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Women's Knowledge, Views, and Experiences Regarding Alcohol Use and Pregnancy: Opportunities to Improve Health Messages

Elvira Elek,
RTI International

Shelly L. Harris,
RTI International

Claudia M. Squire,
RTI International

Marjorie Margolis,
RTI International

Mary Kate Weber,
Centers for Disease Control and Prevention

Elizabeth Parra Dang, and
Centers for Disease Control and Prevention

Betsy Mitchell
Centers for Disease Control and Prevention

Abstract

Background—Women continue to drink alcohol during pregnancy despite Surgeon Generals' Advisory statements and educational efforts about the dangers.

Purpose—This focus group research study examined women's knowledge and beliefs about alcohol consumption and its risks during pregnancy along with related perceptions of social influences and information sources in order to inform future messaging.

Methods—The study included 20 focus groups of 149 reproductive-age women segmented by age, pregnancy status, and race/ethnicity.

Results and Discussion—Women acknowledged the risks and consequences of drinking alcohol during pregnancy, but many held common misconceptions. Some women continued to drink during pregnancy or expressed intent to continue drinking until pregnancy confirmation. Findings indicated that women's partners, families, and friends influence women's decisions to drink or abstain from alcohol. In addition, health care providers and the Internet act as important sources of health information for women but sometimes do not adequately educate them about the risks of alcohol use and pregnancy.

Correspondence should be addressed to Elvira Elek, RTI International, 701 13th Street NW, Suite 750, Washington, DC 20005. eelek@rti.org.

Translation to Health Education Practice—Considerations for messaging and educational materials related to alcohol use and pregnancy include providing clear and consistent messaging (especially from health professionals), focusing on social support strategies, and utilizing electronic media.

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

BACKGROUND

In 2008, according to the Centers for Disease Control and Prevention's (CDC) Behavioral Risk Factor Surveillance System (BRFSS), the median rate of alcohol use (one or more drinks in past 30 days) across the United States for women of childbearing age was 50%.[1] The median rate of binge drinking (4 or more drinks on any one occasion in the past 30 days) was 15%.[1] Women who are planning to conceive a child in the next 12 months continue to drink alcohol, with 54% of these women reporting alcohol use within the past month.[2] The Pregnancy Risk Assessment Monitoring System showed that in 2008, between 24% and 70% of women who recently gave birth reported drinking alcohol during the 3 months before they became pregnant.[3] Because many women do not recognize that they are pregnant until 6 weeks or later into pregnancy[4] and approximately 50% of pregnancies in the United States are unplanned,[5] this high prevalence of use among preconceptional women poses a risk to maternal health and fetal development. Most serious, BRFSS data show that approximately 12% of pregnant women drank alcohol at least once in the past 30 days and 2% engaged in binge drinking.[6]

Drinking alcohol during pregnancy can result in fetal alcohol spectrum disorders (FASDs) including fetal alcohol syndrome (FAS). FAS is marked by abnormal facial features, growth deficiencies, and central nervous system problems along with possible problems with learning, memory, attention span, communication, vision, or hearing. [7] Other examples of FASDs do not include the characteristic facial features associated with FAS but do involve functional or mental problems (e.g., difficulties with memory or attention, poor school performance, poor impulse control) as in alcohol-related neurodevelopmental disorder or physical abnormalities, as with alcohol-related birth defects. FASDs are 100% preventable, as long as women refrain from consuming alcohol while pregnant. However, FASDs remain among the most common preventable causes of birth defects and developmental disabilities within the United States.[8,9]

The US Surgeon General, CDC, and other health authorities currently recommend abstaining from alcohol use throughout pregnancy, because there is no known safe amount, no safe time, and no safe type of alcohol to drink during pregnancy.[8,10,11] Despite Surgeon Generals' Advisory statements in 1981 and 2005 regarding alcohol use during pregnancy,[12,13] the warning labels on alcoholic beverages, and ongoing education efforts about the dangers of alcohol use during pregnancy,[14–16] BRFSS data from 1991 through 2005 showed little change in the prevalence of alcohol use or binge drinking by pregnant and nonpregnant women over that time.[6] Clearly, a substantial proportion of pregnant women and women who might become pregnant continue to consume alcohol and face the

risk of alcohol-exposed pregnancy (AEP), indicating a need to examine influences related to women's perceptions of alcohol use and pregnancy.

