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Experiences of alcohol use during pregnancy: A qualitative study of pregnant women at risk of acquiring HIV in Cape Town, South Africa

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ABSTRACT

In South Africa, alcohol use during pregnancy is prevalent and associated with increased HIV risk. Developing locally sensitive and contextually appropriate evidence-based interventions to address alcohol use among pregnant and breastfeeding women in South Africa requires comprehensive understanding of the context of perinatal alcohol use and how relationships and lived environments may serve as barriers or supports for alcohol reduction. We conducted twenty in-depth qualitative interviews with isiXhosa speaking women who reported alcohol use during their recent pregnancy and/or recent intimate partner violence in Cape Town, South Africa between September and November 2022. We describe patterns and drivers of ongoing alcohol use during pregnancy and map them onto levels of the socioecological model. Data were analyzed utilizing the interpretivist paradigm and interpretive thematic analysis. Eight women reported alcohol use during pregnancy, sixteen reported experiencing recent IPV, and four women reported both alcohol use during pregnancy and recent IPV. In interviews, commonly cited reasons for continued alcohol use in pregnancy included stress (e.g., due to financial concerns), peer pressure, the central role of alcohol use in socialization and the persistence of misconceptions regarding the safety of alcohol use in pregnancy. Still, despite women reporting social norms that supported continued alcohol use in pregnancy, many altered who they drank with due to fear of judgement from close friends and family, leaving them isolated from their social support system. Interventions aimed at increasing interpersonal support, such as the use of peer mentors, could prove beneficial. Although the clinic provides messaging around the harms of alcohol use in pregnancy, these messages conflict with messaging received from their peers, limiting their impact on behavior. Locally sensitive tailored, relevant programming that intervenes on barriers to reducing alcohol use in pregnancy at multiple levels of the socioeconomic model are vital to effectively addressing this public health issue.

1. Introduction

In South Africa, perinatal alcohol use is prevalent, occurring among

an estimated 13.2% of the general population (exceeding global prevalence of 9.8%) (Desmond et al., 2012; Petersen Williams et al., 2014; Popova et al., 2017 Popova et al., 2016; WHO, 2018), and heavy alcohol

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use is common among those who drink in pregnancy (Miller, Shoptaw, Mvududu, & et al., 2022). Consequently, rates of fetal alcohol spectrum disorder are exceedingly high, with national prevalence ranging from 29 to 290 per 1000 live births, surpassing both global (7.7 per 1000 births) and other country-level estimates (Lange et al., 2017; Olivier et al., 2016). Women who use alcohol during pregnancy are also at risk for numerous adverse prenatal and birth outcomes, including low-birth weight, miscarriage, stillbirth and preterm delivery (Bailey & Sokol, 2011), with alcohol use while breastfeeding potentially leading to adverse consequences such as infant physical and neurocognitive development (May et al., 2016). Furthermore, women who used alcohol during pregnancy in South Africa are also more likely to use alcohol while breastfeeding, underscoring the criticality of addressing maternal alcohol use early in pregnancy (May et al., 2016).

A robust global body of evidence suggests that alcohol use is inter-related with two other prevalent public health issues in South Africa that burden pregnant and breastfeeding women: HIV infection (e.g. through engagement in condomless sex) (Joseph Davey et al., 2017; Rehm et al., 2012; Fisher et al., 2007) and intimate partner violence (IPV) (Leonard & Quigley, 2017; Devries et al., 2014). Alcohol use serves as both a direct and indirect (through experiences of IPV) risk factor for incident HIV. Pregnant women who use alcohol may be at increased risk of acquiring HIV through lowered inhibitions and engagement in unsafe sexual behaviors, such as condomless sex (Miller et al., 2022). Our recent research in Cape Town found that women who reported recent alcohol use prior to pregnancy had greater odds of being at high risk of HIV (Miller, Shoptaw, Mvududu, & et al., 2022). IPV prevalence estimates among pregnant women in South Africa range from 25% to 35% (Hoque et al., 2015; Gass et al., 2010). IPV and alcohol use frequently co-occur in this setting, with alcohol use by one or both partners frequently preceding instances of IPV (Leonard & Quigley, 2017; Devries et al.). Women who are experiencing IPV may also engage in condomless sex due to reduced ability to safely negotiate condom use and other sexual risk reduction approaches (e.g. serostatus disclosure) with their partner(s) (WHO. *Intimate Partner Violence and HIV/AIDS*, 2004). IPV is also associated with numerous adverse health outcomes including injury and death as well as poor mental health outcomes (depression, anxiety, post-traumatic stress disorder) (Sugg, 2015; Alhusen et al., 2015). Further, extant literature suggests that IPV in pregnancy is associated with delayed and inconsistent engagement in antenatal care and adverse birth outcomes, including preterm birth and low-birth weight (Alhusen et al., 2015; Vintzileos et al., 2002). Therefore, in addition to being a serious public health issue in its own right, alcohol use in pregnancy is an important component of comprehensive regional HIV prevention programming.

