

Alcohol Use During Pregnancy in a South African Community: Reconciling Knowledge, Norms, and Personal Experience

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Published online: 22 July 2015

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Abstract

Objectives Due to high rates of fetal alcohol spectrum disorder (FASD) in South Africa, reducing alcohol use during pregnancy is a pressing public health priority. The aim of this study was to qualitatively explore knowledge and attitudes about maternal alcohol consumption among women who reported alcohol use during pregnancy.

Methods The study was conducted in Cape Town, South Africa. Participants were pregnant or within 1 year post-partum and self-reported alcohol use during pregnancy. In-depth interviews explored personal experiences with drinking during pregnancy, community norms and attitudes towards maternal drinking, and knowledge about FASD. Transcripts were analyzed using a content analytic approach, including narrative memos and data display matrices.

Results Interviews revealed competing attitudes. Women received anti-drinking messages from several sources, but these sources were not highly valued and the messages often contradicted social norms. Women were largely unfamiliar with FASD, and their knowledge of impacts of

fetal alcohol exposure was often inaccurate. Participants' personal experiences influenced their attitudes about the effects of alcohol during pregnancy, which led to internalization of misinformation. The data revealed a moral conflict that confronted women in this setting, leaving women feeling judged, ambivalent, or defensive about their behaviors, and ultimately creating uncertainty about their alcohol use behaviors.

Conclusions Data revealed the need to deliver accurate information about the harms of fetal alcohol exposure through sources perceived as trusted and reliable. Individual-level interventions to help women reconcile competing attitudes and identify motivations for reducing alcohol use during pregnancy would be beneficial.

Keywords South Africa · Alcohol · Fetal alcohol syndrome · Women

Significance

What is already known about this topic? The Western Cape province of South Africa has among the highest rates of Fetal Alcohol Syndrome Disorder (FASD) globally. Research from other settings suggests that alcohol use during pregnancy is influenced by individual knowledge and attitudes, which is a reflection of alcohol-related beliefs and behaviors of one's immediate social network and broader community.

What does this study add? The qualitative findings from this study provide insight into competing and often contradictory perspectives towards alcohol consumption during pregnancy in this setting. Clinical knowledge of the deleterious effects of an alcohol exposed pregnancy was limited, and alcohol consumption during pregnancy was

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often justified based on the observed behavior of the social network. At the same time, many women did express an internalized conflict about their drinking behavior. The influence of social norms should inform FASD prevention programs in South Africa, and may offer lessons for other settings.

Introduction

There is urgent need to address the use of alcohol among pregnant women residing in the Western Cape of South Africa. Rates of fetal alcohol spectrum disorder (FASD) in this part of the world are among the highest globally, with estimates in one community of 135–208 cases of FASD per 1000 children [1]. FASD is associated with patterns of heavy, episodic alcohol use among pregnant women [2], peri-natal environmental factors, and maternal socio-economic status and physical traits [3, 4]. Although FASD is preventable, the resources needed to support prevention programs and research initiatives in these areas are limited. Thus, challenges to curbing the high rates of FASD remain.

In South Africa, patterns of drinking often occur at hazardous levels. Data from national household surveys suggests that among women who drink alcohol, 15.6 % are classified as heavy drinkers (15 or more standard drinks in a week), and 30.5 % have risky single-occasion drinking (five or more standard drinks in one sitting) [5]. In an FASD case-control study in the Western Cape, approximately 24 % the control women (children without FASD) reported that they drank during pregnancy, with an average of six drinks consumed per week, demonstrating how common drinking during pregnancy is in this setting [6]. Patterns of hazardous alcohol use in the Western Cape are, in part, the result of social norms that emerged in response to the “dop” system and Apartheid. Under the now illegal “dop” system, farm workers were paid for their labor with alcohol, a compensatory model that likely contributed to an environment where excessive alcohol use was normalized. Although made illegal in 1960, the practice of the system remained in effect for many more decades, and patterns of excessive use of alcohol, now commercially purchased, remain [7–11].

