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Nuancing null results: Why a soccer plus vocational training health promotion intervention did not improve outcomes for South African men

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ABSTRACT

Background: Male engagement with public health programming, especially around stigmatised issues, is often low, which may have adverse health outcomes. Eyethu, a behavioural intervention delivered using soccer to reduce multiple risks associated with HIV and substance use among young men, was shown in a randomised trial to be ineffective. This study explored the trial's null findings to identify considerations for future male-targeted programming tackling multiple risks concurrently. We explored trial participants' perceptions of factors influencing engagement and effectiveness.
Methods: The descriptive, qualitative sub-study was nested within the RCT, conducted in two peri-urban townships outside Cape Town. Data was collected post-intervention, in November-December 2020. In-depth interviews, at a single timepoint, were conducted with individuals ($n = 30$) who had participated in the RCT. Data were analysed using thematic analysis.
Results: Three major themes emerged from the data: 1) participants' positive perceptions of the programme's impact, despite the trial's null results; 2) reflections on the intervention's mechanisms, related to its impact on group cohesion, and 3) perceptions of contextual factors influencing intervention engagement and effectiveness.
Conclusion: Behavioural interventions that are embedded in communities and utilise sport to influence health-related outcomes have the potential to expand knowledge, foster social capital, and offer platforms for positive, meaningful connections for young men exposed to multiple adversities. However, these programmes need to be sustained over time to effectively enable behaviour change to take hold and be sustained when implemented with other environmental constraints.

1. Introduction

Young men in South Africa face intersecting epidemics of HIV, violence, and substance use. South Africa is home to the world's largest HIV epidemic, with an estimated 7.5 million individuals living with HIV. In men ages 15-49, HIV incidence was estimated at 6.9 % in 2021 (Satoh & Boyer, 2019; UNAIDS, 2021); there is also significant under-testing in young men, making it difficult to estimate the true scale of the epidemic (Shapiro et al., 2020). The country also has some of the highest rates of violence globally. The Global Peace Index (GPI), published by the

Institute of Economics and Peace, ranked South Africa in its bottom 20 countries in 2023 for societal safety and security (Institute for Economics & Peace, 2023). In 2018, the national rate of intentional homicide was 64.1 per 100,000 among men, with rates in certain areas, particularly peri-urban settlements, estimated to be significantly higher (UN Office on Drugs and Crime, 2022). Men constitute 81.4 % of murder victims, 74.5 % of attempted murder victims, and 62.2 % of victims of assault with intent to inflict grievous bodily harm (SAPS, 2022). Substance use and misuse are also common, and are linked to both HIV and violence (Gibbs et al., 2018; Meade et al., 2016). Evidence from the

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National Income Dynamics Study shows that 47.7 % of men reported current alcohol use, with 48.2 % of men reporting binge drinking (Vellios & van Walbeek, 2017). Cannabis and methamphetamine are also commonly used by young people, and particularly young men (Dada et al., 2018; Puljević & Learmonth, 2014).

Each of these epidemics individually can disrupt the life trajectories of young men in South Africa; however, together, they can pose a confluence of risks—or a syndemic—that exacerbates the individual impacts of each. Recent research with young men in South Africa has demonstrated the multiplicative, harmful effects of HIV risk, violence, and substance use, and how each of these epidemics can worsen when accounting for social, structural, and psychosocial factors (Hatcher et al., 2022; Okafor et al., 2018). These risks, alongside high rates of poverty and unemployment among men between the ages of 18 and 30 (Statistics South Africa, 2019), have highlighted the importance of engaging this population as a matter of priority for public health interventions (Malakoane et al., 2020).

The Eyethu intervention was developed as a behavioural intervention using soccer training to reduce multiple, interrelated risks associated with HIV and substance use. Sessions, embedded within soccer league practices, were led by intervention coaches who served as mentors and delivered behaviour change programming focused on problem-solving, interpersonal skills development, communication, and conflict management, as well as psychoeducation. Sessions were held three times weekly and included routine HIV testing and drug testing as a requirement to play. Between September 2016 and December 2020, Eyethu was evaluated in a cluster randomized controlled trial (RCT) (Rabie et al., 2023). Men aged 18–29 years old were recruited from 27 neighbourhoods in peri-urban Cape Town, South Africa (ClinicalTrials.gov registration: NCT02358226). Neighbourhoods were randomised to receive: 1) Soccer League ($n = 9$ neighbourhoods, $n = 384$ men); 2) Soccer League plus vocational training ($n = 9$ neighbourhoods, $n = 384$ men), who received six months of the combined intervention described above, followed by six months of vocational training by external partner organisations in welding, woodwork, or computer literacy; or 3) a control condition ($n = 9$ neighbourhoods; $n = 415$ men) who received educational materials and referrals at 3-month intervals. The intervention was assessed on a range of outcomes including HIV-related risks, substance abuse, employment, mental health, and violence perpetration and victimization. Overall, the intervention was found to be unsuccessful; of all targeted outcomes, there was only one significant difference, on rapid diagnostic tests for mandrax (methaqualone) at 6 months (Rabie et al., 2023). A key conclusion was that this group-based behavioural intervention was ineffective in addressing multiple risk behaviours among at-risk young men and hypothesised that early adulthood may be too late to alter embedded risk behaviours (Rabie et al., 2023).