Effective evidence-based interventions (EBIs) to address alcohol use among pregnant and breastfeeding women in South Africa are urgently needed. Our recent systematic reviews (Sileo et al., 2020a, 2020b) identified a total of two studies specifically targeting perinatal alcohol use in sub-Saharan Africa (Rotheram-Borus et al., 2019; Marais et al., 2010). One of these studies, was a brief intervention (BI) which produced a significant reduction in alcohol use disorders identification test (AUDIT) scores immediately after intervention delivery but reported no intermediate or longer term follow-up (Marais et al., 2010). The other was a randomized controlled trial of Philani Plus in South Africa which utilized the mentor mother approach, a promising intervention model that could be adapted to address alcohol use. This approach involves use of positive deviant peer role models to deliver intervention content including counseling, education, referral for services and provision of basic health services. Philani Plus saw sustained intervention effects on children's health outcomes and maternal depression at 36 months follow-up (Rotheram-Borus et al., 2015). Intervention participants were also more likely to be non-drinkers at five years post-partum even though alcohol use was not the primary objective of the intervention (Rotheram-Borus et al.). Two additional pilot studies are also underway: Women's Health Co-Op (Wechsberg et al., 2011, 2013, 2019, 2021) is an

EBI that has been successfully adapted for use in a variety of women at high risk of HIV in South Africa, and is currently being piloted among pregnant women to address perinatal alcohol use. The second study is using mHealth and contingent financial incentives to address alcohol use in pregnancy (Washio).

High community acceptability towards alcohol use during pregnancy complicates delivery of effective public health messaging on the topic (Watt, Eaton, & Dennis, 2016), underscoring the importance of relevant and resonant EBIs. Social norms in the Western Cape that uphold excessive drinking and alcohol use during pregnancy have historical and sociopolitical roots. In the apartheid era, the "dop" system allowed farm owners to pay their workers in alcohol (as opposed to cash) and illegal shebeens (bars/taverns) played central roles in township community socialization (London et al., 1998; May et al., 2019; Schneider et al., 2017). Although the dop system is no longer occurring, rural communities where it was previously practiced continue to experience exceedingly high rates of heavy alcohol use among women (generally and during pregnancy) and FASD, suggesting that normative drinking patterns established under that system persist and influence alcohol use patterns among pregnant women today (May et al., 2019). Despite a legacy of social norms supportive of alcohol use in pregnancy, perinatal alcohol use is still a stigmatized behavior subject to underreport, especially in healthcare settings (Ernhart et al., 1988).

Alcohol use risk factors and drivers in pregnancy have been described to a degree (Addila et al., 2020; May et al., 2005), but developing locally sensitive and contextually appropriate EBIs to address alcohol use among pregnant and breastfeeding women in South Africa requires comprehensive understanding of the context (how, why, where and with whom) of alcohol use among pregnant women and perspectives on how people in their lives and their lived environment may serve as barriers or supports for alcohol reduction (McLeroy et al., 1988). While a small number of studies have qualitatively explored alcohol use among pregnant women in South Africa, they focused specifically on knowledge of and attitudes towards alcohol use in pregnancy (Watt et al., 2016) or were conducted exclusively among pregnant women who drank in public spaces (Eaton et al., 2014; Watt et al., 2014). Despite the described influence of context on alcohol use (Addila et al., 2020; Gruenewald et al., 2014; Apostolopoulos et al., 2018), studies looking at the socio-ecological nature of drivers of alcohol use in pregnant women in low and middle income countries (LMICs) (Agir-esaasi, 2021), particularly in the South African context (Adebiyi & Mukumbang, 2021), are also limited. The present study builds upon this evidence base by qualitatively exploring contextual factors that may contribute to ongoing alcohol use during pregnancy to identify potential points of intervention in a population of pregnant and postpartum women at risk of HIV infection.

2. Methods

2.1. Parent study design

We conducted an exploratory qualitative study nested within Pre-Exposure Prophylaxis in Pregnant and Post-Partum Women (PrEP-PP) study, a recently completed observational cohort study of 1200 pregnant women recruited at first antenatal care (ANC) visit and followed through 12 months post-partum from a public health clinic in Cape Town, Western Cape, South Africa (Clinical Trial Reg: NCT03902418). Methods of PrEP-PP have been described in detail elsewhere (Joseph Davey et al., 2022). In brief, recruitment occurred between August 2019 and October 2021; eligibility criteria included: 1) being >16 years of age, 2) confirmed HIV-negative serostatus by a fourth-generation antigen/antibody combination HIV test, 3) confirmed pregnancy, 4) intention to stay in Cape Town through the postpartum period, and 5) no contraindications to PrEP. Study staff collected baseline surveys among participants at enrollment. All participants were offered oral PrEP (TDF/FTC); initiation was not a requirement for participation in the

cohort. Women were then followed every 3 months for the duration of the study for follow-up data collection through 12 months postpartum (survey and biological specimen collection).