Further, the political structure of Apartheid has had lasting effects on South Africa’s capacity to gain stability and advancement in providing comprehensive health care to all, including free maternal and child care [12]. Post-Apartheid health care policy changes largely went into effect in 1999; however, the challenges of overhauling a vastly inequitable system remain to this day. Stuckler et al. highlights how historical inequities in South Africa’s health care have led to *infrastructure-inequality traps*. In this model, the distribution of health care funds tends to

favor areas with better health infrastructure, allotting more funds where there is more capacity to provide care, and thus perpetuating historical inequalities [13].

There is accumulating evidence for the need to address alcohol use during pregnancy from a social-contextual perspective that addresses how one’s environment shapes internalized beliefs about this behavior [14–16]. Evidence suggests that maternal alcohol use is influenced by one’s prior alcohol use experiences [17, 18], and through the alcohol-related beliefs and behaviors expressed by members of one’s immediate social network and one’s broader community [19, 20]. A social ecological approach to understanding alcohol use proposes that garnering information about how one perceives others’ perceptions of alcohol use can assist in identifying and intervening with one’s own beliefs and behaviors about alcohol consumption during pregnancy. Although this approach has been incorporated in many areas of research related to preventative health, there exists limited information on how messages from family and peers, as well as broader community-level messages, affect alcohol consumption during pregnancy.

Given our previous documentation of high rates of alcohol consumption during pregnancy in this setting [18, 21], the aim of this study was to qualitatively examine personal experiences with drinking during pregnancy, community norms and attitudes towards maternal drinking during pregnancy, and knowledge about FASD. This insight is important to inform FASD prevention programs in the Western Cape of South Africa, and may offer lessons for other settings.

Methods

Data collection was conducted in a single “township” community approximately 15 miles from downtown Cape Town in the Western Cape province of South Africa. The densely populated township is in a peri-urban area, located on the urban periphery and juxtaposing characteristics of both urban and rural environments. The composition of the community is 46 % Black African (primarily speaking Xhosa) and 52 % Coloured (primarily speaking Afrikaans); these racial terms originated in the Apartheid era and are used to describe people of African or mixed ancestry, respectively [22].

Study participants were recruited using flyers and word of mouth in alcohol serving venues where the team has previously conducted research (e.g., 23–25). If a woman was interested in participating, she contacted the study coordinator via telephone, and was screened for eligibility (≥ 18 years old, pregnant or within 1 year post-partum, any alcohol consumption during the current/recent pregnancy).

Table 1 Example of interview guide questions

Area of inquiry	Sample question	Example probes
Lifestyle changes during pregnancy	How has your daily life changed since becoming pregnant?	Changes in social life Changes in appetite/eating Changes in health behaviors
Medical status during pregnancy	Tell me about any contact you've had with a hospital/clinic since finding out you were pregnant	Medical care or advice received Her experience getting care (how she is treated; likes/dislikes)
Substance use during pregnancy	Tell me about your experience with the bar/shebeen	How often she goes there now, and before pregnancy; how this has changed (if she stopped going to the bar, ask when and why) Her thoughts about pregnant women going to the bar; at what point they should stop going, and whether they drink somewhere else instead
Substance use during pregnancy	How common is drinking during pregnancy among women you know?	Anyone she knows who chooses to drink during pregnancy, and how she feels about that How people in the community see drinking during pregnancy
Substance use during pregnancy	Please tell me about your use of alcohol since you've been pregnant. I'd like to know both about your drinking during the time before you realized you were pregnant, and then after you realized you were pregnant	Reasons for drinking What she drank Who she drank with, where she drank
Substance use during pregnancy	What are your thoughts on the risks/benefits of alcohol use during pregnancy?	Perceived impact of drinking during pregnancy Any children she knows of who were affected by alcohol use during pregnancy

The study coordinator scheduled a time to conduct each individual in-depth interview in a private study office at the local library. Interviews were conducted by two staff with extensive training and experience in qualitative methods, and were matched by language (Afrikaans or Xhosa) to the participant. Interviews followed a semi-structured guide, which included questions and probes about personal experiences of alcohol use during pregnancy, norms and attitudes towards maternal alcohol use, and knowledge about FASD (Table 1). Interviews lasted approximately 60–90 min, and were audio-recorded, transcribed and translated.