Male engagement with mainstream public health programming, especially around stigmatised issues, is often low, which ultimately affects outcomes (Boniphace et al., 2022; Roudsari et al., 2023; Stangl et al., 2019). In Eyethu, this low engagement also played out; while uptake of the intervention was 94 %, only 45.5 % of participants typically attended weekly sessions (Rabie et al., 2020). This low engagement may be attributed to negative attitudes about programmes, individuals' sense of obligation or social pressure, conflicting time commitments, or gender beliefs and values that can control or influence undesirable behaviour (Harrison et al., 2010; Jobson et al., 2019). However, while the study contributed to a growing body of evidence about low engagement and limited impact of community-based health programming with men (Oliffe et al., 2020), the precise reasons for the programme's failure remain unclear.

To try and develop our understanding of the trial's null findings, and to identify considerations for future programming for men targeting multiple risks concurrently, we conducted qualitative interviews with intervention participants, including individuals with varying levels of intervention engagement. This study specifically aimed to explore participants' perceptions of factors influencing engagement and effectiveness.

2. Material and methods

2.1. Study design

This descriptive, qualitative sub-study was nested within the RCT and took place in November and December 2020, after the intervention had ended. In-depth interviews, at a single time point, were conducted with individuals ($n = 30$) who had participated in the RCT (reference blinded for review). This study received ethical approval from both Institutional Review Boards (IRB) of the University of California, Los Angeles (UCLA; IRB no.14–001587) and Stellenbosch University (N14/08/116).

2.2. Setting

The study was conducted in Khayelitsha and Mfuleni, two neighbouring peri-urban townships outside Cape Town, South Africa, with an estimated population of between 400,000–750,000 people (Super, 2015). These areas are characterised by high levels of crime and substance use, low socioeconomic status (Franken et al., 2019; Keene et al., 2020), and high rates of unemployment (Breetzke & Edelstein, 2019). Khayelitsha has among the highest HIV prevalence rates in the Western Cape province (Keene et al., 2020; Phelanyane et al., 2020).

2.3. Participant selection

Participants were purposively selected from the original Eyethu cohort according to their type of engagement. Participants included individuals assigned to both intervention conditions (Soccer League only, and Soccer League plus vocational training). To interrogate engagement more directly, care was taken to select participants from the vocational training aim who did not complete the training course, as well as those who did.

2.4. Data collection

Qualitative data were collected via semi-structured in-depth interviews of participants. A trained research assistant, who was bilingual in isiXhosa and English, administered informed consent and conducted all interviews, both in the participant's preferred language. Each interview was audio-recorded and reviewed for content and quality. After completing the interview, each participant received a reimbursement of ZAR140 (approx. US$10) for their time. The interview guide, which was translated into isiXhosa, included questions about participants' life circumstances, their experiences participating in Eyethu, their perceptions of the intervention's short- and long-term impacts, and areas that may be improved in future implementation.

2.5. Data analysis

Data were analysed using thematic analysis (Braun & Clarke, 2006), which facilitates a thorough understanding of the reported narratives. An experienced team of research assistants translated and transcribed each audio-recorded interview from isiXhosa to English with senior research team members providing continuous, rigorous quality control. All transcripts were de-identified. We used ATLAS.ti qualitative data management software to organise and code all interview transcripts (Babbie & Mouton, 2007). The two first authors (SM and NH) independently coded transcripts and discussed emergent themes; findings were discussed with senior research team members (XH and CL). The analysis process was guided exclusively by the participants' experiences, with data coded using an inductive approach to develop themes. While the disagreement rates between coders were low, any emerging

disagreements were discussed and resolved with the broader team to ensure accurate interpretation and coding. Transcripts were re-named using a pseudonym for each participant. Write-up of results was guided by the criteria in the 32-item COnsolidated criteria for REporting Qualitative research (COREQ) checklist (Tong et al., 2007) (Table 1).

3. Results

Thirty participants were interviewed in total, reflecting equal numbers across Soccer League only ($n = 10$), Soccer League plus those who completed vocational training ($n = 10$), and Soccer League plus those who did not complete vocational training ($n = 10$).

All codes were collated from the transcripts, and then grouped according to larger units of meaning captured by the code groups. Three overarching themes were identified: 1) perceptions of the intervention impact, 2) reflections on the intervention's mechanisms of change, and 3) contextual influences shaping intervention engagement and effects. Themes and sub-themes are briefly defined in Table 2.

3.1. Positive perceptions of the intervention's impact

Despite the null effects identified in the trial, participants across intervention conditions, and with varying experience of engagement, regarded Eyethu as a generally positive experience. Many participants recounted how taking part in Eyethu helped to change the way they perceived themselves and others, and how they thought about their behaviour. Participants reported developing confidence and self-esteem, reducing engagement in risk behaviours, and developing social skills and problem-solving abilities–explored in more detail in this section.

