Attitudes Toward Alcohol Use During Pregnancy Among Women Recruited From
Alcohol-Serving Venues in Cape Town, South Africa: A Mixed-Methods Study

by

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Thesis submitted in partial fulfillment of
the requirements for the degree of
Master of Science in the Duke Global Health Institute
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ABSTRACT

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Abstract

Background: The Western Cape Province of South Africa has one of the highest documented rates of FASD globally. In order to establish FASD prevention interventions that can effectively reach women in this high-risk population, it is important to understand the attitudes that women hold towards alcohol use during pregnancy and examine reasons why positive attitudes may not necessarily translate to behavior in this setting. Study aims: The aims of this secondary analysis were to: describe the attitudes towards alcohol use during pregnancy, compare attitudes with alcohol use behaviors during past pregnancies, and build a logistic regression model to examine predictors of harmful attitudes toward alcohol use during pregnancy. These quantitative aims then set the stage for a qualitative exploration of reasons for harmful behaviors, in spite of attitudes that would support drinking cessation during pregnancy. Methods: This study is based on cross-sectional data from 200 women who were recruited from alcohol-serving venues in a single township in Cape Town, South Africa. A sub-set of 24 was selected to participate in-depth qualitative interviews. Measures of interest included: demographics, attitudes about alcohol use during pregnancy, history of abuse, depression, current drinking behavior, drinking during past pregnancy, and pregnancy intentions and attitudes. Quantitative analysis was conducted in three steps. First, descriptive statistics were used to describe the sample. Second, drinking behaviors in past pregnancies and attitudes toward alcohol use during pregnancy were examined

separately and then together in order to describe any potential attitude/behavior gap in this population. Third, logistic regression models were built to examine predictors of attitudes toward alcohol use during pregnancy. Interviews were reviewed and coded for emergent themes under categories that were identified *a priori*: knowledge about risks of alcohol use during pregnancy, contributors to alcohol use during pregnancy, and contributors to resiliency against alcohol use during pregnancy. Results: The sample of 200 women ranged in age from 18 to 43, were all of Coloured (mixed-race) ancestry, and most had not completed secondary school. Most were not intending to become pregnant and most reported a history of abuse. Though approximately 83% (n=164) of women with a history of pregnancy did not report having harmful attitudes toward alcohol use during pregnancy, more than half of these women (n=84, 51.2%) still reported alcohol use during a previous pregnancy. This discrepancy revealed the existence of a stark attitude-behavior gap in which the holding of harmful attitudes toward alcohol use during pregnancy is not entirely predictive of alcohol use during pregnancy. The strongest predictors of holding harmful attitudes were a history of abuse (AOR=3.33, 95% CI 1.06-10.50) and drinking during a previous pregnancy (AOR=6.87, 95% CI 1.79-26.33). Qualitative data analysis revealed several factors that contributed to alcohol use during pregnancy: 1) Having an unplanned pregnancy; 2) Drinking because of stress or to cope; 3) History of abuse or trauma; 4) Reliance on the venue space for solace; 5) Recreation; and 6) Feelings of invincibility. Conclusions: These data further define the

existence of an attitude-behavior gap in this population and highlight that in this setting, having non-harmful attitudes might not be enough to elicit healthy behavior. This points to a need for identification and implementation of policies or interventions that go beyond education to build intrinsic motivation to refrain from alcohol use during pregnancy.

Dedication

I would like to dedicate this thesis to my two greatest teachers – my parents, who have loved me and encouraged me from day one. Thank you for the long nights and the summer workbook lessons (even though I detested them at the time). Thank you for the endless hugs, support, and love, and for giving me a wonderful home in which to grow up. Thank you for inspiring me to love learning and for teaching me everything truly important that I know.

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Acknowledgements

I would first like to express my immense gratitude to my mentor, Dr. Melissa Watt, whose guidance and investment in this project and me not only made this thesis a reality, but have made completing it a collaborative and wonderful experience. I would also like to thank her for sharing with me her data on which this study is based. I am grateful too to my committee members – Dr. Philip May and Dr. Kathy Sikkema, whose feedback and expertise were invaluable and incredibly appreciated. Thank you to Desiree Pieterse and Mariana Bolumole who collected the data. Lastly, I would like to acknowledge all of the women who participated in this study, lending both their time and their stories.

1. Introduction

1.1 *Fetal Alcohol Spectrum Disorders (FASD)*

Alcohol has been identified as a teratogen, meaning that its consumption during pregnancy causes abnormal development in the growing fetus (Eustace, Kang, & Coombs, 2003; Nykjaer et al., 2014). Prenatal alcohol exposure is the leading preventable cause of intellectual disability in the United States and is seen as a leading cause of intellectual impairment in the world (Gass, 2014; Rendall-Mkosi K., 2008)

Fetal alcohol spectrum disorders (FASD) is a cluster of four syndromes of permanent birth defects caused by consumption of alcohol by the mother during pregnancy (Astley & Clarren, 2000; Stratton, Howe, Battaglia, Institute of Medicine (U.S.). Division of Biobehavioral Sciences and Mental Disorders. Committee to Study Fetal Alcohol Syndrome., & National Institute on Alcohol Abuse and Alcoholism (U.S.), 1996a). These four categories of diagnosis in order of decreasing severity are fetal alcohol syndrome (FAS), partial FAS (PFAS), alcohol-related birth defects (ARBD), and alcohol-related neurodevelopmental disorder (ARND) (Chudley et al., 2005; Stratton, Howe, Battaglia, Institute of Medicine (U.S.). Division of Biobehavioral Sciences and Mental Disorders. Committee to Study Fetal Alcohol Syndrome., & National Institute on Alcohol Abuse and Alcoholism (U.S.), 1996b). These categories were established by a study committee of the United States Institute of Medicine following the identification of the previously described fetal alcohol syndrome (FAS) (Jones & Smith, 1973).

The effects of FASD are permanent and can affect development of facial and other physical features (e.g., poor growth, abnormal limb development, and small brain size) as well as behavioral and intellectual development (May et al., 2014; Quattlebaum & O'Connor, 2013). The minimal global estimated prevalence of FASD has previously been approximated at 1% or around one million babies each year (Jonsson, Salmon, & Warren, 2014; May et al., 2009). However, most researchers agree that this is a substantial underestimate. More recently, a meta-analysis estimated the prevalence of FAS in the general population at 14.6 per 10 000 people (Popova, Lange, Probst, Gmel, & Rehm, 2017). The same study estimated the global prevalence of alcohol use during pregnancy to be 9.8% and posited that one in every 67 women who consume alcohol during pregnancy would deliver a child with FAS (approximately 119 000 children every year). The prevalence ratio of FAS to FASD is believed to be approximately one to nine or ten (Chudley, 2008), meaning that these new estimates exceed the previous ones.

Furthermore, FAS and PFAS are more likely to be diagnosed (Hoyme et al., 2005; Stratton et al., 1996a). This is due mainly to two factors – that dysmorphism and growth retardation characteristic of FAS and PFAS are more easily recognizable than the neurobehavioral complications of ARND and that the characteristics of ARND, specifically, have not been fully defined (May & Gossage, 2011). Dysmorphism and growth retardation are often the only identifier used in population-based studies of FASD because of their ease of identification (May & Gossage, 2011).

1.2 FASD in Western Cape Province, South Africa

The Western Cape Province (WCP) of South Africa has one of the highest documented rates of FASD in the world – recently estimated in one particular setting at 18.3-25.9% (May et al., 2016), compared to estimates of 2-5% in the United States (May et al., 2009). Estimates typically made at a community level are likely underestimates, as FASD remains largely under-diagnosed, and the surveillance systems, clinical-based studies, and referral clinics typically used to gather data have proven to be inadequate methods for determining the prevalence of this disease (May et al., 2014; Olivier, Curfs, & Viljoen, 2016). Current meta-analytic data estimate the prevalence of FAS in South Africa at 10 to 15 per 10 000 people, meaning that according to these estimates, the prevalence of FASD could range from 9 to 15 per 1000 people (Popova et al., 2017). This is far lower than estimates presented by rigorous epidemiological studies such as those mentioned above (May et al., 2016). These underestimates likely contribute further to the problem by diminishing the issue and stymying efforts to promote awareness or educational campaigns.

The high incidence of FASD in the WCP is closely linked to the drinking norms in this community. Per capita alcohol consumption among drinkers in South Africa is among the highest globally (Parry, 2010; Rehm et al., 2003). In other words, drinkers in South Africa are likely to drink heavily. A World Health Organization (WHO) Survey found that in South Africa, though only 13.5% of women are current drinkers

(consumed at least one standard drink in the previous week), 15.6% of these women are heavy drinkers (consumed a total of 15 or more standard drinks during the last week), and 30.5% are risky single-occasion drinkers (consumed at least 5 or more standard drinks on at least one day of the previous week) (Martinez, Roislien, Naidoo, & Clausen, 2011). These statistics highlight the existence of a subculture of binge drinking in South Africa that has been widely acknowledged and discussed (King et al., 2004; May et al., 2007; Watt et al., 2016), and is quite likely contributing to the high rates of FASD. In one study, 40% of women of childbearing age reported drinking up to nine standard drinks each Friday and Saturday night (May, Blankenship, et al., 2013).

Several hypotheses exist for why alcohol use rates in the WCP are so high. Heavy alcohol use in the Western Cape Province has deep historical roots, with the literature suggesting that this heavy drinking behavior may be due in part to a historical legacy of payment now known as the “Dop” system, in which agricultural workers on vineyards in the Western Cape were paid in the form of food and wine, partly in an effort to dispose of wine deemed unfit for sale (Gossage et al., 2014; London, 2000). Though now illegal, relics of this system continue today, and signs of its past existence remain in a norm of heavy alcohol use in these communities (Crome & Glass, 2000; McKinstry, 2005).

In addition to the high levels of alcohol use amongst the general community, pregnant women also engage in high levels of drinking. One study found that nearly

half (42.8%) of pregnant women in their sample admitted to drinking alcohol (Croxford & Viljoen, 1999). Of these women, 55% reported alcohol intake at a level that was placing their unborn child at high risk for FAS. A qualitative study of pregnant and recently postpartum women who reported alcohol use found that the typical number of drinks per week during pregnancy ranged from 4 to 84 (Watt et al., 2016). These women also tended to report a pattern of binge drinking consistent with the aforementioned subculture of binge drinking on the weekends (Croxford & Viljoen, 1999; Watt et al., 2016). In one rural Cape Town setting, nearly all mothers (96%) whose children were born with FASD and nearly a quarter of mothers (24%) whose children do not meet criteria for FASD report consuming alcohol during pregnancy (May et al., 2007).