To analyze the qualitative data, the team wrote narrative memos of individual transcripts, and discussed emerging themes using an inductive analytic approach. Data display matrices (i.e., spreadsheets that examined textual data across participants by categories) were used to sort data and identify patterns [26], and NVivo 10 software was used to code for themes.

All study procedures were approved by the ethical boards of Stellenbosch University, University of Connecticut, and Duke University. Procedures to protect participant confidentiality included conducting the interview in a private room in the local library that was not directly affiliated with the study, deleting all names and direct identifiers from the interview transcript, and destroying the audio file after transcription. Participants received a grocery card of 100

South African Rands (approximately 10 US Dollars) as compensation for participating in the study.

Results

The sample included nine women who were pregnant at the time of the interview and 15 women who were within 12 months postpartum. Participants ranged in age from 19 to 43 (mean = 27) years. The women self-reported that they were either Black African (9/24, 37.5 %) or Coloured (15/24, 62.5 %). Almost all women (20/24) were unemployed, and most relied on government social grants to meet the needs of themselves and their families. Only four of the participants reported that they were married. Almost all participants reported hazardous alcohol use patterns during pregnancy, including heavy episodic drinking, especially on the weekends. Participants who reported hazardous alcohol use patterns described their alcohol consumption as increasing ($n = 3$), decreasing ($n = 3$), or remaining unchanged ($n = 11$) while pregnant, as compared to their consumption prior to pregnancy. Of those who described how much they drank during pregnancy, the typical number of drinks per week ranged from 4 to 84. Characteristics of the sample are described in Table 2; the drinking behavior of the sample has been reported in more detail elsewhere [21].

Table 2 Participant characteristics

Participant ID	Race ^a	Age	Perinatal stage	Weeks ^b	Alcohol consumption during pregnancy ^c (avg. # drinks per week)
01	Black	21	Pregnant	~36	Ceased
02	Black	26	Pregnant	38	Decreased
03	Black	24	Pregnant	13	Increased (42)
04	Black	21	Postpartum	NR	Ceased
05	Black	43	Postpartum	35	No change
06	Black	32	Postpartum	30	Increased
07	Black	26	Postpartum	13	No change (42)
08	Black	42	Postpartum	14	No change
09	Black	20	Postpartum	14	Increased
10	Coloured	21	Pregnant	22	No change (84)
11	Coloured	34	Pregnant	26	Decreased (4)
12	Coloured	26	Pregnant	NR	Unclear (49)
13	Coloured	22	Pregnant	13	No change (12)
14	Coloured	24	Pregnant	26	No change (28)
15	Coloured	24	Pregnant	13	Unclear
16	Coloured	25	Pregnant	12	Unclear (84)
17	Coloured	23	Pregnant	40	No change
18	Coloured	35	Pregnant	34	No change
19	Coloured	20	Postpartum	30	Decreased (49)
20	Coloured	34	Postpartum	22	No change
21	Coloured	19	Postpartum	NR	Unclear (39)
22	Coloured	23	Postpartum	NR	No change
23	Coloured	31	Postpartum	NR	No change (42)
24	Coloured	24	Postpartum	22	Unclear (77)

NR data was not reported

^a South African terms are used to describe people of primarily African heritage (Black) or of historic mixed racial heritage (Coloured)

^b Weeks refers either to gestational age (for pregnant women) or weeks postpartum

^c Change in alcohol consumption during pregnancy as compared to consumption prior to pregnancy, as described by participants

The narrative data revealed that women received and held attitudes about drinking during pregnancy that were often competing and contradictory. These competing attitudes, combined with an expressed “confidence” that women felt that drinking during pregnancy was not harmful, led to the internalization of misinformation and therefore justification of drinking during pregnancy. At the same time, women expressed a perceived dilemma about drinking during pregnancy, which may provide an opportunity for intervention and change.