3.1.1. Agency, confidence, and self-esteem

Participants reported that the programme supported changes in their behaviours linked to substance use, peer groups, and employment; more specifically, Eyethu provided a degree of structure and positive peer reinforcement. For example, one participant noted:

Table 1
Participant information.

Pseudonym	Age at baseline	Condition
Mpumelelo	24	Soccer only
Loyiso	22	Soccer only
Aphiwe	21	Soccer only
Anele	26	Vocational training
Khanyiso	22	Vocational training
Themba	23	Vocational training
Anathi	23	Soccer only
Lwazi	24	Vocational training
Nkhokeli	24	Soccer only
Sipho	21	Vocational training
Akhona	21	Vocational training
Bulelani	25	Vocational training
Mxolisi	26	Vocational training
Mandla	21	Vocational training
Fezile	24	Vocational training
Madoda	23	Vocational training
Luthando	28	Vocational training
Mbubelo	21	Vocational training
Ntando	20	Vocational training
Zolani	22	Vocational training
Philani	26	Soccer only
Bongani	19	Soccer only
Sibabalwe	26	Vocational training
Mpilo	24	Soccer only
Babalo	19	Soccer only
Khwezi	26	Vocational training
Silumko	20	Vocational training
Luvo	20	Soccer only
Langa	22	Vocational training
Dumisa	19	Vocational training

Table 2
Summary of themes and sub-themes.

Theme	Subthemes	Definition
Positive perceptions of impact	Agency, confidence, and self-esteem Thinking about risk and stigma Influences on problem-solving and socio-emotional skills	Participants' perceptions of themselves, others, and their capacity for positive behaviour change
Reflections on intervention mechanisms	Observing changes in self-image and group cohesion	Reflections emerging from participants' recognition of their own personal, social, and context-based resources
Contextual influences on intervention engagement and effectiveness	Competing priorities: intervention engagement and personal responsibilities Post-intervention impact and transience of impact	The immediate social (relational), economic (employment/financial), and contextual factors which influence engagement

Once Eyethu came to us, everything changed. I stopped smoking, and at the time Eyethu came, it was when I also changed friends that were bad, and I was moving with right friends that I met there in Eyethu that were right. I changed there. We looked for jobs. We did all the right things (Bongani, 22 years old).

Participants reflected on how engaging in Eyethu helped them evaluate the negative influences that certain friendships and peer pressures had had in their lives. One participant explained that the intervention had made him realise that changing his behaviour and social circle was necessary to improve his life:

You have to make your own decision and not go with these friends... because peer pressure is very dangerous, it makes you do things you don't want to do (Sipho, 24 years old).

Participants explained how being enrolled in Eyethu drew them out of their usual patterns of behaviour, including harmful social environments, and provided opportunities for positive action and emotions. Two participants explained what this looked like for them:

It was such a great programme because it was able to take us out of the houses. [Before] we would sit and sleep all day, we would sleep during the day seeing that you are doing nothing in the day. But when Eyethu came, we were able to get up and do something, to go and play ball, go, and engage with people, go and sit and calm the mind, which was a great thing (Themba, 26 years old).

Some of the guys had nothing to do…since they were in one place, let's say they were smoking…so Eyethu would call you when it is time to call you, and gets you out of that thing, you would stay for a while and then when you go home…or sometimes we would stay behind when they've left, we would stay and play soccer (Madoda, 25 years old).

3.1.2. Thinking about risk and stigma

Participants discussed how the intervention content, especially learning about negative consequences of drug abuse, helped them to stop or reduce their drug use. One participant explained:

A pharaphara is someone that smokes dagga [marijuana]…The sessions that we were attending were telling us that when you smoke drugs, there were also pictures that they were showing us how you get sick when you smoke drugs, and [what] your mind is like when you smoke drugs, so they were able to see that drugs are ruining them, so they must stop (Sipho, 24 years old).

The intervention's practice of administering a weekly drug test, as a bar to clear before being able to play in soccer matches, acted as an

incentive to reduce participants' drinking and smoking. The determination to play in the league, and uphold its standards, facilitated a ripple of positive behaviour change. One participant described this as:

> I think that we were used to minimizing [reducing use] even in smoking and in alcohol, we were used to that, so now, we were also adapting to that. When we are drinking, maybe we are drinking a bottle [of alcohol], you would tell yourself that you will only drink a nip [a little], then you will be right, not because you want to [stop drinking the full bottle] but because you are used to [drug testing] now, [and you know that] it is in your blood (Fezile, 27 years old).

Finally, participants discussed the intervention's influence on destigmatising HIV and tuberculosis. One participant explained that before interacting with Eyethu, he did not know what the stigma entailed or how it shaped his views about HIV:

> That word "stigma"…it was my first time hearing about it, I don't want to lie, I have never heard about it before, even at school…I usually make them [the community] see that they must not think they are better [than someone], because that is still something that they do and just use any word that is absurd to identify you…[Eyethu] gave me strength on that (Akhona, 24 years old).