1.3 Maternal risk factors for FASD

Drinking alcohol during pregnancy is the main risk factor for FASD (Chudley et al., 2005; Cook et al., 2016; Stratton et al., 1996a). The literature suggests that binge drinking in particular is acutely harmful, even if overall alcohol intake is less than those of more heavy and continuous drinking patterns. With binge drinking, the fetus is exposed to high blood alcohol concentrations (BACs) even if over relatively short periods of time (Maier & West, 2001). This is reinforced through findings from self-reported information in a population-based case-control study that the modal drinking pattern was binge drinking (CITATION). This same study found that mothers of children with FAS reported drinking at the same level (53-55%) or higher (32-34%)

during pregnancy compared with current drinking levels. Furthermore, the literature shows that mothers often cite stressful life events as the cause of heavy maternal drinking during pregnancy (May et al., 2005; Watt et al., 2014).

Though drinking during pregnancy is a necessary precondition for FASD, it does not always cause FASD (May & Gossage, 2011). Some women may drink during pregnancy but give birth to a child without FASD (May et al., 2007). Various factors modify or confound the relationship between drinking and the developing fetus. Epidemiologic studies have identified several distal predictors of maternal drinking and subsequent development of FASD in the Western Cape setting. These include: lower educational attainment, low socioeconomic status, reduced likelihood of being married, higher parity, having a higher number of lifetime sexual partners, lower BMI, higher levels of depression, having experienced intimate partner violence, and living with a partner with a drinking problem (May et al., 2008; O'Connor et al., 2011).

Qualitative studies have uncovered more nuanced risk factors for FASD: women in this setting may use alcohol as a coping strategy when they are experiencing negative emotions; they drink to maintain social connections often during difficult times; social norms in peer groups in this setting often support drinking during pregnancy; these women may lack desire for the pregnancy; and some women are addicted to alcohol and as such, driven to drink regardless of their pregnant status (Watt et al., 2014). It may also be that women drink alcohol during pregnancy because they have not yet discovered

their pregnancy; many women do not know their pregnancy status until they are well into their first trimester (O'Connor et al., 2011).

1.4 Knowledge about FASD

Both globally and locally in South Africa, women often hold incorrect beliefs about alcohol use during pregnancy. One study in Russia showed that 40% of women surveyed believed or were uncertain whether alcohol consumption during pregnancy was acceptable; 34% had heard of FAS; and 8% held accurate beliefs (Balachova et al., 2016). This same study found that correct knowledge and accurate beliefs were associated with lower rates of alcohol use during pregnancy, but that these correct beliefs had no effect on risky drinking in non-pregnant women, even if they were at risk for pregnancy or trying to conceive (Balachova et al., 2016).

This theme of women holding false beliefs about drinking during pregnancy has also been documented in studies in South Africa. A qualitative study documented how women often hold “competing and contradictory” attitudes about drinking, and women often exhibit a sense of confidence that alcohol use during pregnancy is not harmful, even though more than half report receiving anti-drinking messages while pregnant (Watt et al., 2016). There has also been a minimal understanding of FASD or awareness of it in their communities, as well as a sense of invincibility or optimism in their children’s outcomes (Watt et al., 2016). Furthermore, among women recruited from alcohol-serving venues, women who were currently pregnant were more likely than

non-pregnant women to believe that it was acceptable to drink alcohol during pregnancy and to express beliefs that alcohol during pregnancy does not harm the baby (Eaton et al., 2014). This study provided evidence that many women do not hold accurate knowledge about the harms alcohol can do to a fetus. Findings suggested that beliefs or attitudes about alcohol use during pregnancy might be an important predictor of alcohol use during pregnancy.

1.5 Study objective and aims

Though several studies have been conducted in an effort to identify predictors of alcohol use during pregnancy (Eaton et al., 2014; May et al., 2008) there is a lack of attention given to understanding women's attitudes about alcohol use during pregnancy, and how that knowledge may or may not inform their behavior during the pregnancy period.

The aims of this secondary analysis were threefold. First, I aimed to describe the attitudes about alcohol use during pregnancy, the behaviors related to alcohol use during previous pregnancies, and the relationship between the stated attitudes and behaviors. Second, I aimed to discover predictors of holding harmful attitudes about alcohol use during pregnancy (i.e., any indication that drinking during pregnancy is acceptable). Third, I aimed to qualitatively examine how women's knowledge of the harmful effects of alcohol use during pregnancy may or may not lead to drinking cessation during pregnancy. Identifying characteristics that women with these harmful

attitudes may share, as well as uncovering reasons why non-harmful attitudes do not necessarily translate to behavior in this setting, are critical to establishing interventions that can effectively change behavior to prevent FASD among women in this high-risk population.

2. Methods

Overview

This study was a secondary analysis based on cross-sectional data collected by researchers at Stellenbosch University, faculty of Medicine and Health Sciences in collaboration with Dr. Melissa Watt. The purpose of the larger study was to examine the risk for an alcohol exposed pregnancy among female drinkers in a single township in Cape Town, South Africa. The mixed-methods study involved surveys of 200 women recruited from eight alcohol serving venues and 24 in-depth interviews (IDIs) conducted with a subset of the surveyed women. The survey data were collected between October 2015 and February 2016 and in-depth interviews were completed in 2016.

2.1 Setting

The study was conducted in the township of Ravensmead, which is located approximately 11 miles from the Cape Town city center in the Western Cape province of South Africa. Ravensmead is a largely Coloured (mixed-race), Afrikaans-speaking community of approximately 18,300 residents. Ravensmead was selected as the study site because it has an active culture of alcohol-serving venues and was accessible to the study team. Venues were eligible if they had at least 150 unique patrons per week, with women constituting at least one-quarter of patrons. The study team identified eight

eligible venues in the community and received the venue owners' approval to work in all of them.

2.2 Sample

Participants were recruited by convenience sampling at eight designated alcohol-serving venues. Women were eligible to participate in the study if they were of reproductive age (18-45) and were attending the venue to drink alcohol or to buy alcohol for "take-away." Sampling continued until 200 participants had been enrolled in the study. The research staff worked with the venue owner to identify times when a large number of patrons attended. During those times, all women in the selected alcohol serving venues were invited to participate in the survey.

Subsequently, a subset of 24 participants, representing the three largest venues, was invited to participate in an in-depth interview to further explore the study topics. The research team purposively selected women for the IDIs who were regular attendees of the venues and could therefore speak about community norms and experiences.

2.3 Quantitative Procedures

The survey team consisted of two females with a similar cultural background as the study participants (Cape Coloured and Afrikaans speaking). They approached women shortly following their arrival at the venue but before they began to drink. This method has been successfully used in a past study in a similar setting (Sikkema et al., 2011). Oral consent was obtained, as no identifying information was collected from the

surveys. Following consent, the surveys were administered orally by the interviewers.

Participant responses were recorded on paper copies of the survey. The survey consisted of 79 items and took approximately 15 minutes to complete.

2.4 Measures

2.4.1 Demographics

Six questions about participant demographics inquired about age, education, relationship statuses, work status, religion, and household income.

2.4.2 Attitudes toward alcohol use during pregnancy

Five questions were asked about the woman's beliefs regarding alcohol consumption during pregnancy (Eaton et al., 2014). Each item had three to four ordinal response options, appropriate to the item. For analysis, each item was dichotomized as approving of alcohol use during pregnancy or not approving of alcohol use during pregnancy. For each participant, a summary statistic was created whereby women who endorsed any of the five items were considered to have attitudes that endorsed the acceptability of alcohol use during pregnancy (i.e., to have harmful attitudes). This cutoff was determined because endorsement of any of the items meant that some harmful beliefs were held or that the individual believed alcohol use during pregnancy was on some level acceptable.

2.4.3 History of abuse

History of abuse was measured with 3 questions inquiring about a lifetime history of physical intimate partner violence, sexual violence, and childhood sexual assault. If a participant had experienced any of the three forms of abuse, she was categorized as having a history of abuse.

2.4.4 Depression

Depression was measured with the PHQ-2, a two-item screening measure that assesses frequency of depressive symptoms in the prior two weeks (Kroenke, Spitzer, & Williams, 2003). Questions were: "Over the past two weeks, how often have you felt little interest or pleasure in doing things?" and "Over the past two weeks, how often have you felt down, depressed, or hopeless?" Responses for both questions were: "Not at all," "Several days," "More than half the days," and "Almost every day." The items were summed, ranging from 0-6. Consistent with score recommendations, the scores were subsequently dichotomized, with a score of 3 or more being indicative of depression (Kroenke et al., 2003).

2.4.5 Current drinking behavior

The three-item AUDIT-C for alcohol consumption measured the current drinking patterns of participants. This measure was used to evaluate frequency of drinking, number of drinks per occasion, and binge drinking (Bush, Kivlahan, McDonell, Fihn, & Bradley, 1998). Items were summed (possible range of 0-12), with higher scores

indicating more harmful drinking patterns. For descriptive purposes, participants were categorized as hazardous drinkers if they scored 3 or more and the points did not all come from question 1 about frequency of drinking. For analysis, scores were used in a continuous manner.

2.4.6 Drinking during past pregnancy

For women with a previous pregnancy, the three-item AUDIT-C (described above) was used to measure the drinking behavior during the pregnancy period. If a participant had more than one pregnancy, she was instructed to answer the questions based on the pregnancy in which she drank the most. For analysis, the dichotomous answer to the question: “Thinking about the times you have been pregnant before, did you ever drink alcohol while you were pregnant?” was used.

2.4.7 Pregnancy intentions

Participants were asked a single question inquiring whether they intended to get pregnant in the upcoming year, with response options of no, yes, unsure, and N/A – already pregnant. For analysis, responses were dichotomized such that a response of no was scored as 0 and any other answer was scored as 1 (intention to get pregnant).

2.4.8 Pregnancy attitudes

The measure of attitudes toward pregnancy included 3 questions about personal attitudes and 2 questions about perceptions of partner attitudes. The measure was based on existing measures of attitudes during pregnancy and tailored to the local context

(Harris, 2009; *National Survey of Family Growth, Cycle VI, 2002–2004*; Speizer, Santelli, Afaible-Munsuz, & Kendall, 2004; Winetrobe et al., 2013). Items focused on feelings of embarrassment, stress, or fear associated with a hypothetical pregnancy outcome (e.g., “If you got pregnant now, it would be embarrassing for you,” “If you got pregnant now, your partner may leave you.”). Response options were agree or disagree. Pregnancy attitudes were summed such that a higher score was associated with more negative attitudes toward pregnancy. A dichotomous score was then created whereby participants who agreed with any of the negative attitudes were coded 1, “negative attitudes toward pregnancy” and participants who disagreed with all of the negative attitudes were coded 0, “positive attitudes toward pregnancy.”