2.2. Qualitative study design, context and recruitment

The overarching purpose of our qualitative study was to explore the relationship between alcohol use, IPV and biomedical prevention of HIV (PrEP) in pregnant and breastfeeding women in Cape Town, South Africa. We nested our study within PrEP-PP as it was conducted in a community where alcohol use, IPV and HIV are prevalent among pregnant women (Brittain et al., 2018; Earnshaw et al., 2018; Katz et al., 2019). This community of ~98,500 people is located approximately nine miles outside of Cape Town. The community was established in the 1960s under apartheid era land disposition and segregation laws (<21. Medline Lost Opportunity IJSA). The township, which is in the Cape Flats, has historically been a landing spot for migrants from rural communities in Transkei and Eastern Cape seeking work and a new life in Cape Town (<21. Medline Lost Opportunity IJSA). Social norms around alcohol use that developed under apartheid in this community persist (Mager, 2004).

We used purposive sampling to recruit twenty participants from PrEP-PP. Recruitment of participants from PrEP-PP allowed us to (1) readily identify women who engage in perinatal alcohol use and experience IPV, behaviors that are frequently underreported and, (2) build off the established trust between the PrEP-PP research/clinic team and participants which undoubtedly supported our recruitment of this hard-to-reach population. To identify eligible participants, we first analyzed baseline data from PrEP-PP to identify participants meeting the following criteria, which were chosen to ensure recruitment of participants with first hand experiences of IPV, alcohol use and PrEP use during pregnancy: (1) initiated PrEP at first ANC visit and (2) reported alcohol use during pregnancy and/or IPV in the past 12 months. A list of all eligible participants from PrEP-PP was generated and then a rank order for contacting participants was systematically developed to capture an array of drinking patterns (via AUDIT-C at baseline) and a balance of women reporting alcohol use and/or IPV. Efforts were also made to prioritize recruitment of women reporting both alcohol use and IPV to explore potential synergism between these issues. Eligible women were contacted via phone call and invited to participate by a trained research assistant. If interested, they would come to the clinic for further screening (to reconfirm alcohol use during pregnancy and/or recent IPV) and if eligible, provide written informed consent and complete the in-depth interview. The study was approved by the Human Research Ethics Committee at the University of Cape Town and by the University of California, Los Angeles Institutional Review Board.

2.3. Data collection

Twenty in-depth interviews were collected between September and November of 2022 by a South African female trained qualitative researcher pursuing her doctorate degree (KM). By virtue of the timing of this work (relative to the start of PrEP-PP), all women were postpartum at the time of their interview. Interviews lasted 34 min on average, and all participants were compensated for their time (\$8/visit in a grocery voucher). Interview guides were semi-structured to facilitate probing around emerging discussions relevant to the focus of the study [see supplemental materials for guide]. Interviews were conducted in isiXhosa, the local language, and audio recorded. Interview topics included interpersonal and socio-cultural drivers of IPV and perinatal alcohol use; patterns of drinking among pregnant and breastfeeding women in SA; decision making around HIV risk reduction; and reasons for PrEP continuation and adherence.

2.4. Data analysis

Sample size was determined using the saturation in salience (Weller et al., 2018) approach which emphasizes identifying the most salient themes. Interviews that employ extensive probing can capture 95% of salient themes even with a small sample size (10 interviews). Given the heterogeneity of our sample in terms of patterns of alcohol use and experiences of IPV, we went for a larger sample size of 20 participants and oversampled participants reporting both IPV and alcohol use to support exploration of how these two issues were interrelated. Our primary analytic objective in the analysis presented here was to describe patterns and drivers of ongoing alcohol use during pregnancy. Patterns of IPV and the relationship between alcohol use, IPV and HIV prevention, including PrEP use, will be explored in a separate manuscript. In-depth interviews were transcribed and translated into English by a trained qualitative researcher fluent in both English and isiXhosa (CN); all transcripts were reviewed by a second qualitative researcher fluent in both English and isiXhosa to ensure quality. Data were imported into Dedoose (version 9.0.86) for coding and analysis (www.dedoose.com). Utilizing the interpretivist paradigm (Guba et al., 1994), we performed interpretive thematic analysis to analyze and understand our results (Braun & Clarke, 2006). Our codebook was developed iteratively using both deductive and inductive methods. An initial set of codes was developed based on review of 50% (n = 10) of the transcripts and issues anticipated to emerge based on prior knowledge. Next, a subset of interviews (20%; n = 4) were independently coded in parallel by two researchers (AM, SS) who then met to review code application, discuss, reconcile discrepancies, and revise the codebook as needed. The remaining transcripts were independently coded by the same two researchers. Once all transcripts were coded, a meeting was held to discuss emergent themes followed by subsequent rounds of data synthesis (memoing) and discussion. Our results section is structured by presentation of the most salient themes for the present analysis, which were then consolidated under the various levels of the socio-ecological model in order to provide recommendations for possible points of intervention. The Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist (Tong et al., 2007) guided our analysis and reporting.

The socioecological model was used during analysis to describe social and environmental factors of perinatal alcohol use among pregnant women in Cape Town, as well as how their social environment may serve as a barrier or support for alcohol reduction. The socioecological model considers the behaviour of individuals within the context of their social environment and emphasizes the importance of considering the complex interplay between factors at the individual, interpersonal, institutional, community and societal level (McLeroy et al., 1988). This model therefore helps us to understand the multi-level nature of the drivers, social barriers and supports of alcohol use and relative reductions and to link findings to future intervention design. The model consists of the following five levels: (1) individual factors, (2) interpersonal factors, (3) institutional or organizational factors, (4) community factors and (5) public policy factors.