3.1.3. Influences on problem-solving and socio-emotional skills

Participants also had opportunities to practise what they had learned in Eyethu's behaviour change discussions outside of the intervention space—identifying how Eyethu gave them the opening, and the resources, to apply key learnings to their daily lives. One participant recounted:

> I shared this [problem] to the guys and I got the solutions [means of solving a problem] from them about what happened to me. Other people also shared their problems too…I was given solutions and I applied them, and I came back and told them about the solution and how it went, so most of the time the solutions that were given there, they worked for people…there is nothing that Eyethu does not do for a person [who] attend[s] until they finish (Langa, 24 years old).

Participants also found that Eyethu provided a safe space to share with peers, and open up about their feelings, which helped them develop their capacity to discuss emotions. For example, some participants reported feeling comfortable talking about mental health topics such as suicide and depression. One participant emphasised that he felt motivated to attend sessions because of the sense of safety provided:

> What kept me going to attend it is because its where I felt free–like the free space whereby I was able to talk and discuss most of things. For instance, you'll find other people cannot talk about their things, that's why you'll find out a person has depression or commit suicide, it's because there is no one to talk to. When we were in that group at least people were able to reveal their feelings…so that's why I loved it because it was a free space (Bulelani, 26 years old).

3.2. Reflections on intervention mechanisms

Participants spoke about the effect of discussions that comprised part of the Eyethu intervention—including those about HIV, substance use, and employment—and how these discussions influenced participants' behaviours within and outside of the intervention setting.

3.2.1. Observing changes in self-image and group cohesion

According to participants, the intervention provided lessons that encouraged positive self-image and supported a sense of cohesion among group members whose interactions outside of Eyethu would have been impossible due to their belonging to different gangs. By providing a shared experience and space for members of the same 'team', Eyethu encouraged participants to openly share their feelings with one another

without judgment, or when conflict within the group occurred.

Some participants felt that Eyethu made a significant difference in their lives by facilitating positive thinking strategies concerning participants' ability to change their behaviours and lives for the better. One participant explained:

> Hey, there is a difference…not only for the guys that we were with, but around the whole area and other areas because the way I saw it… [Eyethu] were able to take the guys that are always in the corner, feeling they have nothing to do, they would take them, gather them, and change their way of thinking to a positive one, so I would say there is a difference (Langa, 24 years old).

Participants also spoke about tangible changes in cohesion, where individuals from neighbourhoods that had been divided through gangsterism were able to come together and find a new purpose:

> It also brought back the unity among the youth in [my neighbourhood] as the whole because there was a thing of gangsterism with boundaries [preventing you] from going [to the] other side in the area…but [during] the time of the Eyethu programme, we were going and everyone laughing as people who never wanted [to hurt] each other with knives (Luvo, 22 years old).

Similarly, some participants felt that Eyethu helped to change their perceptions about peers and community members, especially when their environment perpetuated negative perspectives about others. One participant recalled his time with Eyethu and explained:

> What I remember was about the way we do things and the people that we are around, that we must stop judging each other when we are many and sitting together…Stop having bad perspectives about people…And the way that they also look at us…we must continue with our lives, our lives must be in our hands (Silumko, 23 years old).

Another participant felt the intervention encouraged him to evaluate himself, his behaviour, and interactions with other people. Eyethu sessions gave participants a different perspective of themselves and each other. One participant explained:

> What can I say it is? To change the way I am, to change how I conduct myself, you see…like there is a lot, just being different to the people… like becoming a role model to the people or things like that. That… people are looking at me like that (Mbulelo, 24 years old).

3.3. Contextual influences on intervention engagement and effectiveness

A final emergent theme focused on contextual factors that shaped participation in Eyethu, and how participants perceived the programme's impact. Participants described their broader environments as characterised by risks and threats to positive change; they further detailed how their life circumstances and responsibilities influenced their ability to engage in the intervention.

3.3.1. Competing priorities: intervention engagement and personal responsibilities

In describing their reasons for disengagement from the intervention, participants cited critical trade-offs between earning income, or shouldering family responsibilities, and attending intervention sessions. Participants' immediate needs, including the need for food, toiletries, and other essentials, often came first:

> It was money…you must eat, [your] stomach is in front and is important, you see? That's what made me to rush to that job, I was like 'hey- [with] that money at least I will be able to buy myself toiletries, I will be able to buy jeans, I will be able to buy food' there, you see (Mbulelo, 24 years old).

Some participants did not feel the intervention met their specific interests or needs, and that this mismatch deterred others from

completing the program. One individual who did not complete the vocational training noted:

> They want to make change within us, they should have come to us and asked 'what do you guys wish to have? What do you guys want?' Because at the end of the day, that thing caused people to drop out… they saw the limits within this. Not all of us are good at computer, not all of us want to make chairs, not all of us want to weld, do you understand? [laughs] Do you understand? But I believe that if they come to you and ask you, 'What are you passionate about? What do like to do? you can never not persevere [with] something that you wanted on your own (Themba, 26 years old).