2.5 Qualitative procedures

Prior to the interviews, written, informed consent was obtained for the in-depth interview (IDI). Interviews were conducted in Afrikaans by the same interviewers who conducted the venue-based surveys. The IDIs lasted approximately 60 minutes and followed a semi-structured interview guide in order to explore personal experiences and perspectives in greater depth than was possible in the structured surveys. Relevant topics discussed in the interviews included experiences at the alcohol serving venue, drinking preferences and reasons for drinking, relationship status, experience with violence, role of alcohol with sexual and romantic partners, and drinking behaviors during pregnancy. Interviews were conducted in a private room in the local library and

were audio-recorded, with participants' consent. Each participant received a grocery voucher worth R100 (approximately 7.42 USD) as compensation for time and transportation.

2.6 Analysis

2.6.1 Quantitative analysis

Survey data were entered into a RedCap database and subsequently exported into Stata/SE 14.2 for analysis. Data analysis was conducted in three steps. First, descriptive statistics were used to describe the social and demographic characteristics of the sample.

Second, both drinking behaviors in past pregnancies and attitudes toward alcohol use during pregnancy were examined separately and then compared in a 2x2 table, in order to describe any potential attitude/behavior gap in this population.

Third, logistic regression models were built to examine predictors of attitudes toward alcohol use during pregnancy. The outcome was dichotomous – no endorsement of alcohol use during pregnancy (0) or any endorsement of alcohol use during pregnancy (1). Initially, models were fit with each possible predictor individually. Subsequently, variables that were significant in univariate analysis ($p < 0.10$ level) were included in a final multivariable logistic regression model. Demographic factors (age and education) were also included in the final model regardless of significance.

2.6.2 Qualitative analysis

Recordings of the interviews were transcribed and translated into English by the interview staff. Following translation and transcription of the interviews, transcripts were imported into NVivo version 11.3.2. and analyzed using a content analysis approach (Miles & Huberman, 1994). Interviews were reviewed in depth and subsequently coded for emergent themes under categories that were identified *a priori*: knowledge about risks of alcohol use during pregnancy, contributors to alcohol use during pregnancy, and contributors to resiliency against alcohol use during pregnancy. In each category, emergent themes were identified through an iterative process. Representative quotes were chosen to illustrate each of the themes, and interview transcripts were revisited in order to provide context to the quotations.

2.7 Ethics approval

All study procedures were approved at Duke University and Stellenbosch University.

3. Results

3.1 Quantitative Results

3.1.1 Description of sample

The sample of 200 women is described in Table 1. Participants ranged in age from 18 to 43 (mean=29.4, SD=6.5). Almost all participants reported that they were of Coloured (mixed-race) ancestry and Christian. Less than half (n=81, 41.1%) had completed secondary school. The relationship status of these women was relatively evenly distributed across these categories: married (n=40, 20.1%), living with a partner (n=49, 24.6%), in a relationship but not living together (n=58, 29.2%), and single (n=52, 26.1%). Nearly half of participants reported working for money (n=99, 49.5%), with a median household income of 4000 South African Rands (approximately 294 USD) per month (SD=4178). Most women reported having 2 or more children (n=124, 59%); 32 women had no children. Most women reported that they were not intending to become pregnant (n=165, 82.5%) and had negative attitudes toward the possibility of pregnancy (n=114, 57%). Nearly all participants met criteria for hazardous drinking on the AUDIT-C (n=191, 95.5%). More than half reported a history of abuse (n=106, 53.0%) and almost a third (n=58, 29%) met criteria for depression on the PHQ-2.

Table 1. Sample demographics and characteristics (n=200)

	m	SD
Age	29	6.52
Household income	4000	
	n	%
Education		
No secondary school	116	58.9%
Completed secondary school	81	41.1%
Relationship status		
Married	40	20.1%
Living with a partner	49	24.6%
In a relationship but not living together	58	29.2%
Single/Not in a relationship	52	26.1%
Work for money		
No	101	50.5%
Yes	99	49.5%
Number of children		
0	32	16.0%
1	44	22.0%
2	60	30.0%
3+	64	29.0%
Pregnancy intentions		
No	165	82.5%
Unsure/Yes	35	17.5%
Pregnancy attitudes		
Positive	86	43.0%
Negative	114	57.0%
Hazardous drinking		
Not hazardous drinking (AUDIT-C <3)	9	4.5%
Hazardous drinking (AUDIT-C ≥3)	191	95.5%
History of abuse		
No	94	47.0%
Yes	106	53.0%
Depression		
No depression (PHQ-2 <2)	142	71.0%
Depression (PHQ-2 ≥2)	58	29.0%

3.1.2 Drinking during previous pregnancies

Table 2 reports the items about drinking during a previous pregnancy. In total, out of 176 women with a history of pregnancy, 114 (57.9%) reported drinking alcohol during a previous pregnancy. More than half of the women (n=90, 51.1%) met criteria for hazardous drinking during a previous pregnancy (AUDIT-C ≥ 3) and more than one-third (n=60, 34.1%) reported binge drinking (having six or more drinks on one occasion) at least weekly during a previous pregnancy.

Table 2. Drinking patterns of participants during past pregnancy (n=176)

	During past pregnancy	
	n	%
How often do you have a drink containing alcohol?		
Never	62	35.2%
Monthly or less	27	15.3%
2-3 times a month	26	14.8%
2-3 times a week	36	20.5%
4 or more times a week	25	14.2%
How many standard drinks containing alcohol do you have on a typical day when drinking?		
Do not drink	62	35.2%
1 or 2	14	8.0%
3 or 4	27	15.3%
5 or 6	35	19.9%
7 to 9	21	11.9%
10 or more	17	9.7%
How often do you have six or more drinks on one occasion?		
Never	94	53.4%
Less than monthly	9	5.1%
Monthly	13	7.4%
Weekly	49	27.8%
Daily or almost daily	11	6.3%
Meet criteria for hazardous drinking (AUDIT-C)	90	51.1%

3.1.3 Attitudes about alcohol use during pregnancy

Table 3 reports responses on the attitudes about alcohol use during pregnancy scale. 33 women (16.5%) were classified as having harmful attitudes toward alcohol use during pregnancy because they reported holding at least one harmful attitude about the appropriateness of drinking alcohol during pregnancy. Of the 33 women who met criteria for harmful attitudes toward alcohol use during pregnancy, 28 women endorsed more than one of these attitudes, 22 of which endorsed all 5. 5 women endorsed only 1.

Table 3. Attitudes about alcohol use during pregnancy (n=200)

	n	%
How often do you think a pregnant woman can drink alcohol without harming the baby?		
Never	173	86.5%
Monthly*	9	4.5%
Weekly*	18	9.0%
Daily or almost daily*	0	0.0%
How many drinks containing alcohol do you think a pregnant woman can have a day without harming the baby?		
None	168	84.0%
1 to 2*	11	5.5%
3 to 4*	20	10.0%
5 or more*	1	0.5%
Do you agree or disagree: Drinking alcohol while pregnant can harm the baby.		
Agree	177	88.5%
Disagree*	22	11.0%
Unsure*	1	0.5%
Do you agree or disagree: Drinking alcohol while pregnant can lead to life long health problems for the baby.		
Agree	176	88.0%
Disagree*	23	11.5%
Unsure*	1	0.5%

Do you agree or disagree: Pregnant women should not drink alcohol.		
Agree	177	88.5%
Disagree*	22	11.0%
Unsure*	1	0.5%

*denotes harmful attitudes

3.1.4 Attitude-behavior gap

Table 4 compares the current attitudes of study women toward alcohol use during pregnancy with their behaviors during a past pregnancy. These numbers point to the existence of an attitude-behavior gap pertaining to discrepant attitudes and beliefs regarding alcohol consumption during pregnancy. Considering the 33 women who were identified as having harmful attitudes toward alcohol use during pregnancy, almost all of them (n=30, 90.9%) also reported drinking alcohol during a previous pregnancy. Of the 164 women who did not report believing that any alcohol use during pregnancy was acceptable, more than half of them (n=84, 51.2%) still reported drinking alcohol during a previous pregnancy.

Table 4. Attitude-behavior gap

Drinking during pregnancy is okay?	Drinking during previous pregnancy?		TOTAL
	No	Yes	
No	80 (48.8%)	84 (51.2%)	164
Yes	3 (9.1%)	30 (90.9%)	33
TOTAL	83	114	197

3.1.5 Predictors of harmful attitudes toward alcohol use during pregnancy

Table 5 summarizes the results of the univariate and multivariate logistic regression analyses predicting harmful attitudes related to alcohol use during pregnancy. In univariate analysis, harmful attitudes were significantly associated with having a history of abuse (AOR=6.39, 95% CI 2.35-17.35), screening positive for depression (AOR=2.80, 95% CI 1.30-6.03), drinking during a previous pregnancy (AOR=9.52, 95% CI 2.80-32.44), hazardous drinking (AOR=1.41, 95% CI 1.18-1.69), and expressing negative attitudes toward pregnancy (AOR=2.28, 95% CI 1.00-5.20).

In multivariate analysis, harmful attitudes were significantly associated with having a history of abuse (AOR=3.33, 95% CI 1.06-10.50) and drinking during a previous pregnancy (AOR=6.87, 95% CI 1.79-26.33). Intention not to become pregnant showed a trend towards significance ($p < 0.10$) (AOR=0.14, 95% CI 0.02-1.21).