During every stage of the study steps were taken to enhance the rigor and trustworthiness of our results through application of Lincoln and Guba's (1985) (Lincoln & Guba, 1985) four criteria for establishing trustworthiness: dependability, credibility, confirmability and transferability. Data synthesis and analysis were collaborative allowing for inter-analyst reliability, facilitating dependability and credibility. To further promote credibility and confirmability, our international multi-disciplinary team of researchers utilized peer-debriefing throughout the analytic process to exchange feedback and promote reflexivity. Our team included five local qualitative (DJD, LC, LK, KM, CN) researchers to ensure interpretation of findings was both culturally and contextually relevant. To promote transferability of findings we focus on thick description, presenting the study conditions (see above) and providing context for individual participant narratives by including key sociodemographic characteristics collected in the baseline survey.

These characteristics were identified and considered during analysis and are included alongside quotations to ground and help further explain our qualitative findings. Characteristics include participant age, self report of alcohol use during pregnancy, and self-reported recent (past year) experiences of IPV. We also report additional descriptives such as self-reported pregnancy intentions (desire to have a baby, timing of the pregnancy) (Hall et al., 2017) and parity for the overall sample.

3. Results

3.1. Descriptive characteristics of study participants from baseline PrEP PP data

A total of 20 women comprised our analytic sample. Participant ages ranged from 22 to 42 years (median age 29 years). Eight women reported alcohol use during pregnancy and sixteen reported experiencing some form of IPV in the past year. Four of the women reported both alcohol use during pregnancy and recent IPV. Eight women reported that the timing of the pregnancy was “wrong” while eleven reported wanting to have a baby at their baseline visit (other response options were not wanting to have a baby, n = 7, and having mixed feelings about having a baby, n = 2). Median gestational age at first antenatal care visit was 20 weeks. Mean number of children (excluding the current pregnancy) was 2.6.

Our results are organized into four emerging thematic domains that were identified as central to understanding and intervening on alcohol use and IPV in pregnancy, (1) patterns of alcohol use during pregnancy, (2) drivers of continued alcohol use, (3) awareness of harms of alcohol use in pregnancy, and (4) community attitudes towards alcohol use in pregnancy. We have also mapped identified barriers and points of intervention onto the socioecological model (see Fig. 1).

3.2. Patterns of alcohol use in pregnancy

Participants fell into several patterns of alcohol use. Those who were not alcohol drinkers prior to pregnancy continued to remain abstinent. Many participants indicated that they stopped drinking once they learned they were pregnant to protect the health of their child, a finding that must be considered in context of the fact that a majority of participant pregnancies were planned. In instances where they were unplanned, women may have been unaware of their pregnancy during some or all of the first trimester, a critical period in fetal development. Here, a participant describes how she felt “strange”, “like something was shifting inside of her”, which led her to taking a pregnancy test despite previous unsuccessful attempts at becoming pregnant, and subsequent changes in drinking habits:

Before, I drank. I drank up until I had the symptoms that I described. I stopped drinking completely after I did the pregnancy test. I used to drink before because I didn't know.

(35 years old, reported alcohol use during pregnancy and recent IPV)

Among participants who continued to drink alcohol after learning they were pregnant, there was heterogeneity in patterns of continued use. A few participants reported only drinking on special occasions (holidays, ceremonies, birthdays) while others reported continued frequent use. For several participants, drinking behaviors during pregnancy were unchanged from those prior to learning they were pregnant, as described by one participant below:

I used to drink whatever was available ... Yes, brandy. I used to drink whatever! I wanted something that would quickly get to my head ... Yes, anything that would get to my head and make me feel tipsy. Anything that would help me not to think too much. But you still think, it doesn't help.

(28 years old, reported alcohol use during pregnancy)

Several participants reduced their alcohol use or changed the types of alcohol they consumed during pregnancy. For example, some participants described only drinking beer which they perceived as less harmful to the baby:

I felt that wine was too strong for the baby and that is what made me change from wine to beer ... It was for the sake of [the baby] because I thought to myself that if I drink wine during the pregnancy, I will find that when I give birth the baby will be underweight, cramped, or shrunk. So, I was thinking about the child's health to say this red wine I am drinking, I don't dilute it, I drink it raw, so it is affecting the child inside so I should stop.

I choose beer because I think that it isn't as hectic, and it is not that strong.

(24 years old, reported alcohol use during pregnancy)

Another participant described limiting her alcohol intake to only when she was experiencing intense cravings:

“[before I was pregnant] I would drink constantly, I would drink every single weekend, even during the week, I would drink. So, when I fell pregnant, I reduced the pace at which I was drinking. I would drink only little. I would only drink when I craved alcohol and I would only drink beer, only when I craved it. I wouldn't drink every day like I used to.

(23 years old, reported recent IPV)

Among participants that continued to drink at reduced or comparable levels, the decision to do so was justified by identification of stressors in their life that triggered their desire to drink.