Competing Attitudes About Drinking During Pregnancy

More than half of the women reported receiving anti-drinking messages while pregnant, either through passive receipt of public health messaging or through communication with others. Some women recalled exposure to clinic posters or pamphlets. One stated that she learned from the

clinic: “Alcohol can affect the baby - that I know. Because they say what you are drinking or eating the baby is getting it too” (02¹). However, they referred to these types of materials vaguely and could not recall their exact content. A few women stated that they had been advised against drinking by a health care provider, and several women reported receiving messages to stop or reduce their drinking from elder women—typically mothers or grandmothers, but sometimes also other women in the community. Participants sometimes felt judged by those warning them against drinking, as illustrated in this woman’s account:

[My boyfriend’s mother] won’t guide you...She’ll call me an alcoholic ... Another lady [in the community] always tells me to stop drinking. She promises to give me a beating when she spots me with a beer...People point fingers at me (16).

¹ Participant numbers are linked to data in Table 1.

Overall, participants did not seem to highly trust or value the anti-drinking messages received from clinics and family members, as exhibited by one woman who stated: “If they tell me to do something at the clinic I will do it for my baby but I will still drink” (07), and another woman who dismisses the advice of her mother: “My mother is always telling me I am going to get an FAS baby...I am listening without paying attention. If she is gone, I just continue drinking” (10).

The clinic and family messages advising women against drinking while pregnant contradicted the norms that women observed in their peer groups. Almost all women reported that it was “common” for pregnant women in the community to drink, and several stated that “most” of their friends drank while pregnant, as illustrated by one participant:

[Drinking during pregnancy] is very common because my other friends were also drinking while they were pregnant. I also know of many women who are drinking, and they are still pregnant, especially in [this community] (03).

Participants described knowing women who consumed large quantities of alcohol throughout their pregnancies, which implicitly suggested to them that drinking while pregnant is normative behavior. Some women even received explicit encouragement from friends to continue drinking, as exemplified by one woman who had decided to abstain from alcohol while pregnant to protect the health of her baby, but received backlash from her friends: “[My friend] said she was drinking while she was pregnant but her baby was fine, so there is nothing wrong with that [drinking while pregnant]” (01). Perceptions of this behavior as common within the community at large, as well as within peer groups, combined with explicit pro-drinking messages from friends—who were trusted sources of information—conflicted with the warning messages against alcohol use that women received elsewhere, and created competing attitudes about drinking while pregnant.

Internalization of Misinformation

Only a few women in the sample could name specific effects of fetal alcohol exposure, such as having a “pre-mature birth” (07), or the child “not [being] fully developed” (24) or “[being] slow at school” (07). The majority of women had never heard of FASD, and possessed limited, inaccurate knowledge of the effects of fetal alcohol exposure. For example, one woman reported that “alcohol is actually good for the pregnancy” (04), and another stated that it was only certain types of alcohol (i.e., “strong liquor”) that had the potential for harm (11).

With limited clinical knowledge about FASD, as well as exposure to conflicting messages around the harms of

drinking while pregnant, women seemed to rely less upon external messages and information, and more upon their own “intuition” about the impact of fetal alcohol exposure. This intuition that drinking during pregnancy was not harmful was often derived from personal experiences, as well as observations about the health of other children exposed to alcohol in utero. For example, one woman who stopped drinking after learning about her pregnancy recalled an exchange between herself and another woman in her community:

I saw this girl the other day. She is not my friend, I just know her. She was drunk, so I said, ‘Is the baby okay?’ She said, ‘The baby is fine.’ Then I said, ‘Are you going to the clinic?’ she said, ‘No, I will go when I am 8 months pregnant.’ ... She gave birth I think last month. I went there to see the baby. But the baby is not good. You can see the baby is not healthy because her stomach was big to give birth to a baby that small. Then I said, ‘Can you see now, your baby is not healthy because you were drinking?’ (04).

In contrast, another woman who drank 10–12 bottles of beer per day during her pregnancy shared her experience:

For me, there was not much change [in my lifestyle after I found out I was pregnant]. I required very little. I ate very little. My child didn’t require much food. My child just wanted beer. ... There was nothing [wrong with the pregnancy as I got closer to the due date]. No, [there was] nothing wrong [when I gave birth] ... With this child, I drank so much, but he’s so healthy (24).