Table 5: Predictors of harmful attitudes that endorse the acceptability of alcohol use during pregnancy (n=192)

	Overall	Harmful attitudes n(%)	Unadjusted OR (95% CI)	<i>p</i>	Adjusted OR (95% CI)	<i>p</i>
DEMOGRAPHICS						
<i>Age</i>			1.04 (0.98, 1.10)	0.204	0.98 (0.92, 1.06)	0.685
<i>Education</i>						
No secondary school	116	20 (17.2%)	REF	-----	REF	-----
Secondary school	81	13 (16.1%)	0.92 (0.43, 1.97)	0.826	1.53 (0.57, 4.14)	0.399
TRAUMA/MENTAL HEALTH						
<i>Abuse history</i>						
No abuse history	94	5 (5.3%)	REF	-----	REF	-----
Abuse history	106	28 (26.4%)	6.39 (2.35, 17.35)	0.000*	3.33 (1.06, 10.50)	0.040*
<i>Depression (PHQ-2)</i>						
No depression	142	17 (11.97%)	REF	-----	REF	-----
Depression	58	16 (27.6%)	2.80 (1.30, 6.03)	0.008*	2.05 (0.79, 5.32)	0.139
SUBSTANCE USE						
<i>Hazardous drinking (AUDIT-C)</i>			1.41 (1.18, 1.69)	0.000*	1.15 (0.94, 1.41)	0.164
<i>Drinking during previous pregnancy</i>						
No	83	3 (3.6%)	REF	-----	REF	-----
Yes	114	30 (26.3%)	9.52 (2.80, 32.44)	0.000*	6.87 (1.79, 26.33)	0.005*
PREGNANCY INTENTIONS						
<i>Intention to get pregnant</i>						
No	165	31 (18.8%)	REF	-----	REF	-----
Yes/Unsure	35	2 (5.7%)	0.26 (0.06, 1.15)	0.076	0.14 (0.02, 1.21)	.074
<i>Attitude toward pregnancy</i>						
Positive attitude	86	9 (10.5%)	REF	-----	REF	-----
Negative attitude	114	24 (21.1%)	2.28 (1.00, 5.20)	0.050*	1.50 (0.55, 4.11)	.433

*significant at $p \leq 0.05$

3.2 Qualitative Results

The 23 women interviewed were all Coloured and ranged in age from 20 to 42, averaging about 32 years of age. All but one woman interviewed reported a previous pregnancy. Of the 22 women who reported a previous pregnancy, 6 women explicitly stated that they had never drunk during a previous pregnancy. 14 of them reported having drunk during at least one previous pregnancy, one reported drug use but no drinking, and one did not explicitly state her alcohol use behaviors during pregnancy. The women who reported alcohol use during a previous pregnancy tended to report heavy drinking during past pregnancies, often not changing their drinking habits upon discovery of pregnancy or, alternatively, not recognizing they were pregnant until well into the pregnancy.

3.2.1 Knowledge about the risks of alcohol use during pregnancy

Most of the women expressed at least some level of awareness of the harms caused by alcohol use during pregnancy, but were not necessarily aware specifically of the term FASD or what it entails. A few of them reported having personal experiences with children affected by alcohol use during pregnancy – either knowing about them or having children themselves.

Part: Yo, in this street alone most women drink when they are pregnant, you see them walking with their pregnant tummies in street on their way to the shebeen to buy alcohol.
Int: What do think are the risk/benefits of alcohol use during pregnancy?

Part: *There are no benefits at all. It is dangerous to the baby. You can miscarry when you are pregnant or it can harm the baby in such a way that that the baby is born prematurely, at 6 or 7 months.*

Int: *Is there difference in the type of alcohol that you drink? Is some type of alcohol less harmful than others?*

Part: *No I don't think so, even ciders has alcohol in, so whatever you drink is harmful for the baby, women should not drink at all.*

Int: *Do you know any children that were affected by alcohol use during pregnancy?*

Part: *I know a few mothers that was drinking heavily throughout their pregnancy who claims that there is nothing wrong with the children. I'm not friends with them so I don't really see the impact it has, but I'm sure there is some sort of problem.*

Int: *Have you ever heard of fetal alcohol spectrum disorder (FASD)?*

Part: *Not that I know of, but I heard people talking about fetal alcohol syndrome, is it the same thing?*

Int: *Yes it is but also include other things that happens during pregnancy when mothers drink alcohol.*

Part: *Yes I've heard about children born with heart problems, children that are small for their ages that kind of thing. (Participant 1.7, 21 years old)*

While most participants recognized that all types of alcohol are equally harmful during pregnancy, there were a few who believed that beer was less harmful than liquor and wine and several who, when asked about alcohol use during pregnancy, explained they drank, but “only beer.”

“It depends on the type of alcohol. Beer doesn't have such a bad effect than strong liquor and vrot (cheap wine). That is the type of alcohol which would make the child think slower or grow/develop slower but not so much the beer because it depends on the amount of beer that you drink during your pregnancy.” (Participant 2.3, 33 years old)

The general opinion was that it is very common for pregnant women in their community to drink during pregnancy.

“Most women and young girls in my community drink while they are pregnant. They don't sit at the shebeen but they drink at home with their families. Some of them are addicted to cheap wine. That wine is very dangerous to adults which means it is also damaging the unborn child.” (Participant 2.8, 24 years old)

“It is a very common thing. I would say 9 out of 10 women that I know drink during their pregnancy.” (Participant 3.3, 24 years old)

3.2.2 Contributors to alcohol use during pregnancy

Despite participants’ general awareness of the harms of alcohol use during pregnancy, the majority of them reported drinking alcohol during at least one previous pregnancy. Analysis revealed several themes that help explain why these women might continue to drink during pregnancy despite their awareness of its harms. The five themes are summarized below, and supporting quotations are included in Table 6. All quotations included in Table 6 are from women who reported drinking during a previous pregnancy.

Having an unplanned or unwanted pregnancy

Many of the women who reported alcohol use during pregnancy explained that they became pregnant unintentionally, often at a young age, and sometimes even while using contraception. While several of them expressed wanting to end the pregnancy or not caring about the baby, many also explained that because they were not trying to become pregnant, they weren’t aware they were pregnant until several months into the pregnancy.

Drinking because of stress or to aid in coping

Drinking to cope with life and its stresses was a common theme in this sample of women. They often explained their drinking – and their drinking during pregnancy – by

saying that they were too stressed or depressed to deal with life without alcohol. Several reported that it made them feel more relaxed and happier, and that it helped them to forget their problems – financial struggles, abusive relationships, absent partners, unwanted pregnancies, etc. Additionally, many of the women in this sample reported having a history of abuse or serious trauma, and several of them linked these experiences to their drinking habits.

Relying on the venue space for solace or safety

Several women reported feeling safer at the venue than at their homes or alternatively, referred to the shebeen as a “second home.” For most who reported on the importance of the venue space, it was described as an escape from unpleasant home conditions or as a place to relax and get away from responsibilities.

Socialization and social norms

Attending the venues for recreational purposes was reported amongst a handful of the women, and most often in the context of social norms. Some of these women reported feeling a sense of camaraderie with others at the shebeen or suggested that they went because they were expected to or to relax.

Feeling invincible or having a sense of “it won’t happen to me.”

Several women explained that they drank during pregnancy because they did not believe anything bad would happen to them. Women who reported these feelings of

invincibility sometimes also offered that others (parents, friends, etc.) would advise them against drinking but they didn't listen to them.

Table 6. Contributors to alcohol use during pregnancy	
Themes	Quotes
Unplanned or unwanted pregnancy	"When I found out I was pregnant I did not know what to do. I just want to get rid of the baby, but my boyfriend said now, the baby is there as a gift. I was saying that I have my whole future ahead of me but in the end I decided to keep the baby because it was already there and I was far along and it's not that I know what to do." (Participant 2.1, 24 years old)
	"I was drinking every day of the week. I used to take one beer with five grandpas (one of the strongest painkillers in South Africa). At first I didn't know that I was pregnant and when I discovered that I was pregnant I just carried on drinking. I didn't stop at all." (Participant 2.2, 34 years old)
	"I was depressed during my pregnancy because I did not want to be pregnant that young, I was already 6 months pregnant before I went to the antenatal clinic and I gave birth at 8 months at Tygerberg Hospital." (Participant 2.5, 35 years old)
	"The very first time I had sex I fell pregnant and I was only fifteen years old. I did not stop going to the "yard" after my discovery of my pregnancy." (Participant 1.6, 38 years old)
	"I fell pregnant in spite of using the injection. I don't know why I am so fertile. I was also drinking throughout this pregnancy. I fell pregnant while using the injection and I was also drinking through that pregnancy." (Participant 1.6, 38 years old)
	"Yes, I was still drinking. I didn't care about this child. It was almost as if I hated this child. So whether I was drinking or not, I didn't care." (Participant 1.11, 30 years old)
	"I was about 5 months along when I discovered that I was pregnant. My mom kept on telling me that I was pregnant but I did not want to believe her until she convinced me to go to the clinic for a pregnancy test. Before the pregnancy test I was drinking every day. Whether at the shebeen or at home...my mother and father discouraged me from drinking but because I did not believe that I was pregnant and kept on drinking." (Participant 2.8, 24 years old)
	"Both pregnancies were not planned. I think if my boyfriend and I decided before hand to start a family then maybe our lives and our

	children's lives would have been better. I think because I was in the sphere of drinking that I continued with that lifestyle." (Participant 2.8, 24 years old)
	"Yes I did [drink], especially in the beginning when I didn't want to accept it [the pregnancy]." (Participant 3.1, 31 years old)
Stress and coping	"I am drinking because it acts as a pacifier. I am drinking because it takes away the pain that I am feeling inside my body...I am drinking because the alcohol helps me to cope with my problems. As long as I am drinking I don't feel any pain...Even though I knew that my drinking habits during pregnancy was not right, I could not help myself. I was highly pregnant and still drinking because the alcohol acted as a remedy for my depressive mood." (Participant 2.6, 35 years old)
	"I know alcohol is not good for babies but what can a person do. Your situation is sometimes so depressive that drinking is the only way of uplifting your spirits. That's the only time when people feel happy and relaxed." (Participant 2.8, 24 years old)
	"Yes, I have been drinking and smoking the full duration of my pregnancy. I was very disappointed because after the pregnancy, [my partner and the father of the baby] took the road again. I was drinking and smoking marijuana. I didn't care for this pregnancy because, once again I was disappointed. The children's father went back to the woman he was living with before he came to me. I was very careless during this pregnancy. I was at the shebeen every chance I got." (Participant 1.4, 42 years old)
	"Yes, I was drinking [during pregnancy]. I drank a lot of beer, I was drinking beer everyday...Yes, 5 or 6 beers a day to keep me calm." (Participant 2.5, 35 years old)
	"There are various reasons for my drinking. Normally, when there is conflict between myself and my boyfriend or between myself and my family members I find solace in going to the shebeen just to get away from the conflict. I feel that drinking will relieve the problems I'm facing and for that moment it does relieve me from my pain because I forget about everything that is going on at home." (Participant 2.8, 24 years old)
	"Every day I work for a different person. Each person has her own demands and moods and I have to deal with it every day. That is besides my stress at home. So, every evening, after work I visit the shebeen. Firstly, I want to get rid of my daily stress that I encountered at work and secondly to prepare me for the stress at home."