3.3. Stress as a primary driver of alcohol use during pregnancy

Continued alcohol use during pregnancy was described by several

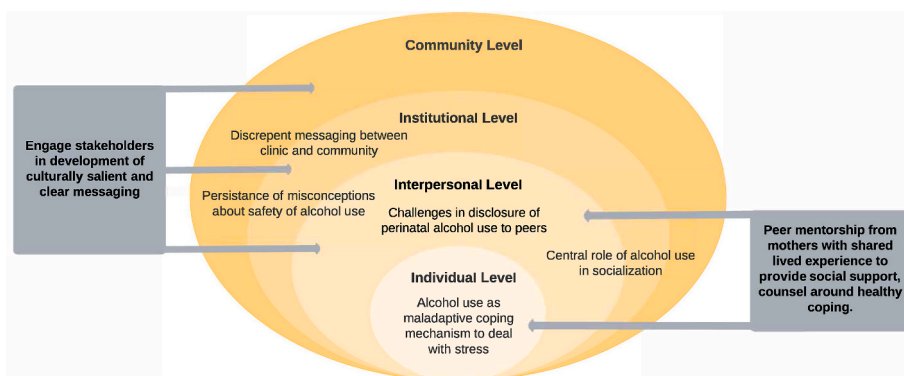


Fig. 1. Barriers to addressing maternal alcohol use in pregnancy and points of intervention mapped onto the socioecological model.

participants as a way to escape stress and cope with their circumstances. Participants attributed this stress to several sources, including the pregnancy itself, finances, and their relationship with the father of the child. One participant who stated that her pregnancy was unintended indicated she had hoped continued drinking may lead to pregnancy loss as she was beyond the window where abortion was an option.

You know why [I continued drinking]? I thought maybe there would be an accidental miscarriage if I drank too much ... I'm being serious. I thought that maybe that's how it would happen.

(28 years old, reported alcohol use during pregnancy)

For others, stress was attributed to an absent and or unsupportive father of the baby. Some participants had partners who traveled for work or periodically returned to the Eastern Cape (a common phenomenon as many residents of this community are recent migrants to the Western Cape). These women found themselves pregnant, alone and often without a reliable source of income. Interestingly, participants attributing their alcohol use to stress were overwhelmingly aware of the fact that their alcohol use was ineffective at reducing stress. One participant described how a combination of stress and boredom stemming from her partner's temporary absence led her to continue her alcohol use in pregnancy:

I was stressed because I wasn't working, and the father of my child wasn't working. And he left and went to live in the Eastern Cape ... So, I thought, let me go drink. I was drinking a lot while I was pregnant with this child. I was stressed about the fact that the father of the child was gone, and I am not working ... My life and my children's lives are dependent on me, and I have no money ... Because when you drink alcohol, your stresses don't end. But us, we have that stupid mentality, it is as if when you are drunk you are removing that stress So, you just have your own stresses, and you just drink. Tomorrow the stress will come back again ... [So I would drink because] I was stressed or sometimes I am bored. I am just sitting around not doing anything. Like that thing where you would be just sitting around with nothing to do.

(39 years old, reported alcohol use during pregnancy and recent IPV)

Suspected and confirmed instances of unfaithful partners and experiences of IPV were also mentioned as motivating factors for alcohol use during pregnancy. One participant described how a combination of IPV and partner unfaithfulness caused stress which in turn led her to continued alcohol use during pregnancy. Of note, this participant (and others) did not report ongoing alcohol use at her baseline visit but retrospectively reported drinking during pregnancy at the time of the postpartum interview.

I used to drink while I was pregnant because I was under a lot of stress. Because sometimes my husband would leave and not come back. He would sleep outside the home. Yes, he was doing those kinds of things, and he was abusing me. [...] I had a protection order against him before he went to prison but we still lived together. And then he abused me. And then he pursued another girl who lived in the area.

(35 years old, reported recent IPV)

Alcohol use was also described as a coping mechanism for participants who felt that they could not discuss their personal challenges with friends and family for fear of being judged about their choices to fall pregnant with someone who could be perceived as an unsuitable partner.

You think to yourself, "this situation that they find themselves in [being pregnant]." Those are the things that I feel like led to me to the idea of having an abortion. My sisters talk too much. You see people, they will say, "You must really love this boyfriend yours and so forth." "You must really love them a lot, you loved that so much

that you thought to fall pregnant again. You decided to be impregnated by a person you know is broke." And internally you would know how your boyfriend was before they were unemployed. It is not like they were going to remain unemployed forever. It is those types of circumstances that lead people to drink.

(35 years old, reported recent IPV)

Social norms of drinking despite awareness of harms of alcohol use while pregnant.

The overwhelming majority of participants demonstrated an awareness that alcohol use during pregnancy was harmful and indicated that this message was consistently delivered by healthcare providers. In fact, awareness of the harms of alcohol use (often promoted through the clinic) is what motivated many of the women to reduce their alcohol intake while pregnant, change the type of alcohol they consumed or stop drinking entirely, as was the case with this participant:

The sisters [nurses] counsel you when you come for your first antenatal care appointment. They ask whether you drink or not, and then you can respond by saying, "yes I am a part-timer [a reference to drinking alcohol on the weekends]." Just like me. And then they sit with you and say, "no stop that part-timing of yours, because it is not healthy for you child. I was just like, "oh okay." And then I stopped. I won't be able to say this and that happened. It was because I knew that I was carrying my child, a child that I love and so when they say it is wrong for the child, I can stop, so I stopped. I was doing it for my child.