Women’s intuitions also appeared to be based on a vague sense of optimism in their child’s outcomes. For example, when asked about any anti-drinking messages received at the clinic, participant 07 explained, “Yes, I did get those messages at the clinic, but I tell them I don’t have time for this, so don’t give it to me. I know my child will be fine, so I don’t need you to tell me not to drink.” In this way, women in our sample often drew upon their intuitive feelings to justify their drinking behavior and appeared to prioritize these feelings over clinical information or external messages. Additionally, participants seemed to hold relativist rather than absolute views on drinking during pregnancy, stating that women “will decide for themselves” (03) as to whether or not to drink while pregnant because “at the end of the day, people know what is wrong and what is right for their babies” (04).

Dilemma of Drinking During Pregnancy

Many women both acknowledged and grappled with their own competing attitudes and perceptions of “knowledge”

related to the effects of drinking during pregnancy. One postpartum woman, who drank 5–6 bottles of beer per day, would argue with her friends who seemed to disapprove of her drinking while pregnant, based on her perception that her behavior was not risky: “No, don’t lie; the child will not die of my drinking.” However, she later stated that she would tell other pregnant women the following:

I will tell them not to sit [and drink alcohol] on the yard [local bar]. They should rather stay at home and drink coffee or tea. The wine is not good for the babies. Their children will get sick because of the alcohol in their system. ... I tell them not to drink while they are pregnant, because alcohol is not healthy for the baby. Anything can happen to your baby (21).

Another woman stated, “Okay I think it’s wrong to drink when you are pregnant, I know I’m doing it, but it is not right...I think when you are like 3 months pregnant you should stop and you can drink at your own place” (09). Many women held explicitly contradictory knowledge and beliefs about alcohol use during pregnancy.

The dilemma about whether drinking during pregnancy is right or wrong left women feeling a variety of emotions. Some felt judged and defensive about their behaviors, as exemplified by one woman who drank about six beers per day throughout her pregnancy and proclaimed, “I don’t care about what people think of people who are drinking. People must just mind their own business” (07). Several others felt ambivalent about their own behaviors, as illustrated by this woman’s attitudes: “I don’t feel anything [about women who drink during pregnancy] because I was also drinking. So I can’t judge other people” (09). For many women, their feelings of ambivalence or defensiveness seemed to stem from weak feelings of attachment to the fetus (findings reported elsewhere, 21), as well as a hesitancy to pass judgment on other women—perhaps because judging other women meant that they were also judging themselves.

Ultimately, many women experienced feelings of uncertainty about alcohol use during pregnancy. Despite expressing confidence that their children will turn out fine, many women showed underlying skepticism or uncertainty about the true harmlessness of their drinking behavior, as exemplified by one woman’s reflection: “I often wonder if I might give birth to a disabled child. I pray. They say that prayer is strong. I always pray to God and ask him not to punish my boy/girl for my own bad deeds” (16). Another woman, who drank heavily during her recent pregnancy, expressed the following remorsefully:

My child looks normal. So at this moment there are no negative signs of my drinking on the baby. He is

very cute. I cannot believe that I love that child such a lot. ... My friend’s daughter is very slow. She is very hyperactive too. Her head is very small and the shape of her body is different from children in her age group. Seeing these children I am just praying that my baby will be healthy. That’s why I bought a different type of formula to stimulate his brain (23).

A whirlwind of conflicting messaging and competing attitudes around drinking during pregnancy created a dilemma for women in our sample, which the majority were unable to clearly resolve.

Discussion

The goal of this qualitative study was to examine contextualized knowledge and attitudes that contribute to sustained drinking during pregnancy in the Western Cape of South Africa. This study builds on our previous work [21] to examine the competing and often contradictory perspectives towards alcohol consumption during pregnancy in this setting of exceptionally high rates of FASD. All but two of the participants in our study consumed high quantities of alcohol during pregnancy, with 14 women either increasing their alcohol consumption, or not changing their alcohol consumption after learning they were pregnant. The women in our sample had drinking patterns during pregnancy similar to those of women who had children with FASD in the Western Cape—characterized primarily by severe episodic drinking during weekends [6]. Our qualitative findings revealed that clinical knowledge of the deleterious effects of an alcohol exposed pregnancy was limited, and that “lay knowledge” and norms superseded any clinical knowledge. At the same time, many women did express an internalized conflict about their drinking behavior, which created feelings of uncertainty and sometimes guilt about their alcohol use behaviors.

