-exclusive partners of women diagnosed with BV.

> I think [testing for BV-associated bacteria in men] would be evidence for [the need to undertake MPT] … because I'm not the one suffering the symptoms. So, some people, I'm guessing, would need evidence to push them to take action … it kind of puts the onus on both partners more. (Mitchell)

4 Discussion

This qualitative research sought the views of cisgender women and men who had undertaken MPT with their exclusive sexual partner. As reported in a previous qualitative study with men undertaking MPT [19], men who agreed to treatment were motivated to do so with the goal of helping their partners but also taking responsibility for their mutual sexual health and wellbeing. Additionally, men in the current study reported that the updated evidence supporting the role of sexual transmission and the effectiveness of MPT would further encourage MPT uptake. Before being offered MPT as part of the StepUp trial, women experienced dissatisfaction with the sexual healthcare they received for BV, particularly the ineffectiveness of individual antibiotic treatment in achieving sustained cure and the uncertainty about the causes of recurrence from the healthcare professionals they consulted. In this context, the relatively small inconvenience of MPT was seen as worth it to improve the chance of symptom resolution. These findings have implications for

the widescale adoption of MPT as best practice treatment for people affected by BV and their partners [18].

The perspectives of men and women involved in this study suggest that uptake of MPT is likely to be mediated by the male partner's awareness of the health and wellbeing of their female partner. Men in this study were generally conscious of their partners' symptoms, reporting similar impacts on their partners as described by women themselves, such as reduced confidence and libido, and the cost and inconvenience of repeatedly seeking care [4]. Men indicated that, had they not been concerned for their partner, they might not have seen a need to undertake treatment, as they experienced negligible or no symptoms themselves. The term "vaginosis" further reinforced BV as a "woman's problem," as previously reported by Wigan et al. [19]. Women and men who had not communicated openly about the impacts of BV before diagnosis reported positive impacts of undertaking MPT on their relationship such as improved communication and a sense of shared responsibility for their sexual health and wellbeing. To support uptake of MPT, information provided to women and men should highlight that the impacts of BV recurrence are shared between partners as it may affect their sexual relationship and reproductive health outcomes [1, 5].

Learning about the high likelihood of recurrence without MPT further supported men in this study to see MPT as a solution to the shared problem of BV. Prior research showing how common recurrence is [11] and penile carriage of BV-associated bacteria [27–29] provided evidence that encouraged men to undertake MPT. However, participants thought that the associated implication that BV is sexually transmitted required sensitive handling, as suggested by the previous finding that men may avoid MPT because of fear of STI-related stigma [19]. Additionally, some participants in this study shared concerns that labeling BV as an STI risks implying that infidelity has occurred, with potentially serious repercussions for women and their relationships. Similar concerns among women have been documented in relation to partner notification and patient-delivered partner therapy for STIs [30, 31]. Daniels et al. [30] reported that women's comfort in advising their partner of an STI diagnosis varied based on the nature of their relationship. Although BV shares the epidemiology of other bacterial STIs, sexual contact is a key driver rather than the sole mechanism of BV recurrence [12]. Information about BV and MPT should explain asymptomatic carriage and the exchange of both beneficial and detrimental bacteria during sex. Moreover, healthcare professionals should consider potential risks to women's safety when recommending MPT.

Participants identified the accessibility of healthcare as an additional factor impacting the uptake of MPT. Male participants in the StepUp trial were provided with treatment either in person or via courier after a telehealth appointment. Telehealth helped to overcome barriers to attending in-person care. The advantages of telehealth in engaging men in other forms of sexual healthcare are well documented [32–34] and may support greater uptake of MPT in men whose partners have been diagnosed with BV. MSHC is funded to provide free care and treatment to all attendees, which facilitated access for StepUp participants, and MPT was provided free of charge. However, access to sexual healthcare varies greatly within Australia and globally based on factors such as geography [35, 36], migration and citizenship status [37–39], age [20], race [41], and disability [42]. Given the high community prevalence and burden of BV, ensuring universal access to sexual health and primary care services should be a priority.

In this study, participant experiences further reflected poor community awareness of BV. Women reported delaying seeking treatment because they did not recognize the symptoms of BV and/or misidentified BV symptoms as candidiasis. Men whose partners were diagnosed with BV reported recognizing their partners' symptoms in previous sexual partners and disregarding their own genital symptoms. Both men and women in this study appeared, for the most part, unaware of the potential sexual and reproductive health outcomes of BV [1, 5–10]. Participants also reported mixed success in using internet search engines to find information online. Promotion of symptom checker tools that include BV, such as the iSpySTI tool (https://ispysti.org/), may support more timely identification of symptoms and access to trusted advice for users and their doctors [43]. Moreover, leveraging the trust of social media influencers within the sexual health and wellbeing space to promote awareness of BV may prove effective.