(31 years old, reported recent IPV)

Still, misconceptions regarding the safety of alcohol use during pregnancy were widely held. These included the notion that consumption of specific types of alcohol could influence the child's skin tone, the idea that beer and stout were completely safe to drink while pregnant, the belief that drinking vodka or brandy could help to induce labor and the widely held notion that once a fetus has been exposed to alcohol it "wants alcohol" and one should continue to drink. One participant described feeling like it was safe to drink during pregnancy because doing so didn't produce any immediate negative side effects:

I didn't see anything wrong [with continuing to drink in pregnancy] because alcohol wasn't negatively affecting me. So, I was like, it's fine, let me continue drinking if it doesn't negatively affect me. Perhaps if something were to happen when I was drinking, perhaps I would ... For example, if I would vomit when I drank, perhaps I would think there was a problem with drinking while pregnant.

(28 years old, reported recent IPV)

Another woman explained how misconceptions regarding the safety of alcohol use in pregnancy were often perpetuated by peers and other community members:

Well, some friends have bad influence ... Because a person may say, "friend, personally, I used to drink while I was pregnant, but I didn't drink a lot." Another may say, "no, personally I used to drink, and my child was born healthy and so forth." A person may say, "do you see how beautiful my child is, I used to drink. This is a Bernini child, I used to drink Bernini [a sparkling seltzer made from wine] when I was pregnant." Or another may say, "yoh, I used to drink Brandy. Do you know how quick my labor was?" ... And so another lady gave me this advice, she said, "drink Brandy, the white Smirnoff."

(35 years old, reported alcohol use during pregnancy and recent IPV)

A reluctance by peers and bystanders in the community to intervene if they observed pregnant women consuming alcohol was described by several participants. This resignation was largely attributed to a sense of futility and concern that repeatedly pressing someone to stop might jeopardize their friendship.

[People who see pregnant women drinking in taverns] won't say anything because, we have comebacks when people talk to us. A person may say, "What you are doing is wrong." And then you may have a comeback and say, "How is this any of your business, because you won't even do anything for this child. You don't do anything for this child, so, it is not any of your business." A person may avoid talking because of that. And, indeed at the end you won't do anything for her. If you say something, you end up being enemies with that person. So, it best to just shut your mouth and just watch them."

(39 years old, reported alcohol use during pregnancy and recent IPV)

Despite perceptions that people were unlikely to intervene, participants who described ongoing alcohol use primarily reported drinking at home, outside of the public sphere. One woman described how her visibly pregnant neighbor would purchase alcohol under the guise that it was for her husband so the *shebeen* (bar/tavern) owner would sell it to her, but then go home and consume it herself. Another balked at the idea that she would drink in public while pregnant:

"No, no one has ever seen me drinking while pregnant, because I drink indoors. I've never left the house drunk, no no. So, no one has ever seen me [drinking]."

(22 years old, reported alcohol use during pregnancy and recent IPV)

For many women, although they reported only drinking at home it was still social drinking with peers. Narrative after narrative underscored the central role of alcohol use in socialization in the community and the idea that friends will always encourage you to drink with them, such as this participant's:

Firstly, it is friends. Friends have a huge influence, even when you are given advice at home. But once friends get to you, well it depends on you, it depends on the individual, it depends on what the individual wants. If you are easily influenced, then you are going to go with the flow. A friend may say, "here is a carry pack. [six pack], just take only two, so that you get a little bit tipsy."

(35 years old, reported alcohol use during pregnancy and recent IPV)

Despite alcohol use being described as a social activity that is often encouraged by peers, several women also indicated that there were people in their life who would disapprove of this behavior. Those who reported continued alcohol use did so with people that they felt supported, or at minimum were ambivalent about, their drinking. For some this meant continuing to drink with the same people while for others this involved an intentional change in drinking peers and covert use to avoid judgement.

I didn't drink with [my cousins] because they would stop me. I usually drink with my cousins. They were going to ask me why I was drinking in the manner that I did. Because they did ask me during that period, but I didn't pay any attention to them. I would leave them behind and go. So, they would ask me when I came back. And then I would respond by saying, "no man, just leave me alone." Because they wouldn't allow me to drink if they knew I was pregnant.

(28 years old, reported alcohol use during pregnancy)

4. Discussion

The present study provides valuable first-hand insight regarding individual, interpersonal and wider social factors that contribute to ongoing alcohol use among pregnant women in Cape Town across levels of the socioecological model.