There is clearly a need for the delivery of accurate and culturally relevant information about the risks of alcohol exposed pregnancies, in order to increase baseline knowledge of FASD. It is important that such public health campaigns not only target antenatal clinics, but also reach the broader community, including family and social networks, where norms are established and reproduced. In particular, settings where individuals purchase and consume alcohol are important targets [27]. Antenatal care providers should be trained to screen for alcohol use and provide information in a supportive and non-judgmental way. However, given the distrust that women expressed of health care institutions, messages delivered by peers and individuals who are perceived as trustworthy in the community are equally important. Our data suggest that women

felt defensive and judged about their drinking; therefore, messaging should focus on the behavior of drinking *during the pregnancy period*, as opposed to taking a broader sweep at women's drinking behavior.

The presence of competing attitudes and expressed dilemmas highlights an opportunity for individual level interventions to promote drinking cessation during pregnancy. Interventions that use motivational interviewing have shown efficacy in reducing alcohol use during pregnancy, especially among women who initially have high rates of drinking [28, 29]. Motivational interviewing harnesses women's own motivations for drinking cessation and can help to reframe attitudes towards drinking [30]. Such approaches have been shown to work in South Africa among non-pregnant women at risk of an alcohol exposed pregnancy [31] and should be tailored and evaluated for use among pregnant women.

The strength of this study is that it used community-level recruitment to identify women who reported drinking during pregnancy. Although the criteria was *any* drinking during pregnancy, our sample was made up almost entirely of women who drank at very hazardous rates during pregnancy, including patterns of binge drinking (four or more drinks on one occasion). These are clearly women who are at high risk for FASD outcomes, but may not represent all women who drink during pregnancy in South Africa. As a result, their attitudes and perceptions of experiences may be different from a more general population screened during antenatal care visits. It is entirely possible that more moderate drinkers are responsive to existing public health messages and change their behaviors accordingly, and that the women in our sample are a unique group that is resistant to change. Despite potential limits to generalizability, understanding the attitudes and behaviors of this group is incredibly important, in order to effectively target future messaging and interventions to women at greatest risk of having a child with FASD. Future studies would benefit from larger samples and comparisons of women recruited from community venues and those recruited from clinical care settings.

FASD is an entirely preventable condition. Efforts to prevent alcohol exposed pregnancies must take a multi-level approach, which would include both working with women who are at risk of drinking during pregnancy, and also addressing community-level norms and attitudes that support this behavior. Although this study is limited to a sample of women who self-reported alcohol consumption during pregnancy, it nevertheless highlights the dire need to address knowledge and attitudes towards alcohol consumption in this setting. The data presented here suggest a powerful influence of social networks and modeling behaviors, which necessitates a need to deliver accurate information to the broad community. Such efforts are

essential to curbing the high rates of FASD in South Africa's Western Cape Province.

Acknowledgments This project was funded by a Grant from the National Institute of Alcohol Abuse and Alcoholism (R01 AA018074) and supported by the Duke Center for AIDS Research (P30 AI064518) and the HIV/AIDS, Substance Abuse, and Trauma Training Program (R25 DA035692). We are grateful to all the women who participated in this study. We would like to acknowledge Desiree Pieterse, who coordinated data collection, and the local interview team that collected the data, specifically Tembeka Fikizolo and Mariana Bolumole.