Job acquisition was another clear factor expressed by participants as influencing their disengagement with Eyethu intervention. One participant observed:

> I dropped out because, okay, I got a piece job [once-off job] that I got, so I thought 'okay, no, I do not have another way of going back' because the times were not corresponding so I thought I should go to work, but I told them that, 'no, I found a job so I cannot attend' (Khwezi, 29 years old).

Often times these jobs were temporary or seasonal, but still important for participants' ability to exercise agency and plan their own lives, even if they competed with intervention attendance:

> Yes, I went, I participated but I could not finish because December came, and it was a big season so I could not do Eyethu's vocational training and work, so I dropped out, but I went to it a lot until the big season in December. It was busy…I was working that time, I was on and off (Mandla, 24 years old).

Some participants expressed that their familial responsibilities disrupted their engagement with the intervention despite their interest in Eyethu. One participant explained:

> I was forced to go to the [Eastern Cape] with my mother and go live there with my grandmother, and I had to help my grandmother because my mother was bad, she could not do anything for herself, she was bedridden, so I had to be there until her older sisters… arrived (Sibabalwe, 27 years old).

3.3.2. Perception of post-intervention impact and transience of impact

Despite overall positive reflections on the role of Eyethu, several participants acknowledged its short-lived impact. These individuals felt that their living environment had a negative impact on the intervention process and its ultimate success in promoting positive behaviour change. As one participant explained, some of the "successful" participants had managed to move away to sustain these effects:

> 50 % is still living like that [before Eyethu] and 50 % has changed [because of engagement with Eyethu]…I think it is having something to do…[it] changes you a lot, because when you are just sitting in the township, you have nothing to do…So, living in the townships messes the way people live…It goes back to the way of living, [some participants] got work and they moved away from the kind of living that happens in the township, they found something to do (Silumko, 23 years old).

Participants acknowledged the need for the intervention within their community and the transformative capacity the Eyethu intervention had on their individual lives. Participants emphasised that in the time since the programme's end, some of them had gone back to their "old habits" linked to substance use.

Participants also shared their impressions about when negative behaviours might emerge. For example, when the intervention was paused during the December holiday period, some participants reverted to substance misuse or seeing old friends who they recognised as negative influences. As one participant explained: "*when a person is not busy, they get enough time to be misled*" (Ntando, 22 years old).

Relatedly, participants indicated that without the presence of the intervention to support them in reinforcing their behaviours, some individuals might struggle to continue applying Eyethu's lessons in their day-to-day lives. One participant further explained:

> I mean the problem is that we spent a lot of time there [Eyethu sessions]…you would go out with that mindset, as you would think of something that was said there so there was nothing you could think. When you are sitting in the township, you lose manners, and your talking tone is not right which is the discipline that I am talking about (Mandla, 24 years old).

Participants identified a tension between wanting to act as positive role models for younger people in their communities and feeling unable to fend off negative influences without the ongoing support and focus of Eyethu sessions. One participant described this as:

> So, many people in most cases would end up being distracted because the [Eyethu] programme was no longer there…things such as drinking alcohol and smoking…just to be good people in the community, at the end we are role models of…the future generation, so these young children are looking up to us, if we are going to do wrong things…what are saying about the children that are growing up?…Because at least when the programme existed, or someone was focusing – he was focused in life, and had dreams (Bulelani, 26 years old).

4. Discussion

Participants in the Eyethu intervention regarded the intervention positively overall, linking their perceptions to the programme's effects on their confidence and self-esteem, and its provision of opportunities for peer-group bonding. However, they also described social, economic, and other contextual factors which they said influenced their engagement with the intervention, at times creating barriers to sustaining positive behaviour change and limiting the programme's impact over the longer term.

One of the assumptions underlying the design of the Eyethu intervention was that, for young men, sport-based activities would offer an attractive avenue for engagement, and to promote the development of positive social identities (Bottorff et al., 2015). Our qualitative findings support this thesis, and the intervention was recognised as a positive force in participants' lives—such as by the participant who stated that the intervention gave him the opportunity to play soccer, engage with peers, and calm his mind. Importantly, participating in Eyethu expanded health-related knowledge, emotional awareness, and self-reflection; it also fostered experiences of mutual connection, which in turn helped to promote skills, apply knowledge, and draw on the confidence needed to take greater control of one's life.

While these findings reflect one set of strengths of the study and the intervention itself, we also feel that these data elicited a broader, more critical perspective on these types of interventions. The short-term, positive environment of the intervention, which was perceived as beneficial at the individual level, should be positioned against a backdrop of continuous exposure to counteracting forces. The participants highlighted the role of existing social structures and dynamics related to gang relationships and substance use, as well as interruptions in routine over major holiday periods during which time socialising was common. Their accounts suggest that programming that aims to change behaviour among young men may struggle to sustain effects against these forces. The concept of relational empowerment—in which psychological empowerment expands to incorporate social relationships and contextual dynamics—may be particularly useful for considering how to position behavioural, group-based interventions for individuals in complex settings (Christens, 2012). Without an enabling environment and set of relationships, it can be difficult for individuals to sustain behaviour

change. The density of risks in the context in which participants lived, and the abundance of social forces making risk behaviour the norm, was described by participants to have diluted and even negated the programme's impact.