Commonly identified reasons for continued alcohol use during pregnancy in our study included stress (attributed to the pregnancy, financial concerns, and their relationship with the father of the child),

societal pressure (in the form of peer pressure and due to the central role of alcohol in socialization) and the personal belief certain types of alcohol were safe to drink whilst pregnant or breastfeeding. These are consistent with the global evidence base regarding perinatal alcohol use (Addila et al., 2020; Popova et al., 2022), as well as the other local qualitative studies (Watt, Eaton, & Choi, 2014; Watt et al., 2016). These drivers are multi-level in nature and although experienced at an individual level (i.e., stress or personal belief systems), they are often the result of the influence of factors at other levels, such as societal pressure (community and interpersonal levels) and personal relationships (interpersonal level). Several barriers to addressing alcohol use in this population were identified and mapped onto the socioecological model. At an individual level, use of alcohol as a maladaptive coping strategy to mitigate stress; at an interpersonal level, challenges in disclosure of ongoing alcohol use to one's social support system; and spanning the interpersonal, institutional and community levels, barriers include the persistence of misconceptions regarding the safety of alcohol use in pregnancy and breastfeeding, and the absence of sensitization and clear messaging in the community around the harms of alcohol use in pregnancy (to dispel prevailing norms and misconceptions). Locally sensitive and contextually relevant EBIs that overcome these multi-level barriers to effectively address alcohol use among pregnant women in this setting are lacking and urgently needed. Potential points and strategies for intervention as well as next research steps are described below.

Pregnancy and postpartum periods are characterized by social, emotional, and physical change at an individual level and can be challenging even under the best circumstances. Appropriate social support at an interpersonal level can help mitigate the impact of these changes on pregnant women's resilience, stress and mental health directly (through a sense of belonging and safety) and indirectly (through stress-buffering) (Cohen & Wills, 1985; Dunkel Schetter, 2011; Orr & Miller, 1997). Stress causes high cortisol levels which can adversely impact both maternal and fetal health (Giesbrecht et al., 2013). Addressing stress is particularly important in our sample because it was identified as a driver of continued alcohol use which is consistent with prior research among pregnant women in SA (Watt et al., 2014). Extant literature has also linked low social support to substance use (Degen et al., 1993; Skagerstrom et al., 2013) and IPV (Sigalla et al., 2017) in pregnancy and identified social support as protective against the impact of experiences of IPV on mental health (Coker et al., 2002). Participants often described challenges in interpersonal relationships that would help to counteract their alcohol use. Alcohol use was described as central to socialization practices as well as to the development and maintenance of interpersonal relationships. Women in our study also described intentional distancing from other interpersonal level support systems to avoid judgement related to their decision to continue alcohol use in pregnancy or remain in a relationship they felt their loved ones did not approve of.

In some instances, participants were experiencing both IPV and alcohol use and their perceived lack of social support and relationship stress contributed to their patterns of ongoing alcohol use and further isolation or to time spent in social environments that would encourage their further drinking. The critical role of social relationships and norms described in our study are consistent with findings from a recent qualitative systematic review of reasons why women use alcohol in pregnancy (Lyll et al., 2021). EBIs aimed toward increasing interpersonal support could prove useful, such as a peer-based mentor and counseling model, specifically focused on addressing alcohol use in pregnancy. This approach could provide a judgement free space to receive social support in addition to delivery of motivational counseling to support overcoming other identified barriers, such as dispelling misconceptions about the safety of alcohol use in pregnancy and identifying productive, and adaptive coping mechanisms for handling stress. The use of mentor mothers with shared lived experiences who have subsequently modified their behavior (e.g., consumed alcohol during pregnancy but stopped or chose not to drink during a subsequent pregnancy) could further reduce stigma. It should be noted, the effectiveness of these programmes in

providing neutral, safe spaces of support is contingent upon the meticulous and comprehensive training of mentors, counselors and health providers. The approach offers several additional advantages including demonstrated adaptability, low burden on the healthcare system (i.e., through task shifting (World Health Organization, 2007) to community health workers/mentor mothers) and scalability (i.e., Since 2001 mothers2mothers (Myers et al., 2013) has reached 11.95 million women and children in ten African countries (Mothers2Mothers, 2021)). In addition to peer mentorship, it is key that future initiatives address upstream social determinants of perinatal alcohol use. Given the ubiquity of participants' alcohol use in relation to their relationship, equal consideration should be given to contextually appropriate partner-based interventions to reduce alcohol use during pregnancy.

Although strong messaging was received at an institutional level from the participants' antenatal clinic, the often-late timing of this information (due to late presentation at health care services) influenced the effectiveness of the messaging, and stigma and social desirability reduced honest reporting of ongoing alcohol use to providers. There was also a frequent overriding influence of peer and community held alcohol-related beliefs and behaviors on alcohol use in pregnancy, which mitigated messaging impact at an institutional level, as noted in prior research (Parry, 2014; Parry et al., 2014). Our participant's consistent receipt of guidance regarding the harms of alcohol use from clinic staff and the incompatibility of this guidance with the alcohol-related social norms observed in their community is also consistent with previous qualitative work in South Africa (Watt et al., 2016). The conflicting messaging from peers and community members at the interpersonal and community levels around perinatal alcohol use described by our participants highlights the need for additional research with key stakeholders of pregnant women who use alcohol. These findings are also consistent with prior qualitative work in South Africa which found that lay knowledge in the community frequently superseded clinical guidance and concluded that messaging to prevent alcohol use in pregnancy would require both target audience and community input (Watt et al., 2016). Therefore, complementary qualitative work with drinking peers, intimate partners and community leaders is needed to identify locally sensitive and contextually salient alcohol harm reduction messaging and additional points of intervention across the interpersonal and community levels of the socioecological model. Further, complementary qualitative work among pregnant women living with HIV who use alcohol is also needed to understand how experiences may differ. Finally, to increase the salience of counseling received in clinic, we must think beyond what is being delivered to how it is being delivered. Adoption of a harm reduction approach may improve women's perceived support from providers, creating opportunities for open dialogue (including disclosure) and counseling (Lyll et al., 2021). Similarly, it is important to carry non-stigmatizing, harm reduction oriented approaches that are supportive and patient-centered into policy and public health messaging and media campaigns (Lyll et al., 2021). Trauma-informed approaches, and respectful and relational interactions are also fundamental components of programs to address alcohol use and experiences of violence among pregnant women from a women's health determinants perspective and their integration would increase patient receptiveness to messaging (prevention NAToF, 2022).