	(Participant 1.8, 40 years old)
	"I was very depressed. I didn't like myself or the child but I had nowhere to go... The only place that I could go to was the shebeen." (Participant 1.11, 30 years old)
Stress and coping: abuse	"With my second baby I was drinking, I was drinking a lot with that pregnancy because that was the time my husband started to use drugs. I started to drink at the time he was hitting me...he was hitting me right through my pregnancy..." (Participant 2.1, 24 years old)
	"I was continuously beaten black and blue even during my pregnancy. After the beatings, he would always bribe me with alcohol to forgive him. My first husband was a very violent man. I used to live in fear. He did not even care for the fact that I was expecting his baby. I felt safer staying at the shebeen." (Participant 1.6, 38 years old)
Importance of venue space	"I liked going to "Die Plasie" about three times per week as well as weekends. I am going there because it's safe and peaceful. You can enjoy your drinks without being disturbed..." (Participant 2.2, 34 years old)
	"The shebeen became my second home. I feel more at home amongst strangers than I am at home. Everybody knows and accepts me without any questions asked." (Participant 2.2, 34 years old)
	"I told you before that I started skipping school and started sitting on the "yard" when I was about fifteen. I also told you that it was the same "yard" where my mom used to spend her time and the owner did not mind us sitting there. It was like a second home." (Participant 1.6, 38 years old)
	"I prefer being at the shebeen rather than being at home. My "mom" and I are continuously fighting...My mother and I do not have a good relationship. We are always arguing. That's why I don't want to be at home." (Participant 2.2, 34 years old)
Socialization and social norms	"I just like drinking and it's nice to have a drink when you out with friends. It has a relaxing effect on you." (Participant 2.9, 33 years old)
	"To me it's not a matter of whether I like or don't like going to the shebeen. Whenever somebody invites me for a drink, I go." (Participant 1.2, 20 years old)
	"It's a nice place to come and meet people, who also want to get away from their circumstances. You find people with the same background as yourself and maybe the same problems. When you realize that other people also have problems you don't feel so alone anymore." (Participant 3.2, 35 years old)

Invincibility	"[I drank in my pregnancy because] I believed that nothing would happen to my baby, maybe I was in denial or something." (Participant 2.5, 35 years old)
	"I was drinking throughout the whole pregnancy. This time around people told me that it is harmful to drink during pregnancy, but I didn't listen to anyone." (Participant 2.6, 35 years old)
	"Once again my parents told me [not to drink during my pregnancy] because I am still living with them, but I did not listen to anything they had to say. I still enjoyed my drinks. I just reduced my drinking days and the amount of alcohol I drank." (Participant 2.8, 24 years old)

3.2.3 Contributors to resiliency against alcohol use during pregnancy

Only 6 of the women explicitly reported that they intentionally did not use substances (drugs or alcohol) during any of their previous pregnancies. While they did not necessarily give explicit reasons for why they chose not to drink during their pregnancies, analysis of their interviews revealed themes that may explain why they abstained. All of the quotations provided in Table 7 are from women who reported abstaining from drinking during any previous pregnancies. The themes most prevalent amongst these women to explain their abstinence from alcohol use during pregnancy included the following:

Drinking patterns at time of pregnancy

All six of the women who reported no alcohol use during a previous pregnancy reported either not being a drinker at time of pregnancy or drinking exclusively for recreational purposes. These women tended not to report traumatic life experiences or abuse and seemed to have fewer life stressors overall (e.g., related to poverty and family

lives) as well as generally more resilient attitudes toward the (usually more minor) stressors they did report. It is possible this contributed to them not reporting drinking to cope with stress. Many of them also reported enjoying their time drinking at the venue because they enjoyed the time spent with their friends, participating in karaoke, or watching television.

Contentment with relationship status

These women – like women who drank during pregnancy – mostly became pregnant unintentionally, but were often in relationships at the time of pregnancy. At the time of interview, many of them were no longer with the father of their children, but generally expressed satisfaction with their current relationship status, be it single or other. One woman described her husband as the love of her life and expressed what seemed to be a high level of personal and relationship satisfaction. Another explained that her focus is on her child. Yet another spoke of being content experiencing a series of casual and sometimes long-distance relationships following her divorce.

Explicit knowledge about harms

Some of these women expressed explicit knowledge about the harms of alcohol use during pregnancy, sometimes due to their profession. One nurse and one teacher spoke specifically about either awareness of the harms or having seen many children with FASD. The nurse explained that even her husband stops drinking when they begin to try to become pregnant.

Table 7. Contributors to resiliency against alcohol use during pregnancy	
Themes	Quotes
Drinking patterns at time of pregnancy	"No I have never touch alcohol at that time in my life, I was not a drinker at all." (Participant 1.5, 35 years old)
	"No not at all. I was not a drinker at the time, I didn't even touch a cider." (Participant 1.7, 21 years old)
	"No I did not drink at the time. I've never touch alcohol at all." (Participant 1.10, 34 years old)
	"No, I was not a drinker, I started drinking afterwards." (Participant 2.7, 28 years old)
	"I like this place because it is close to my home and my friends hang out there because we don't need transport...Do you need a reason to drink? I just love it and I enjoy it as well." (Participant 1.7, 21 years old)
	"I come to here over weekends, on Sundays there is karaoke which I love...it's near my house, in walking distance, and everyone knows everyone because we stay close to the place and grew up together." (Participant 1.9, 34 years old)
	"I used to go to the shebeen a lot. I used to go there to watch television and to listen to the jokes people around me are telling to each other. At the same time, I was enjoying a beer." (Participant 2.4, 34 years old)
	"We are a few friends that will normally go there to have a couple of drinks after work on a Friday night before we go to the clubs. And on a Saturday we will go there to watch the sports if there is a big game on...I enjoy drinking and I don't drink for a particular reason." (Participant 2.7, 28 years old)
Contentment with relationship status	"[My husband and I] have a good relationship, he is the love of my life." (Participant 1.9, 34 years old)
	"I'm single and I'm not interested in relationships my children is my focus now." (Participant 1.10, 34 years old)
Explicit knowledge about harms	"No, I will [not] drink in my pregnancy, never. I'm a nurse and I know what alcohol does to an unborn baby. No drinking at all. I always stopped drinking before we conceive, exactly both of us did that." (Participant 1.9, 34 years old)

4. Discussion

This study provides insight into the attitudes toward alcohol use during pregnancy among a population of women recruited from alcohol-serving venues in one South African community. Overall, very few women (1 in 6) reported harmful attitudes toward alcohol use during pregnancy. However, nearly 6 in 10 women admitted that they consumed alcohol during a previous pregnancy, with binge drinking being common. These seemingly discrepant data reveal an attitude-behavior gap: more than half of the women who did not hold harmful attitudes about alcohol use during pregnancy nevertheless reported drinking during a past pregnancy. This suggests that positive attitudes and knowledge are not sufficient to prevent alcohol use during pregnancy, and there is a need for alternative interventions.

Alcohol use during a previous pregnancy was a strong predictor of having harmful attitudes toward alcohol use during pregnancy. It is possible that these harmful attitudes were held in an internal attempt to justify past behaviors, or that they were falsely reporting harmful attitudes in an attempt to appear consistent with or to externally rationalize their behaviors. On the other hand, the belief that any alcohol use during pregnancy is acceptable could certainly lead to engaging in the behavior. It is also possible that experiences with alcohol consumption during a previous pregnancy have informed their opinions on how much alcohol it is safe for a pregnant woman to consume (Eaton et al., 2014) This was clearly evidenced by the qualitative data, in which

several women who drank during pregnancy rationalized their drinking behaviors by explaining that certain types of alcohol are not harmful or that they didn't believe anything would happen to them or their baby if they drank. Since the data included measures of current attitudes and past pregnancy behaviors, these reported attitudes could not be predictive of the reported historic behaviors. This time factor somewhat limited what could be gleaned from these results.

In addition to history of abuse emerging as a strong predictor of holding harmful attitudes, many women explained in interviews that their alcohol use behaviors during pregnancy resulted from stressful, abusive, or traumatic life experiences and expressed a need to cope with these stressors by drinking. This motif of drinking alcohol to cope has been recognized in pregnant women in similar settings (Watt et al., 2014). Given the anticipated life changes from pregnancy, and the stresses that pregnancy itself introduces into a woman's life (Geller, 2004), it is understandable that a woman would continue to engage in what she perceives as being a reliable or comfortable coping mechanism. For some women, though, it was less about the drinking and more about escaping their homes to feel safe or surrounding themselves with friends and others with similar life experiences to feel accepted. This was reinforced by finding that secure, healthy relationships and drinking for fun rather than out of necessity or for coping may contribute to resiliency against alcohol use during pregnancy.

Most women interviewed reported not intending to become pregnant, a finding that was also supported by the quantitative data, and thus they often did not recognize or accept their pregnancies until well into the pregnancy. Women not intending to become pregnant both drink more before pregnancy recognition (Tough, Tofflemire, Clarke, & Newburn-Cook, 2006), and are also more likely to recognize their pregnancy late (May et al., 2014; May et al., 2015). Late recognition of pregnancy is associated with decreased likelihood of reducing alcohol intake even following pregnancy recognition (Dott, Rasmussen, Hogue, Reefhuis, & National Birth Defects Prevention, 2010; Ethen et al., 2009; Hellerstedt et al., 1998).

In the present study, not intending to become pregnant was associated with holding harmful attitudes. Though indistinguishable in the quantitative data, the qualitative data revealed that many of these unintended pregnancies were also unwanted pregnancies. Even women who do not intend to become pregnant still frequently reduce alcohol consumption upon discovery or acceptance of the pregnancy (Hellerstedt et al., 1998; Kost, Landry, & Darroch, 1998; Terplan, Cheng, & Chisolm, 2014). Women who do not want the pregnancy or have sought pregnancy termination are more likely to engage in binge drinking (Roberts, Wilsnack, Foster, & Delucchi, 2014). Indeed, many women who were not intending to get pregnant cited drinking before pregnancy recognition or continuing to drink following recognition if the

pregnancy was unwanted. This highlights the importance of contraceptive use in this population of women.