References

1. May, P. A., Blankenship, J., Marais, A. S., et al. (2013). Approaching the prevalence of the full spectrum of fetal alcohol spectrum disorders in a South African population-based study. *Alcoholism, Clinical and Experimental Research*, 37(5), 818–830. doi:10.1111/acer.12033.
2. May, P. A., Blankenship, J., Marais, A. S., et al. (2013). Maternal alcohol consumption producing fetal alcohol spectrum disorders (FASD): Quantity, frequency, and timing of drinking. *Drug and Alcohol Dependence*, 133(2), 502–512. doi:10.1016/j.drugalcdep.2013.07.013.
3. May, P. A., Tabachnick, B. G., Gossage, J. P., et al. (2013). Maternal factors predicting cognitive and behavioral characteristics of children with fetal alcohol spectrum disorders. *Journal of Developmental and Behavioral Pediatrics*, 34(5), 314–325. doi:10.1097/DBP.0b013e3182905587.
4. May, P. A., & Gossage, J. P. (2011). Maternal risk factors for fetal alcohol spectrum disorders: Not as simple as it might seem. *Alcohol Research & Health: The Journal of the National Institute on Alcohol Abuse and Alcoholism*, 34(1), 15–26.
5. Martinez, P., Roislien, J., Naidoo, N., et al. (2011). Alcohol abstinence and drinking among African women: Data from the World Health Surveys. *BMC Public Health*, 11, 160. doi:10.1186/1471-2458-11-160.
6. May, P. A., Gossage, J. P., Brooke, L. E., et al. (2005). Maternal risk factors for fetal alcohol syndrome in the Western cape province of South Africa: A population-based study. *American Journal of Public Health*, 95(7), 1190–1199. doi:10.2105/ajph.2003.037093.
7. Daley, S. (1999). Workers' free wine ends, but South Africans still pay. *New York Times* (archived by Vancouver Sun). <http://blogs.vancouversun.com/2010/02/03/when-wine-instead-of-money-is-the-payment-nothing-good-flows/>.
8. Merten, M. (2003). New Liquor Bill outlaws 'dop' system. *Mail & Guardian*. <http://mg.co.za/article/2003-09-05-new-liquor-bill-outlaws-dop-system>.
9. London, L. (1999). The 'dop' system, alcohol abuse and social control amongst farm workers in South Africa: A public health challenge. *Social Science and Medicine*, 48(10), 1407–1414.
10. London, L., Sanders, D., & te Naude, J. W. (1998). Farm workers in South Africa—the challenge of eradicating alcohol abuse and the legacy of the 'dop' system. *South African Medical Journal*, 88(9), 1092–1095.
11. Gossage, J. P., Snell, C. L., Parry, C. D., et al. (2014). Alcohol use, working conditions, job benefits, and the legacy of the "Dop" system among farm workers in the Western Cape Province, South Africa: Hope despite high levels of risky drinking. *International Journal of Environmental Research and Public Health*, 11(7), 7406–7424. doi:10.3390/ijerph110707406.