The present study emphasizes the confluence of factors that collectively influence alcohol use in pregnancy among women in South Africa and underscores the need to address these as well as the violence this population experiences in order to protect the health of both mother and fetus. The public health implications of this study are even more critical when considered within the context of the HIV epidemic in South Africa and the role of alcohol use and IPV as risk factors for engagement in HIV sexual risk behaviors and incident HIV. Our recent research found that pregnant women engaging in alcohol use and/or experiencing IPV and initiating PrEP were more likely to continue PrEP at 3 months, suggesting that PrEP may be a preferred HIV prevention option among high-risk pregnant and breastfeeding postpartum women (Joseph Davey

et al.; Miller, Shoptaw, Moucheraud, & et al., 2022). Ensuring all pregnant women have access to PrEP while addressing barriers to access among pregnant women who use alcohol and experience IPV specifically is critical to HIV prevention efforts in South Africa. Engagement of community stakeholders throughout the development of interventions addressing this need will promote locally sensitive and contextual fit of intervention messaging.

This study had several limitations. As a qualitative study our findings are not generalizable to pregnant women in other cultural contexts. Steps were taken, however, to promote transferability of findings to other pregnant women who consume alcohol in a similar setting. In addition, the subject matter covered in our interviews was highly sensitive and it is possible that participants underreported their experiences of IPV and alcohol use (Petersen Williams et al., 2014). However, the timing of our interviews was ideal as we recruited participants as the PrEP-PP cohort study was concluding and all interview participants were postpartum. Prior work in South Africa found that postpartum women's self-report of alcohol consumption in pregnancy increased at retrospective report (Arfer et al., 2020). Several participants in our study who did not indicate that they used alcohol during their pregnancy at their baseline interview reported perinatal alcohol use at postpartum. Furthermore, we were able to check participant narratives around alcohol use against their baseline AUDIT scores and some described patterns of alcohol use in their interviews that was heavier than their AUDIT score implied. Given the known elevated prevalence of perinatal alcohol use within this region, it is important to acknowledge that despite our study's efforts there remains potential for underreporting of actual alcohol use during pregnancy, thereby impacting generalizability of findings. Also of note, we had an easier time recruiting women who reported IPV than those reporting alcohol use, which underscores the stigma surrounding this behavior and why women who engage in alcohol use during pregnancy are likely underrepresented in the literature."

5. Conclusion

This study highlights the burden of alcohol use and experiences of IPV among pregnant women in Cape Town, South Africa. Identified drivers of alcohol use in pregnancy span several strata of the socioecological model, including the individual, interpersonal, organization and community level. Despite alcohol use in pregnancy being described as a social activity, pregnant women who engage in alcohol use often find themselves isolated from the members of their social networks who are willing to intervene, due to fear of judgement. Interventions aimed at increasing interpersonal social support, such as the use of peer mentors, could prove beneficial. Although the clinic provides messaging around the harms of alcohol use in pregnancy, these messages conflict with messaging received in the community, limiting clinical impact on behavior. Interventions to reduce alcohol use in pregnant and breastfeeding women that do not fully consider the interrelated and multi-level nature of existing barriers to reducing alcohol use in this population (e.g., the impact of distancing oneself from supportive peers to avoid judgement, contributing to isolation, stress and alcohol use as maladaptive coping strategy) may have limited effectiveness. Locally sensitive and contextually relevant programming are vital to overcome barriers identified in this article.

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CRedit authorship contribution statement

Amanda P. Miller: Conceptualization, Formal analysis, Funding acquisition, Investigation, Methodology, Visualization, Writing –

original draft, Writing – review & editing. **Lara Court:** Writing – review & editing. **Sarah Schoetz:** Formal analysis, Writing – original draft, Writing – review & editing. **Lucia Knight:** Writing – review & editing. **Kearabetswe Moopelo:** Investigation, Writing – review & editing. **Chwayita Ntwasa:** Validation, Writing – review & editing. **Nafisa Wara:** Writing – review & editing. **Zaynab Essack:** Writing – review & editing. **Steven Shoptaw:** Writing – review & editing. **Landon Myer:** Writing – review & editing. **Dvora Joseph Davey:** Conceptualization, Supervision, Writing – review & editing.

Declaration of competing interest

none

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.ssmqr.2024.100394>.

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