Our findings also identify considerations about how behaviour change interventions can be integrated into complex settings—such as the contexts in which Eyethu's participants lived. In contexts of adversity and rigid, hierarchical social standards, participants may find it more challenging to practice healthy behaviours. Social positions and pre-existing views on HIV, violence, and substance use within the community were highlighted as features of the community and the individual that needed to be considered prior to implementation.

Participants highlighted a variety of factors which might allow interventions to be more successful in the future. Young men living in peri-urban environments in low- and middle-income settings are likely to experience competing priorities that might disrupt their ability to engage in interventions, such as local migration and changing jobs. Future interventions also need to be cognisant of individuals' shifting schedules, particularly within a community-based context. Previous interventions have suggested that community mobilisation and empowerment is crucial for the success of preventative interventions (Christens & Speer, 2011; Lippman et al., 2013; Trickett, 2009). Participants recognised their own personal and social limitations while identifying potential relationships and resources that were able, for some time, to reinforce positive behaviours.

It is important to highlight the points where efforts for behaviour change have the greatest chance to ignite change (Christens, 2012). Our findings suggest several specific, tangible recommendations that should be considered in future interventions to sustain effects over a longer-term horizon. First community members' and participants' perspectives should be deliberately integrated into co-developed interventions from the inception phase, to increase buy-in and a sense of ownership, as well as support stronger uptake of intervention-linked behaviours (Christodoulou et al., 2019). Second, such programmes need to be multi-level, targeting the structural and social determinants of behaviour, and – perhaps most importantly – sustained over time, in order to achieve their envisioned impact in contexts of high adversity (Rotheram-Borus et al., 2023). Crucially, single-focus interventions are unlikely to be successful without a more robust structural component that concurrently targets structural and environmental determinants. Expanding funding mechanisms for longer-term, multi-level intervention research and programming—for instance, through public-private partnerships or other special initiatives—is critical, as is linking in flexible provisions that can support individuals with diverse needs (UN Women, 2020; UNDP, 2022).

4.1. Limitations

This study and resulting analysis has several limitations. Because the implementation and evaluation of the Eyethu intervention was staggered, participants' recall of the program and their perceptions of its impact may vary based on the time since their involvement ended. Similarly, it is possible that participants' circumstances at the time of the interview may have introduced an element of bias on their perceptions of the intervention's impact. Participants' reflections on the programme might be influenced by their present situation or their desire for the programme's continuation, leading to either an overestimation or underestimation of the intervention's efficacy. Our study was designed to be applicable to other similar settings; however, due to the distinct confluence of risks facing peri-urban South African men, further work may need to be done to contextualise the intervention, and emerging findings, in other resource-poor settings.

5. Conclusion

Behavioural interventions that are embedded in communities and utilise sport to influence health-related outcomes could have the potential to expand knowledge, foster social capital, and offer platforms for positive, meaningful connections for young men exposed to multiple adversities. However, these programmes need to be sustained over time in order to effectively create space for behaviour change to take hold and be sustained when implemented with other environmental constraints. Programme implementers need to critically assess how targeted structural approaches highlighting content and delivery may be able to change individual behaviour across low-resource contexts.

CRediT authorship contribution statement

Sihle Mamutse: Formal analysis, Validation, Writing – original draft, Writing – review & editing. **Nuhaa Holland:** Formal analysis, Validation, Writing – original draft, Writing – review & editing. **Christina A. Laurenzi:** Conceptualization, Methodology, Project administration, Supervision, Writing – original draft, Writing – review & editing. **Jason Bantjes:** Conceptualization, Funding acquisition, Methodology, Project administration, Supervision, Writing – review & editing. **Mark Tomlinson:** Conceptualization, Funding acquisition, Investigation, Supervision, Writing – review & editing. **Mary Jane Rotheram-Borus:** Conceptualization, Funding acquisition, Supervision, Writing – review & editing. **Xanthe Hunt:** Conceptualization, Methodology, Project administration, Supervision, Writing – original draft, Writing – review & editing.

Declaration of Competing Interest

The authors declare there is no conflict of interests.

References

Babbie, E., & Mouton, J. (2007). *The practice of social work research*. Belmont: Thompson.

Boniphace, M., Matovelo, D., Laisser, R., Yohani, V., Swai, H., Subi, L., Masatu, Z., Tinka, S., Mercader, H. F. G., & Brenner, J. L. (2022). The fear of social stigma experienced by men: A barrier to male involvement in antenatal care in Misungwi District, rural Tanzania. *BMC Pregnancy and Childbirth, 22*(1), 44.

Bottorff, J. L., Seaton, C. L., Johnson, S. T., Caperchione, C. M., Oliffe, J. L., More, K., Jaffer-Hirji, H., & Tillotson, S. M. (2015). An updated review of interventions that include promotion of physical activity for adult men. *Sports Medicine, 45*(6), 775–800.