12. Sanders, D., & Chopra, M. (2006). Key challenges to achieving health for all in an inequitable society: The case of South Africa. *American Journal of Public Health, 96*(1), 73–78. doi:[10.2105/ajph.2005.062679](https://doi.org/10.2105/ajph.2005.062679).
13. Stuckler, D., Basu, S., & McKee, M. (2011). Health care capacity and allocations among South Africa's provinces: Infrastructure-inequality traps after the end of apartheid. *American Journal of Public Health, 101*(1), 165–172. doi:[10.2105/ajph.2009.184895](https://doi.org/10.2105/ajph.2009.184895).
14. Tomlinson, M., O'Connor, M. J., le Roux, I. M., et al. (2014). Multiple risk factors during pregnancy in South Africa: The need for a horizontal approach to perinatal care. *Prevention Science: The Official Journal of the Society for Prevention Research, 15*(3), 277–282. doi:[10.1007/s11121-013-0376-8](https://doi.org/10.1007/s11121-013-0376-8).
15. Bronfenbrenner, U. (1999). Environments in developmental perspective: Theoretical and operational models. In S. Friedman & T. Wachs (Eds.), *Measuring environment across the life span: Emerging methods and concepts* (pp. 3–28). Washington, DC: American Psychological Association Press.
16. Dahlberg, L., & Krug, E. (2002). Violence—a global public health problem. In E. Krug, L. Dahlberg, J. Mercy, et al. (Eds.), *World report on violence and health* (pp. 1–56). Geneva: World Health Organization.
17. Ethen, M. K., Ramadhani, T. A., Scheuerle, A. E., et al. (2009). Alcohol consumption by women before and during pregnancy. *Maternal and Child Health Journal, 13*(2), 274–285. doi:[10.1007/s10995-008-0328-2](https://doi.org/10.1007/s10995-008-0328-2).
18. Choi, K. W., Ablner, L. A., Watt, M. H., et al. (2014). Drinking before and after pregnancy recognition among South African women: The moderating role of traumatic experiences. *BMC Pregnancy and Childbirth, 14*, 97. doi:[10.1186/1471-2393-14-97](https://doi.org/10.1186/1471-2393-14-97).
19. Parry, C., London, L., & Myers, B. (2014). Delays in South Africa's plans to ban alcohol advertising. *Lancet, 383*(9933), 1972. doi:[10.1016/S0140-6736\(14\)60954-5](https://doi.org/10.1016/S0140-6736(14)60954-5).
20. Parry, C. (2014). African experience supports view that the global alcohol industry should have no role in the formulation of public health policies. *Addiction, 109*(7), 1211–1212. doi:[10.1111/add.12582](https://doi.org/10.1111/add.12582).
21. Watt, M. H., Eaton, L. A., Choi, K. W., Velloza, J., Kalichman, S. C., Skinner, D., et al. (2014). "It's better for me to drink, at least the stress is going away": Perspectives on alcohol use during pregnancy among South African women attending drinking establishments. *Social Science and Medicine, 116*, 119–125. doi:[10.1016/j.socscimed.2014.06.048](https://doi.org/10.1016/j.socscimed.2014.06.048).
22. City of Cape Town. (2013). 2011 Census—delft profile. Compiled by Strategic Development Information and GIS Department, City of Cape Town, using 2011 Census data supplied by Statistics South Africa.
23. Sikkema, K. J., Watt, M. H., Meade, C. S., Ranby, K. W., Kalichman, S. C., Skinner, D., et al. (2011). Mental health and HIV sexual risk behavior among patrons of alcohol serving venues in Cape Town, South Africa. *Journal of Acquired Immune Deficiency Syndromes, 57*(3), 230–237. doi:[10.1097/QAI.0b013e3182167e7a](https://doi.org/10.1097/QAI.0b013e3182167e7a).
24. Watt, M. H., Aunon, F. M., Skinner, D., Sikkema, K. J., Kalichman, S. C., & Pieterse, D. (2012). "Because he has bought for her, he wants to sleep with her": Alcohol as a currency for sexual exchange in South African drinking venues. *Social Science & Medicine, 74*(7), 1005–1012. doi:[10.1016/j.socscimed.2011.12.022](https://doi.org/10.1016/j.socscimed.2011.12.022).
25. Watt, M. H., Ranby, K. W., Meade, C. S., Sikkema, K. J., MacFarlane, J. C., Skinner, D., et al. (2012). Posttraumatic stress disorder symptoms mediate the relationship between traumatic experiences and drinking behavior among women attending alcohol-serving venues in a South African township. *Journal of Studies on Alcohol and Drugs, 73*(4), 549–558.
26. Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook* (2nd ed.). Thousand Oaks: Sage Publications.
27. Eaton, L. A., Pitpitan, E. V., Kalichman, S. C., et al. (2014). Beliefs about fetal alcohol spectrum disorder among men and women at alcohol serving establishments in South Africa. *The American Journal of Drug and Alcohol Abuse, 40*(2), 87–94. doi:[10.3109/00952990.2013.830621](https://doi.org/10.3109/00952990.2013.830621).
28. Handmaker, N. S., Miller, W. R., & Manicke, M. (1999). Findings of a pilot study of motivational interviewing with pregnant drinkers. *Journal of Studies on Alcohol, 60*(2), 285–287.
29. Chang, G., McNamara, T. K., Orav, E. J., et al. (2005). Brief intervention for prenatal alcohol use: A randomized trial. *Obstetrics and Gynecology, 105*(5 Pt 1), 991–998. doi:[10.1097/01.aog.0000157109.05453.84](https://doi.org/10.1097/01.aog.0000157109.05453.84).
30. Miller, W. R., & Rollnick, S. (2013). *Motivational interviewing: Helping people change* (3rd ed.). New York, NY: Guilford Press.
31. Rendall-Mkosi, K., Morojele, N., London, L., et al. (2013). A randomized controlled trial of motivational interviewing to prevent risk for an alcohol-exposed pregnancy in the Western Cape, South Africa. *Addiction, 108*(4), 725–732. doi:[10.1111/add.12081](https://doi.org/10.1111/add.12081).