4.1 Theory of planned behavior applied to alcohol use during pregnancy

Health behavior theory can help to explain the gaps that exist between individuals' knowledge, attitudes, or intentions, and their behavior. In the theoretical literature, this gap has been termed the knowledge-practice gap, the attitude-practice gap, the intention-behavior gap, and the health-behavior gap, though there are subtle differences between each of these. The theory of reasoned action (M. Fishbein, 1967; M. Fishbein & Ajzen, 1975) and the theory of planned behavior (Ajzen, 1991) highlight two aspects of health behavior that are key to understanding this gap: intention, which is a conscious decision to perform a behavior, and perceived behavioral control (similar to self-efficacy), which is an individual's belief in their ability to execute the behavior (Ezzati et al., 2003; Vasiljevic, Ng, Griffin, Sutton, & Marteau, 2016).

The theory of planned behavior (TPB) grew out of the theory of reasoned action (TRA) (M. Fishbein, 1967; M. Fishbein & Ajzen, 1975; Glanz, 2008) which was developed in order to better understand the relationship between attitudes and behaviors (Glanz, 2008). It was in the founding of this theory that attitudes toward an object and attitudes toward behaviors associated with the object were originally differentiated. In the present study, attitudes toward the behavior of using alcohol during pregnancy are the outcome of interest. Attitudes toward behaviors are expected to be good predictors of behavior.

Thus, attitudes toward alcohol use during pregnancy are expected to be good predictors of alcohol use during pregnancy. The TRA further posited that associated subjective norms were another direct determinant of behavioral intention. The TPB added to this that perceived behavioral control is the third and final determinant of intention (Figure 1).

Figure 1. Theory of planned behavior as applied to alcohol use during pregnancy

A gap between knowledge and behavior exists when the attitude toward the behavior is such that it should lead to behavioral intention, yet this attitude does not translate to intention and then on to behavior. We can better understand this result by

using the above TRA/TPB model. For those who do not have an attitude toward the behavior that results in harmful outcomes – meaning that they do not believe alcohol use during pregnancy is acceptable – they should be making it through from attitude to intention and on to not engaging in the behavior. However, subjective norms and/or perceived behavioral control are also influencing intention. This was seen in both quantitative and qualitative results. Most of the women reported in both the survey and interview setting that it is common for women to engage in alcohol use during pregnancy in their community. This touches on the subjective norm piece. The desire to socialize seems to contribute too to subjective norms around alcohol use during pregnancy.

Understanding abuse and how it contributes to a woman's perceived ability to control her behaviors is crucial to appropriately contextualizing these results. Reporting a history of abuse not only predicted harmful attitudes, but for those who reported a history of abuse but still maintained non-harmful attitudes, it is possible that they experienced a reduction in their perceived behavioral control. History of abuse or trauma could contribute to one's belief that their life is out of their control regardless of their behaviors. Further, the very prevalent idea of "I know I shouldn't but it's the only way to cope or relax" seemed too to represent a way in which these women had low perceived behavioral control that likely contributes to not having the intention to abstain from alcohol even though they know that they should.

Research on interventions aimed at reducing the risk of alcohol exposed pregnancies have almost exclusively used a motivational interviewing approach, which tries to harness individuals' own motivations and reduce ambivalence about behavior change. However, fairly new research on this gap amongst persons with at-risk alcohol use points to a new idea: that normative belief incongruence may be a better predictor of the behavior than intention (Baumann et al., 2015). Belief congruence exists when the beliefs expressed in a survey or interview setting match the beliefs felt in a more realistic or real-life setting, meaning beliefs or attitudes don't change when faced with making the real decision (M. a. A. Fishbein, I. , 2010). This finding is especially important in the current setting, as alcohol use is exceedingly sensitive to culture and social context (Guise & Gill, 2007). Further, this gap is particularly relevant to this context because literature suggests that this gap is narrower amongst those with higher socioeconomic status, meaning that those with lower SES are less likely to act in accordance with their intentions (Conner et al., 2013).

4.2 Implications for policy and practice

The literature has highlighted a need for interventions to focus on understanding erroneous beliefs regarding alcohol use during pregnancy, but these findings indicate that it isn't only a lack of knowledge that promotes alcohol use during pregnancy. Instead, there is an attitude-behavior gap among women who know that alcohol is harmful to the fetus, but they drink anyway. Existence of this gap alone implies that

educating these women on the harms of alcohol use during pregnancy would not likely fully prevent them from engaging in harmful behaviors. This points to a need for identification and implementation of policies or interventions that go beyond education to build intrinsic motivation to refrain from alcohol use during pregnancy. In the literature, there is substantial support for employing case management and motivational interviewing as effective interventions against alcohol use during pregnancy (de Vries et al., 2015; May, Marais, et al., 2013) and this would likely require a substantial investment of both human and financial capital on a relatively large scale.

These same studies have noted that the least happy women drink the most (de Vries et al., 2015; May, Marais, et al., 2013). The current data support this finding, but highlight that structural factors such as poverty, gender inequity, lack of job security, and abuse in relationships contribute greatly to this lack of happiness. This points to another opportunity for indirect intervention – interventions aimed at improving both the mental health in these women as well as at addressing some of these structural factors that directly impact these women’s mental health status.

Though the official recommendation on alcohol use during pregnancy in the United States is total abstinence (O’Leary, Heuzenroeder, Elliott, & Bower, 2007), these messages might not be entirely appropriate here. In a setting such as this, in which many women have maladaptive coping strategies, very difficult lives or are carrying an unwanted child, and are surrounded by people and situations which encourage

drinking; interventions aimed at reducing intake might be more prudent since there is value in alcohol intake reduction as well (de Vries et al., 2015).

It is important to also recognize the contributors to resiliency against alcohol use during pregnancy – namely healthy relationships and drinking for recreation rather than for coping. Though the gap highlights that education on harms of alcohol use during pregnancy might not be entirely effective, perhaps efforts to reframe drinking as a fun activity and to provide women with alternatives for recreation and socialization would be helpful. Given the conveyed importance of the venue space and camaraderie, alternative non-alcohol serving recreational spaces or organized events might provide the same sense of social connection that many of these women appear to be seeking. There is also opportunity here to change norms in this setting and to develop interventions to prevent unintended pregnancies.

4.3 Implications for further research

To my knowledge, little to no research exists on the attitude-behavior gap as it pertains to alcohol use during pregnancy, especially in South African populations. Given that this gap has been identified, further research should investigate both reasons for and predictors of this gap.

Most women in this sample suggested educational pamphlets or community meetings as intervention ideas to reduce alcohol use during pregnancy; however, education or positive attitudes in this setting do not translate to avoidance of the

harmful behaviors. For this reason, further research should be undertaken to develop and evaluate interventions that do motivate this particular population of women to abstain from alcohol use during pregnancy. A starting point for this could be to investigate the efficacy of an intervention that introduces and teaches alternative coping strategies in a similar setting.

Future research could also include further qualitative studies amongst currently pregnant women to specifically inquire about reasons for drinking during the current pregnancy. This specific question was not always asked in the IDIs for this study, and when it was asked, it was asked about past pregnancies. Inquiring about a current pregnancy could help prevent recall bias as well as allow for obtaining a sample of women from whom we can more objectively capture alcohol use behaviors. Further, focus group discussions (FGDs) could be employed in order to explore group norms and practices and to further explore reasons for the attitude-behavior gaps.

4.4 Study strengths and limitations

One of the main strengths of this study was that the sample population consisted of women recruited from a community sample in a high-risk setting. Targeting women at alcohol-serving venues has proven to be a successful strategy in researching alcohol consumption during pregnancy, as the women who attend these venues tend to have heavy drinking behaviors and, as this sample shows, are often not intending to become pregnant and thus drink more before pregnancy recognition (Sikkema et al., 2011;

Tough et al., 2006). Furthermore, using alcohol-serving venues as sites offered the opportunity to identify women at highest risk for an alcohol exposed pregnancy as well as the opportunity to change norms within that environment.

The interviewers were of the same cultural background as the participants and this likely contributed to the participants' openness and willingness to discuss their experiences. This is also likely due in part to the fact that they were discussing drinking habits during past pregnancies; women who report on their alcohol use during a pregnancy after the fact are more truthful (Floyd, Decoufle, & Hungerford, 1999; Hannigan et al., 2010; May et al., 2008). The mixed-methods design of the study was also a strength, as the qualitative data supplemented the quantitative data and allowed for greater insight into the gap identified by the quantitative data.

There are several limitations to consider in this study. First and most important is that this was a secondary analysis and, as such, the data were not collected to answer the specific questions posed in this study. The quantitative data were particularly fitting for this study, but the qualitative data did not necessarily always align with or address the research questions. Further, as a cross-sectional study, it was not possible to prove causative relationships. Also important to note is that the measure of attitudes toward alcohol use during pregnancy and the measure of alcohol use during previous pregnancies were not measured at the same time in that the survey inquired about current attitudes and past behaviors with alcohol use during pregnancy. It is possible

that their attitudes during the pregnancy were different (i.e., more harmful) and that those attitudes changed during or since the pregnancy. The sample was obtained using convenience sampling, and though this method limits generalizability, the design was appropriate for the research question. The self-reported nature of both the quantitative and qualitative data leaves ample room for bias in our data. The effect of shame or stigma stemming from many of the topics of interest on validity cannot be overstated; one woman specifically explained during her IDI that she was ashamed and so had given false information in the survey. Also important to note is that these surveys were conducted in alcohol serving venues and as such, this aforementioned shame and stigma could have been less pronounced in this setting than it may have been in another setting.

5. Conclusion

This study set out to see what predicted harmful attitudes quantitatively, as literature shows that many women in this setting hold harmful attitudes. However, what I found instead was that most of these women don't actually hold harmful attitudes, but they still engage in the harmful behaviors. This study yielded both informative quantitative and rich qualitative data that together were able to characterize attitudes toward alcohol use during pregnancy in this sample of Coloured women recruited from alcohol serving venues in Cape Town, South Africa. They also underscore the existence of an attitude-behavior gap as well as possible reasons for the existence of this gap. These data highlight that using alcohol-serving venues to identify women at high risk for alcohol-exposed pregnancies is not only an effective recruitment technique, but also that these venues are appropriate for introducing interventions. These venues are perceived often as safe spaces and as such, could effectively serve as sites for interventions. The attitude-behavior gap highlights that knowledge is not sufficient to deter women in this setting from engaging in alcohol use during pregnancy, but suggests that improvements in ability to cope with life stressors could improve resilience against alcohol use during pregnancy. Such interventions should focus on both supporting women's mental health, particularly during the pregnancy period, and helping women to develop alternative coping mechanisms for both acute and chronic stressors. Further, given the heavy binge drinking patterns in this population of women,

interventions instructing on complete abstinence from alcohol use during pregnancy might not be most prudent. Rather, focusing on reducing binge drinking in particular might be more helpful. Additionally, the importance of community interventions against interpersonal and intimate partner violence cannot be overstated. Programs to aid in prevention of alcohol use during pregnancy and thus, FASD, must look extend beyond education. Lack of knowledge is not at the heart of this preventable epidemic. There is a clear and urgent need for multi-faceted interventions that address drivers at the individual, social, and structural levels.