Braun, V., & Clarke, V. (2006). *Qualitative Research in Psychology, 3*(2), 77.

Breetzke, G. D., & Edelstein, I. (2019). The spatial concentration and stability of crime in a South African township. *Security Journal, 32*(1), 63–78.

Christens, B. D. (2012). Toward Relational Empowerment. *American Journal of Community Psychology, 50*(1), 114–128. https://doi.org/10.1007/s10464-011-9483-5

Christens, B. D., & Speer, P. W. (2011). Contextual influences on participation in community organizing: A multilevel longitudinal study. *American Journal of*

Community Psychology, 47(3), 253–263. https://doi.org/10.1007/s10464-010-9393-y

Christodoulou, J., Stokes, L. R., Bantjes, J., Tomlinson, M., Stewart, J., Rabie, S., Gordon, S., Mayekiso, A., & Rotheram-Borus, M. J. (2019). Community context and individual factors associated with arrests among young men in a South African township. *PloS one, 14*(1), Article e0209073.

Dada, S., Harker Burnhams, N., Erasmus, J., Lucas Charles Parry, W., Bhana Sandra Pretorius, A., & Weimann Helen Keen, R. (2018). Monitoring alcohol, tobacco and other drug abuse treatment admissions in South Africa. *SACENDU (South African Community Epidemiology Network on Drug Use) April*, 1-72.

Franken, H., Parker, J., Allen, R., & Wicomb, R. (2019). A profile of adult acute admissions to Lentegeur Psychiatric Hospital, South Africa. *South African Journal of Psychiatry, 25*(1), 1–7.

Gibbs, A., Jewkes, R., Willan, S., & Washington, L. (2018). Associations between poverty, mental health and substance use, gender power, and intimate partner violence amongst young (18-30) women and men in urban informal settlements in South Africa: A cross-sectional study and structural equation model. *PLoS One, 13*(10), Article e0204956. https://doi.org/10.1371/journal.pone.0204956

Harrison, A., Newell, M.-L., Imrie, J., & Hoddinott, G. (2010). HIV prevention for South African youth: Which interventions work? A systematic review of current evidence. *BMC Public Health, 10*(1), 102. https://doi.org/10.1186/1471-2458-10-102

Hatcher, A. M., Gibbs, A., McBride, R.-S., Rebombo, D., Khumalo, M., & Christofides, N. J. (2022). Gendered syndemic of intimate partner violence, alcohol misuse, and HIV risk among peri-urban, heterosexual men in South Africa. *Social Science & Medicine, 295*, Article 112637. https://doi.org/10.1016/j.socscimed.2019.112637

Institute for Economics & Peace. (2023). *Global peace index 2023*. http://visionofhumanity.org/resources.

Jobson, G., Khoza, S., Mbeng, R., Befula, N., Struthers, H. E., Kerongo, G., & Peters, R. P. H. (2019). Bridging the gap: Reaching men for HIV testing through religious congregations in South Africa. *JAIDS Journal of Acquired Immune Deficiency Syndromes, 81*(5). https://journals.lww.com/jaids/Fulltext/2019/08150/Bridging_the_Gap_Reaching_Men_for_HIV_Testing.19.aspx.

Keene, C. M., Zokufa, N., Venables, E. C., Wilkinson, L., Hoffman, R., Cassidy, T., Snyman, L., Grimsrud, A., Voget, J., & von der Heyden, E. (2020). Only twice a year': A qualitative exploration of 6-month antiretroviral treatment refills in adherence clubs for people living with HIV in Khayelitsha, South Africa. *BMJ Open, 10*(7), Article e037545.

Lippman, S. A., Maman, S., MacPhail, C., Twine, R., Peacock, D., Kahn, K., & Pettifor, A. (2013). Conceptualizing community mobilization for HIV prevention: Implications for HIV prevention programming in the African context. *PloS ONE, 8*(10), e78208.

Malakoane, B., Heunis, J. C., Chikobvu, P., Kigozi, N. G., & Kruger, W. H. (2020). Public health system challenges in the Free State, South Africa: A situation appraisal to inform health system strengthening. *BMC Health Services Research, 20*(1), 58. https://doi.org/10.1186/s12913-019-4862-y

Meade, C. S., Lion, R. R., Cordero, D. M., Watt, M. H., Joska, J. A., Gouse, H., & Burnhams, W. (2016). HIV risk behavior among methamphetamine users entering substance abuse treatment in Cape Town, South Africa. *AIDS and Behavior, 20*(10), 2387–2397. https://doi.org/10.1007/s10461-016-1333-x

Okafor, C. N., Christodoulou, J., Bantjes, J., Qondela, T., Stewart, J., Shoptaw, S., Tomlinson, M., & Rotherman-Borus, M. J. (2018). Understanding HIV risk behaviors among young men in South Africa: A syndemic approach. *AIDS and Behavior, 22*(12), 3962–3970. https://doi.org/10.1007/s10461-018-2227-x

Oliffe, J. L., Rossnagel, E., Bottorff, J. L., Chambers, S. K., Caperchione, C., & Rice, S. M. (2020). Community-based men's health promotion programs: Eight lessons learnt and their caveats. *Health Promotion International, 35*(5), 1230–1240. https://doi.org/10.1093/heapro/daz101

Phelanyane, F., Boulle, A., & Kalk, E. (2020). Prevention of mother-to-child-transmission (PMTCT) of HIV in Khayelitsha, South Africa: A contemporary review of the service 20 years later. *Journal of the International AIDS Society*.