Women have held numerous misconceptions about alcohol use during pregnancy, including that some types of alcohol pose less risk than others,[17,18] that drinking only causes problems early in pregnancy,[17] and that women need to consume large amounts of alcohol to cause harm.[17,19] However, accurate knowledge does not necessarily lead to a decrease in alcohol use.[20,21] Instead, other strategies may prove more beneficial than increasing knowledge alone, such as reinforcing the perceived risks of drinking alcohol when pregnant or when one could become pregnant and countering the perceived benefits[17,22–25]; providing alternatives to drinking (e.g., other ways to relax besides drinking or ways to abstain in situations that encourage drinking); and encouraging support from partners and others for a pregnant woman's decision to abstain.[17] Health care providers can play an important role in encouraging abstinence from alcohol during pregnancy, but the literature indicates that they do not always seem to do so.[19,26,27] In fact, it appeared that sometimes physicians and other health care providers encourage women to participate in light drinking during pregnancy (as a way to relax, for example).[17] In most cases, related media campaigns and other prevention programs have either not been evaluated or provided little evidence of effectiveness beyond possibly increasing knowledge of FASDs.[14–16] Conflicting messages in the media, among women's health care providers, and through other sources may contribute to decisions to drink prior to pregnancy recognition or during pregnancy and can create confusion for women. Health educators could act as a valuable source of accurate information for women to help address this confusion.

PURPOSE

The goals of this focus group research study were to (1) further explore women's knowledge and beliefs about alcohol consumption and its risks during pregnancy along with their perceptions of social influences (e.g., from peers, partner, family) on related behaviors; (2) identify where women go to learn about alcohol use during pregnancy, what they are hearing about it, and how this information influences their behavior; and (3) inform future communication messaging and education strategies to prevent AEPs. The study aimed to update and broaden findings on related knowledge, beliefs, social influences, and information sources because much of the previously described research relied on data collected 10 or more years ago with demographically narrow subpopulations. The focus group format allowed for an in-depth examination of the issues with a demographically diverse sample of women, along with the opportunity for the women to suggest messages for future communication concepts and educational campaigns.

METHODS

Focus Group Guides

Focus group guides were based on an extensive literature review and developed through an iterative process to narrow down the number of discussion topics. Discussion topics included (1) knowledge, attitudes, and beliefs/misconceptions about alcohol use during pregnancy; (2) social influences and related strategies to resist pressures to drink alcohol during

pregnancy; and (3) trusted sources of health information and messages to prevent alcohol use during pregnancy. Example focus group questions are included in Tables 1 through 3. Complete guides, including follow-up probes, can be obtained from the primary author. For example, one question assessing knowledge asked, “What have you heard about drinking during different stages of pregnancy?” To encourage additional discussion, a probe asked, “Is there any time during pregnancy when it is OK to drink?” and focus group moderators followed up by asking the women why they thought drinking alcohol was or was not OK at different stages. The design of the focus group guides allowed for a discussion lasting approximately 60 minutes.

Focus Group Segmentation Design

A segmentation analysis, based on existing health marketing survey data and information from the literature review, guided the development of a focus group segmentation design that ensured the inclusion of a variety of relevant women. This design (see Table 4) focused on 3 main groups of nonpregnant women: (1) women who have had a baby within the past year; (2) women who are currently trying to get pregnant or who plan to become pregnant in the next year; and (3) women not trying to get pregnant but who are at risk of having an AEP (i.e., women who drink alcohol and who are sexually active but do not consistently use an effective method of birth control). The segmentation design also separated women based on their age (ages 18–24 and 25–35), because age appears to moderate the use of alcohol at different stages of pregnancy, with younger women more likely to drink and binge drink prior to and during early pregnancy[4,20,28,29] and older women more likely to drink later in pregnancy.[6,24,30–32]

The design further segmented the focus groups based on race/ethnicity by having separate focus groups for White, Black/African American, and English-speaking Hispanic women (indicated by participant self-report). In general, racial/ethnic groups experience disparities in many areas related to health, including pregnancy and childbirth,[33,34] and have different cultural norms related to alcohol use. Race also appears an important predictor of prevalence of alcohol use prior to and during pregnancy, with White women more likely to drink than Black/African American or Hispanic women.[4,28,29,31,32,35,36]

This segmentation design resulted in 18 groups (3 pregnancy status categories × 2 age groups × 3 racial/ethnic groups). These groups were held in 2 cities (Atlanta and Chicago), specifically to include 2 different regions of the country. The design added one mixed focus group in each of the cities (mix of age group, race/ethnicity, and pregnancy status), for a total of 20 groups with an average of 7 participants per group.