As the reported sexual identities of our participants shows, healthcare professionals should be cognizant that people seeking care for BV who currently have a regular male partner may have other partners of either sex, now or in the future, and may not disclose this within the healthcare encounter [44, 45]. Information about partner treatment should emphasize that it is unlikely to be effective unless all sexual partners are treated. Given the findings of this and other research [19] suggesting the role of relationship status in MPT uptake, all people diagnosed with BV should be advised of the protective role of condoms against BV [46] to provide them with another strategy to reduce the risk of recurrence after individual treatment or MPT.

4.1 Strengths and Limitations

This qualitative research sought to explore the experiences of people who had undertaken MPT within a clinical trial to understand the factors supporting uptake and adherence. As participants undertook MPT within a trial setting, they likely received a standard of care that differed from routine healthcare. The StepUp trial also excluded participants who

were unable to read participant information in English and people aged < 18 years. Further research and engagement with these groups will be needed to translate resources in culturally safe and age-appropriate ways. Although participants reflected on past relationships and the attitudes of peers that may have been less supportive of engagement with MPT, we did not include the perspectives of women who declined the offer of MPT, or those whose partners refused MPT, which may have contributed different perspectives. The current study was also limited in that all participants were cisgender women and men. A further trial of partner treatment is under way with members of the LGBTQIA+ communities and will include a qualitative sub-study to capture the perspectives of gender and sexually diverse people (Australian and New Zealand Clinical Trial Registry: ACTRN12622001431718). Given the use of interviews, social desirability bias and the use of a female interviewer may also have influenced what participants shared. Recall bias may have influenced the reports of participants with a longer intervening period between treatment and interview. Notwithstanding member checking procedures and co-authors' review and input into data analysis and the representation of findings, use of a single coder may have resulted in coding bias.

4.2 Future Directions

This study has provided insight into the perspectives of cisgendered men who undertook MPT and cisgender women whose partners undertook MPT. A similar qualitative study seeking the views of LGBTQIA+ participants in the partner treatment trial currently underway is planned to illuminate similarities and differences relevant to the implementation of partner treatment beyond people in heterosexual relationships. Our findings also suggest several areas for consideration in implementing MPT in clinical practice. A survey is planned to capture the views and information needs of Australian sexual healthcare providers (e.g., general practitioners, sexual health physicians).

5 Conclusion

Evidence of the effectiveness of MPT in reducing the recurrence of BV represents a beacon of hope in reducing the burden for those diagnosed with BV and their partners. This study identified several factors that have the potential to influence the uptake and effectiveness of MPT. Overall, women and their male partners reported favorable experiences with MPT; however, implementation of MPT into clinical practice will require multilevel interventions to ensure the potential impact of this advancement is realized. Efforts to improve community and clinician awareness of the role of sexual contact in BV onset and recurrence and to overcome barriers to accessible sexual healthcare are needed to support the uptake of effective prevention and treatment options.

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1007/s40271-025-00731-z.

Acknowledgements The authors thank Professor Meredith Temple-Smith for her advice on the research design and preparation of the ethics application for this study.

Declarations

Funding Open Access funding enabled and organized by CAUL and its Member Institutions. This study was funded by an Australian National Health and Medical Research Council (NHMRC) Investigator Grant (GNT1173361). EPFC is supported by an NHMRC Emerging Leadership Investigator Grant (GNT1172873). CKF is supported by an Australian NHMRC Leadership Investigator Grant (GNT1172900).

Conflicts of interest The authors have no competing interests that are relevant to the content of this article.

Ethics approval Ethics approval was obtained from Alfred Hospital Ethics Committee, Melbourne, Australia (approval no. 231-24) on 14 May 2024. The procedures used in this study adhere to the tenets of the Declaration of Helsinki.

Consent to participate Verbal or written informed consent was obtained before each interview.

Consent for publication Not applicable.

Availability of data and material The participants of this study did not give written consent for their data to be shared publicly, so—given the sensitive nature of the research—supporting data are not available.

Code availability Not applicable.

author contributions Alicia King: conceptualization, methodology, formal analysis, investigation, data curation, writing—original draft, visualization, and project administration. Tiffany Phillips: validation and writing—review and editing. Erica Plummer: writing—review and editing. Natasha Wild: writing—review and editing. Christopher Fairley: writing—review and editing, supervision, and funding acquisition. Eric Chow: writing—review and editing, supervision, and funding acquisition. Lenka A Vodstrcil: conceptualization, methodology, and writing—review and editing. Catriona S Bradshaw: conceptualization, methodology, writing—review and editing, and funding acquisition.

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