Appendix A

Venue survey

Study ID: _____ Date: ____/____/_____
dd mm yyyy

Venue: _____

Interviewer: _____

After oral informed consent, say to participant:

Thank you for agreeing to take this brief survey. I'm going to ask you some questions about yourself, your desire for children, and your use of contraceptives. The survey should take no more than 20 minutes.

There are no right answers to these questions. Just pick the answer that's best for you personally. We are in a private place where no one will hear your answers, and I will keep them private. If you don't understand a question, please tell me. It is

important for you to answer all questions truthfully. Do you have any questions before we begin?

A. DEMOGRAPHICS

1. How old are you?	
2. Did you complete secondary school?	1) Yes 2) No 3) Currently enrolled
3. What is your current relationship status?	1) Married 2) Living with a partner 3) In a relationship but not living together 4) Single/Not in a relationship
4. Do you currently do any work where you earn money?	1) Yes 2) No [SKIP TO Q 5]
4b. Is it casual work or a fixed job?	1) Casual / infrequent work 2) Fixed work / job
5. What is your religion?	1) Christian (Denomination: _____) 2) Moslem 3) None 4) Other _____
6. Thinking of all the adults who live in your home, how much money does your household get each month? (including work and grants)	

B. PREGNANCY HISTORY AND STATUS

7) How many children do you have (i.e., children who you gave birth to and are still alive)?	
8) If <i>more than one child</i> : Were all of these children conceived by the same father?	1) Yes 2) No
9) Other than these children, how many other times have you been pregnant?	
[If 0, SKIP TO Q 10]	
<p><u>If other times she's been pregnant:</u></p> <p>What was the outcome of those other pregnancies? [should add up to Q9]</p>	
9b. Number of (spontaneous) miscarriages	
9c. Number still births	
9d. Number of (induced) abortions	
9e. Number of children who have died (in infancy, childhood, or adulthood)	
10) Are you <i>currently</i> pregnant?	1) Yes 2) No [SKIP TO Q 11] 3) Unsure/Maybe [SKIP TO Q 11]
10b. Approximately how many weeks pregnant are you?	

	[IF UNSURE, WRITE "99"]
10c. Have you booked at an antenatal clinic?	1) Yes 2) No

C. PREGNANCY INTENTIONS AND ATTITUDES

11) Are you planning to try and become pregnant in the next year?	1) Yes 2) No 3) Unsure 4) N/A – Already pregnant
12) Have you ever used a home pregnancy test?	1) Yes 2) No
Tell me whether you agree or disagree with the following statements. <i>[If currently pregnant, ask these questions for how she feels about her pregnancy.]</i>	
13) If you got pregnant now, it would be embarrassing for your family.	1) Agree 2) Disagree
14) If you got pregnant now, it would be embarrassing for you.	1) Agree 2) Disagree
15) If you got pregnant now, it would be stressful because you're not sure you'd keep the baby.	1) Agree 2) Disagree
16) If you got pregnant now, your partner may leave you.	1) Agree 2) Disagree
17) Getting pregnant at this time is one of the worst things that could happen to you.	1) Agree 2) Disagree

18) Do you think your partner would think it's a good or bad thing if you got pregnant?	1) Good 2) Bad 3) Not sure
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D. SEXUAL BEHAVIOR

First, I'm going to ask you about your sexual behavior in the <u>past year</u> .	
19) In the past <u>year</u> , have you had sex?	1) Yes 2) No [SKIP TO Q 37]
20) In the past <u>year</u> , have you had vaginal sex with a <i>man</i> ?	1) Yes 2) No [ASK NEXT Q, THEN SKIP TO Q 37]
21) In the past <u>year</u> , have you had sex with a <i>woman</i> ?	1) Yes 2) No
<p>Now I'm going to ask you about your sexual behavior in the <u>past 2 months</u>. This time period covers about 60 day and includes the past 8 weekends.</p> <p><i>[NOTE: When asking these questions it may be necessary to provide some anchors for the time period, and to help her make calculations for any regular behaviors.]</i></p>	
22) In the past <u>2 months</u> , have you had sex?	1) Yes 2) No [SKIP TO Q 27]
23) In the past <u>2 months</u> , how many <i>men</i> have you had <u>vaginal</u> sex with?	
24) Thinking about the past <u>2 months</u> how many <i>times</i> have you had <u>vaginal</u> sex? As a reminder, the past 2 months covers 60 days, including 8 weekends.	
25) Of the ___ times you had sex in the past <u>2 months</u> , how many of those times were you drinking alcohol?	
26) Of the ___ times you had sex in the past <u>2 months</u> , how many of those times was	

your partner drinking alcohol?	
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E. CONTRACEPTIVE USE

Please tell me if you have used any of the following forms of contraception in the last year .	
27) Injection?	1) Yes 2) No [SKIP TO Q 28]
27b. When was the last time you got an injection?	1) Within the last 3 months 2) More than 3 months ago

28) Implant?	1) Yes 2) No [SKIP TO Q 29]
28b. Do you currently have your implant inserted?	1) Yes 2) No
28c. When was your implant inserted?	1) Within the last 3 years 2) More than 3 years ago
29) Pill?	1) Yes 2) No [SKIP TO Q 30]
29b. Are you currently taking the pill?	1) Yes 2) No [SKIP TO Q 30]
29c. In the last 2 months, on how many days did you miss taking your pill?	
30) The "LOOP" (IUD)	1) Yes 2) No [SKIP TO Q 31]
30b. Do you currently have your "LOOP" inserted?	1) Yes 2) No

30c. When was your “LOOP” inserted?	1) In the last 5 years 2) More than 5 years ago, Year: _____
31) In the last year, did you ever use condoms?	1) Yes 2) No [SKIP TO Q 32]
31b. What is your <i>main</i> reason for using condoms?	1) Prevent pregnancy 2) Prevent HIV / STDs 3) Prevent both pregnancy <i>and</i> HIV / STDs
31c. In the last year, how often did you use condoms when you had sex?	1) Rarely 2) Sometimes 3) Almost every time 4) Every time
31d. <i>If any sex acts in the past 2 months:</i> Of the ____ [Q 24] times you had sex in the past <u>2 months</u> , how many of those times did you use a condom?	

32) Have you ever had a surgery or procedure so that you could never get pregnant again (i.e., sterilization?)	1) Yes 2) No
33) Has your husband or main partner had a surgery or procedure to prevent pregnancy (e.g., vasectomy)?	1) Yes 2) No
34) Please tell me about any other methods to prevent pregnancy that you have used in the past 2 months (e.g., spermicide, diaphragm, natural methods)?	
35) Have you ever used emergency contraception (i.e., the “Morning After pill”)?	1) Yes 2) No

<p>36) <i>If any sex acts in the past 2 months:</i> Earlier, you told me that you had sex _____ [Q 24] times in the past 2 months. Of those times you had sex, how many of those times did you use any one of the methods we have discussed in order to prevent pregnancy?</p>	
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F. SUBSTANCE USE PATTERNS

In answering the next few questions, please think about your normal behavior.	
37) How often do you have a drink containing alcohol?	1) Never 2) Monthly or less 3) 2-4 times a month 4) 2-3 times a week 5) 4 or more times a week
38) How many standard drinks containing alcohol do you have on a typical day?	1) 1 or 2 2) 3 or 4 3) 5 or 6 4) 7 to 9 5) 10 or more
39) How often do you have six or more drinks on one occasion?	1) Never 2) Less than monthly 3) Monthly 4) Weekly 5) Daily or almost daily
40) Have you ever felt you should cut down on your drinking?	1) Yes 2) No
41) Have people annoyed you by criticizing your drinking?	1) Yes 2) No
42) Have you ever felt bad or guilty about your drinking?	1) Yes 2) No
43) Have you ever had a drink first thing in the morning to steady your nerves or to get rid of a hangover?	1) Yes 2) No

44) In the past <u>2 months</u> , have you smoked tobacco cigarettes?	1) Yes 2) No [SKIP TO Q 45]
44b. Thinking about the past week, how many cigarettes did you smoke?	
45) Have you ever used tik?	1) Yes 2) No [SKIP TO Q 46]
45b. Thinking about the past <u>2 months</u> (60 days), on how many days have you used tik?	
<i><u>Only ask the next questions to women who have been pregnant before. If no pregnancy history, skip to Q 49.</u></i>	
46) Thinking about the times you have been pregnant before, did you ever drink alcohol while you were pregnant?	1) Yes 2) No [SKIP TO Q47]
46b. For the pregnancy where you drank the most: how often did you have a drink containing alcohol?	1) Never 2) Monthly or less 3) 2-4 times a month 4) 2-3 times a week 5) 4 or more times a week
46c. How many standard drinks containing alcohol did you have on a typical day during the pregnancy?	1) 1 or 2 2) 3 or 4 3) 5 or 6 4) 7 to 9 5) 10 or more
46d. How often did you have six or more drinks on one occasion during the pregnancy?	1) Never 2) Less than monthly 3) Monthly 4) Weekly

	5) Daily or almost daily
47) Thinking about the times you have been pregnant before, did you ever smoke cigarettes while you were pregnant?	1) Yes 2) No
47b. For the pregnancy where you smoked the most: In a typical week, how many cigarettes did you smoke?	
48) Thinking about the times you have been pregnant before, did you ever use tik while you were pregnant?	1) Yes 2) No

G. HIV

49) Have you ever been tested for HIV?	1) Yes 2) No [SKIP TO Q 53] 3) Refuse to answer
50) When was your most recent HIV test?	Month: _____ Year: _____
51) What was the result of your most recent HIV test?	1) Positive 2) Negative [SKIP TO Q 53] 3) Refuse to answer [SKIP TO Q 53]
52) Are you currently receiving regular HIV care at a clinic or hospital?	1) Yes [SKIP TO Q 54] 2) No [SKIP TO Q 54]
53) Do you plan to test for HIV in the next year?	1) Yes 2) No