Puljević, C., & Learmonth, D. (2014). Substance abuse prevention in Cape Town's peri-urban settlements: Local health trainers' perspectives. *Health Psychology and Behavioral Medicine, 2*(1), 183–197. https://doi.org/10.1080/21642850.2013.878659

Rabie, S., Bantjes, J., Gordon, S., Almirol, E., Stewart, J., Tomlinson, M., & Rotheram-Borus, M. J. (2020). Who can we reach and who can we keep? Predictors of intervention engagement and adherence in a cluster randomized controlled trial in South Africa. *BMC Public Health, 20*(1), 275. https://doi.org/10.1186/s12889-020-8357-x

Rabie, S., Tomlinson, M., Almirol, E., Stewart, J., Skiti, Z., Weiss, R. E., … Rotheram-Borus, M. J. (2023). Utilizing soccer for delivery of HIV and substance use prevention for young south African men: 6-month outcomes of a cluster randomized controlled trial. *AIDS and Behavior, 27*(3), 842–854. https://doi.org/10.1007/s10461-022-03819-x

Rotheram-Borus, M. J., Christodoulou, J., Rotheram-Fuller, E., & Tomlinson, M. (2023). Losses of children's cognitive potential over time: A South African example. *South African Journal of Child Health, 17*(3), 104–106.

Roudsari, R. L., Sharifi, F., & Goudarzi, F. (2023). Barriers to the participation of men in reproductive health care: A systematic review and meta-synthesis. *BMC Public Health, 23*(1), 818.

SAPS. (2022). *Police recorded crime statistics*. Republic of South Africa (Presentation).

Satoh, S., & Boyer, E. (2019). HIV in South Africa. *The Lancet, 394*(10197), 467. https://doi.org/10.1016/S0140-6736(19)31634-4

Shapiro, A. E., van Heerden, A., Krows, M., Sausi, K., Sithole, N., Schaafsma, T. T., Koole, O., van Rooyen, H., Celum, C. L., & Barnabas, R. V. (2020). An implementation study of oral and blood-based HIV self-testing and linkage to care among men in rural and peri-urban KwaZulu-Natal, South Africa. *Journal of the International AIDS Society, 23*, e25514.

Stangl, A. L., Earnshaw, V. A., Logie, C. H., Van Brakel, W., Simbayi, C., Barré, L., & Dovidio, J. F (2019). The Health Stigma and Discrimination Framework: A global, crosscutting framework to inform research, intervention development, and policy on health-related stigmas. *BMC Medicine, 17*, 1–13.

Statistics South Africa. (2019). *Quarterly labour force survey: Quarter 3 2019 (No. Statistical Release P0211)*. P. S. S. Africa. http://www.statssa.gov.za/publications/P0211/P02113rdQuarter2019.pdf

Super, G. (2015). Violence and democracy in Khayelitsha, governing crime through the 'community. *Stability: International Journal of Security and Development, 4*(1).

Tong, A., Sainsbury, P., & Craig, J. (2007). Consolidated criteria for reporting qualitative research (COREQ): A 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care, 19*(6), 349–357.

Trickett, E. J. (2009). Community psychology: Individuals and interventions in community context. *Annual Review of Psychology, 60*(1), 395–419.

UN Office on Drugs and Crime. (2022). *Intentional homicides, male (per 100,000 male) - South Africa*. https://data.worldbank.org/indicator/VC.IHR.PSRC.MA.P5?end=2018&locations=ZA&start=2018.

UN Women. (2020). *Feature story: In South Africa, young women leading HIV and violence prevention say men's involvement is key*. https://www.unaids.org/en/resources/presscentre/featurestories/2020/december/20201201_south-africa-young-women-lead-hiv-and-violence-prevention.

UNAIDS. (2021). *Country factsheets South Africa 2021 change*. https://www.unaids.org/en/regionscountries/countries/southafrica.

UNDP. (2022). *Accelerated public and private sector partnerships needed to create economic opportunities for Africa's youth*. https://www.undp.org/africa/news/accelerated-public-and-private-sector-partnerships-needed-create-economic-opportunities-africa%E2%80%99s-youth.

Vellios, N. G., & van Walbeek, C. P. (2017). Self-reported alcohol use and binge drinking in South Africa: Evidence from the National Income Dynamics Study, 2014–2015. *South African Medical Journal, 108*(1). *2018* http://www.samj.org.za/index.php/samj/article/view/12170.