H. ATTITUDES ABOUT DRINKING DURING PREGNANCY

<p>I am going to ask you your thoughts about <u>drinking alcohol</u> during pregnancy. Remember that I am just asking for your opinion, and will not judge you for anything you say.</p>	
54) How often do you think a pregnant woman can drink alcohol without harming the baby?	1) Never 2) Monthly 3) Weekly 4) Daily or almost daily
55) How many drinks containing alcohol do you think a pregnant woman can have a day without harming the baby?	1) None 2) 1-2 3) 3-4 4) 5 or more
56) <i>Do you agree or disagree:</i> Drinking alcohol while pregnant can harm the baby.	1) Agree 2) Disagree 3) Unsure
57) <i>Do you agree or disagree:</i> Drinking alcohol while pregnant can lead to life-long health problems for the baby.	1) Agree 2) Disagree 3) Unsure
58) <i>Do you agree or disagree:</i> Pregnant women should not drink alcohol.	1) Agree 2) Disagree 3) Unsure
59) <i>Do you agree or disagree:</i> It is common for women in my community to drink alcohol during pregnancy.	1) Agree 2) Disagree 3) Unsure

I. ATTITUDES ABOUT SMOKING DURING PREGNANCY

Now I am going to ask you your thoughts about smoking during pregnancy. Remember that I am just asking for your opinion, and will not judge you for anything

you say.	
60) How often do you think a pregnant woman can smoke cigarettes without harming the baby?	1) Never 2) Monthly 3) Weekly 4) Daily or almost daily
61) How many cigarettes do you think a pregnant woman can have a day without harming the baby?	1) None 2) 1-2 3) 3-4 4) 5 or more
62) <i>Do you agree or disagree:</i> Smoking cigarettes while pregnant can harm the baby.	1) Agree 2) Disagree 3) Unsure
63) <i>Do you agree or disagree:</i> Smoking cigarettes while pregnant can lead to life-long health problems for the baby.	1) Agree 2) Disagree 3) Unsure
64) <i>Do you agree or disagree:</i> Pregnant women should not smoke cigarettes.	1) Agree 2) Disagree 3) Unsure
65) <i>Do you agree or disagree:</i> It is common for women in my community to smoke cigarettes during pregnancy.	1) Agree 2) Disagree 3) Unsure

J. ATTITUDES ABOUT TIK USE DURING PREGNANCY

I am going to ask you your thoughts about <u>using tik</u> during pregnancy. Remember that I am just asking for your opinion, and will not judge you for anything you say.	
66) How often do you think a pregnant woman can use tik without harming	1) Never 2) Monthly

the baby?	3) Weekly 4) Daily or almost daily
67) How many <u>times a week</u> do you think a pregnant woman can use tik without harming the baby?	1) None 2) 1-2 3) 3-4 4) 5 or more
68) <i>Do you agree or disagree:</i> Using tik while pregnant can harm the baby.	1) Agree 2) Disagree 3) Unsure
69) <i>Do you agree or disagree:</i> Using tik while pregnant can lead to life-long health problems for the baby.	1) Agree 2) Disagree 3) Unsure
70) <i>Do you agree or disagree:</i> Pregnant women should not use tik.	1) Agree 2) Disagree 3) Unsure
71) <i>Do you agree or disagree:</i> It is common for women in my community to use tik during pregnancy.	1) Agree 2) Disagree 3) Unsure

K. ABUSE HISTORY

72) Has a sexual partner ever hit you or physically harmed you?	1) Yes 2) No [SKIP TO Q 73]
72b. Has this happened in the past 2 months?	1) Yes 2) No
73) As an adult, has anyone ever forced you to have sex or do something sexual against your will?	1) Yes 2) No [SKIP TO Q 74]

73b. Has this happened in the past 2 months?	1) Yes 2) No
74) As a child, did anyone ever force you to have sex or do something sexual against your will?	1) Yes 2) No

L. MENTAL HEALTH & FUTURE PERSPECTIVE

75) Over the past two weeks, how often have you felt little interest or pleasure in doing things?	1) Not at all 2) Several days 3) More than half the days 4) Almost every day
76) Over the past two weeks, how often have you felt down, depressed, or hopeless?	1) Not at all 2) Several days 3) More than half the days 4) Almost every day

Tell me whether you agree or disagree with the following statement.	
77) I have a vision for what I want my life to look like in 5 years.	1) Agree 2) Disagree
78) Before making a decision, I weigh the good versus the bad.	1) Agree 2) Disagree
79) I usually think about consequences before I do something.	1) Agree 2) Disagree

Appendix B

IDI Guide: Female Patron

READ ALOUD:

Thank you for agreeing to talk with me today. The purpose of this interview is to talk with you about your experiences with drinking and contraceptive use. I am also interested in learning your thoughts about pregnancy – your desires to become pregnant now or in the future, and the steps you take to meet your personal reproductive health goals.

I encourage you to speak honestly and openly with me about these issues. I know that these are very personal things to talk about, and we can stop anytime if you need to take a break, or we can change topics if things are too difficult to speak about.

Our conversation will take about 60-90 minutes. Do you have any questions before we begin?

1. Introduction

Let's begin by telling me a little about yourself.

[NOTE: Give her the opportunity to talk briefly about herself. Let her know that you'll come back to some of these issues later in the interview. Then complete the separate **demographics form**.]

2. Substance Use

Tell me about your experience with bar/shebeen XXX.

- How often she goes there
- What she likes about the bar and reasons why she likes these aspects
- Who she spends time with there

I'd also like to know more about your drinking preferences when you are at bar/shebeen XXX.

- What kind of drinks
- How many drinks she has – per week, and in a given evening
- Reasons for drinking

Tell me, have you ever used Tik or any other drugs?

If yes:

- Details on any drug use (when, where, with whom)
- Reasons for drug use
- How she uses drugs in relation to alcohol

3. Relationships

Can you tell me more about your love life, including your romantic or sexual partners.

- Current relationship status; how long they've been together
- Sexual partner(s) in the last 3 months
 - Steady partners vs. concurrent partners vs. one night stands
 - If multiple: how she meets new partners
- Is there any violence in her current relationship(s) – either physical violence or sexual violence

Can you tell me what role alcohol plays in your love life.

- Role of alcohol with sexual/romantic partners
 - When/how she uses alcohol with sexual partners
 - Does it help her to meet sexual partners
 - How often a partners buy her drinks; expectations of sex when someone buys drinks
 - How does alcohol change her feelings about romance/sex
 - Any difference in romance/sex while drinking vs. when sober
- Thoughts about men's expectations of women who drink in bar/shebeen XXX

4. Pregnancy Experiences and Plans

We are also interested in learning about your pregnancy experiences or desires for future pregnancy.

Are you currently pregnant?

If yes:

- When did she find out
- Planned or unplanned
- Feelings about pregnancy
- Partner's feelings about pregnancy
- How drinking behavior has or has not changed since finding out
- Engagement in antenatal care

Have you ever been pregnant before – whether or not you actually had the baby?

For each pregnancy:

- Circumstances of the pregnancy - planned or unplanned
- Outcome (miscarriage, abortion, birth)
 - If birth, age of child now
- Feelings about the pregnancy
- Relationship with the baby's father
- How he felt about the pregnancy
- Engagement with antenatal care during pregnancies
- Did she drink during pregnancy?
 - If any drinking:
 - Type of alcohol, amount consumed, frequency
 - Drank throughout pregnancy or during isolated periods
 - How drinking behavior changed or did not change during pregnancy/after birth

How do you feel about becoming pregnant in the future?

- Any current steps to plan or prevent pregnancy
- How she would feel if she got pregnant
- How her partner would feel if she got pregnant
- What would she do if she got pregnant
- How she would change her drinking behavior if she got pregnant, if at all (and why)

5. Contraceptive Use

I'd now like to learn more about your experiences with contraception.

Are you currently doing anything to prevent getting pregnant?

- IF using contraceptives:
 - Method(s)
 - Probe to see if she is using more than one method (e.g., injections + condoms)
 - Reason for choosing method(s)
 - Experiences using method(s)
 - How long she has used this
 - How often does she use it
 - Any discontinuation of use (e.g., for injections, does she ever miss the date to get her injections)
 - How confident she is that she can prevent pregnancy
 - Accessing contraception
 - Where she gets it
 - How much it costs
 - Any barriers to getting it
 - Plans to continue using method(s) in the future
 - Things that make it easy to use method(s)
 - Things that make it difficult to use method(s)
 - Negotiation with partner
 - Cost
 - Access to health care
 - How her partner(s) feels about the contraception use
 - Whether partner(s) know
 - Whether partner(s) do anything to help to get or remember contraception
 - Priority for using contraception with some partners but not others
- IF not using contraceptives:
 - Reasons for not using contraception
 - How this relates to pregnancy intentions
 - Reasons it's difficult to use
 - How her partner feels about contraceptives
 - Any desires for using contraception
 - Type of contraception she would prefer
 - What it would take to get and use this contraception
 - Any plans to begin using a contraception method in the future

What experience do you have using contraception in the past?

- Types of contraceptives used
- Reasons for choosing methods
- Things she liked about that method
- Things that made it difficult to use method
- Why she's no longer using that method

How does drinking alcohol influence your contraceptive use?

- Ease of using contraception
- Remembering to use contraception
- Negotiation with partner

In addition to doing things to prevent *pregnancy*, is there anything you are doing to prevent *HIV*?

- Consistency of using HIV prevention methods
- Impact of drinking on HIV prevention methods
- Differences by partner / partner type

6. FASD Risk

I'd like to ask you about your thoughts on the effects of drinking during pregnancy.

- Among people she knows, how common is it that women drink during pregnancy
- Her thoughts on the risks/benefits of alcohol use during pregnancy
 - Whether alcohol impacts the baby, and how it impacts them
 - Whether it's different for different types of alcohol
- Whether she knows any children who were affected by alcohol use during pregnancy
 - Ever heard of fetal alcohol spectrum disorder (FASD)
- Would she like to learn more about the effects of alcohol during pregnancy
 - How she would like to learn about this

7. FASD Intervention Ideas

We would like to work with members of the community to prevent babies from being exposed to alcohol during the pregnancy period. Our goal is to prevent FASD, and improve child outcomes. What ideas do you have for how we can do that?

- Ideas for raising awareness about FASD – where should that be done?
- How to reach women who are “at risk” of drinking during pregnancy
- Ideas for helping women who drink to prevent pregnancies, or to stop drinking if they want to become pregnant

Thank you very much for your time. Is there anything else that you would like to share with me today?

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