Participant Recruitment

A professional recruiting firm recruited women for this study by using demographic factors matching the segmentation design to narrow down their existing focus group participant database of 160 000 individuals across the 2 cities. After contacting a potential participant from this convenience sample by phone, the recruiter obtained verbal consent from the woman to screen them for eligibility. Eligibility criteria for the focus groups included the following: (1) ages 18 to 35; (2) English speaking; (3) drank alcohol in the past 3 years for

other than religious reasons; (4) not currently pregnant; and (5a) gave birth in the past 12 months or (5b) trying/planning to get pregnant in the next 12 months or (5c) not trying to get pregnant but have had vaginal intercourse in the past 90 days, have had a drink of alcohol in the past 90 days, and were not using effective means of birth control (and therefore were at risk for an AEP). Overall, recruiters placed more than 4000 calls for each location and spoke to more than 2000 women to achieve a sufficient number of recruits for each focus group.

Focus Group Procedures

The focus groups took place in 2010 in professional focus group facilities, with each focus group consisting of between 4 and 9 participants. Arriving women were rechecked for eligibility and completed informed consent forms. An experienced moderator conducted each focus group discussion using the focus group guides and all groups were audio-recorded and professionally transcribed. After the focus group session, participating women completed a short, anonymous questionnaire to provide information on their demographics, health behaviors, and recent/current alcohol use (these questionnaire responses were not linked to specific focus group discussion responses/comments). All women then received debriefing information on the effects of alcohol use during pregnancy and on the risks of an AEP. Participants received an incentive of $75 for their participation.

Data Analysis

The 4-person coding and analysis team reviewed and analyzed the focus group transcripts using steps adapted from Krueger and Casey.[37] The team categorized the responses according to a set of predeveloped codes that represented key theoretical constructs (e.g., knowledge, responses to alcohol offers, information sources, etc.). The coding team then coded one transcript together to ensure that the data were coded consistently and objectively and discussed differences in coding and any emergent themes not being captured with the predeveloped coding structure. The coders then divided up and coded the remaining 19 transcripts.

After coding, the qualitative data analysis program QSR NVivo[38] was used to produce descriptive reports for each code/theme. To assure consistency of coding across the transcripts, the analyst reviewed all of the reports for accuracy of coding and to cross-reference between codes and themes. The reports allowed for the systematic summarization of responses from the individual to the group level and then to the cross-group level. The analyses identified themes across groups (e.g., consensus or discordance with particular views), examined findings topic by topic, and noted relevant quotes. The results presented below describe the themes and note the prevalence of particular views, knowledge, or experiences across groups when relevant. In most cases the view, knowledge, or experience was held by at least some women within a particular group but did not necessarily represent all of the women within that group.

RESULTS

Participant Characteristics

Table 5 displays demographic information on the focus group participants overall and by pregnancy status. The 149 participants reported an average yearly income of around $40,000 to $60,000. Almost all of the women (95%) had graduated from high school, and 75% spent at least some time in college. More than half had given birth to at least one child (56%), and at least a few women in each of the focus groups reported more than one birth. A large majority of the women (84%) drank at least one alcoholic drink in the past 30 days. These women consumed alcohol an average of 5.6 days in the past month, consuming 2.8 drinks on the days they drank. They binge drank (had 4 or more drinks on an occasion) about twice in the previous month. Some of the socioeconomic status variables and AEP risk factors differed greatly across the segmentation categories. Women in the older focus groups (25- to 35-year-olds) reported higher education levels (college graduate) and incomes (about $60,000) on average than the younger (18- to 24-year-olds) women (high school graduate or some college and about $40,000). White older women appeared more likely to be married than women in the other racial/ethnic or age groups (77% versus 23%) except among the older women who had a baby in the past year (60% versus 62%). Alcohol drinking patterns also varied across the groups. For example, White 18- to 24-year-old drinkers in the group who had recently had a baby reported relatively low usage amounts (1.4 days drinking in the past 30 days, 2.8 drinks on the days they drank, and 0.6 times binge drinking). On the other hand, drinkers with the same demographics but who were in the “not trying but at risk for AEP” group reported relatively high usage amounts (10 days drinking in the past 30 days, 5.8 drinks on the days they drank, and 7.7 times binge drinking). These variations in risk factors and demographics among the groups (beyond the segmentation factors) should be considered when interpreting the findings.

Knowledge, Attitudes, and Beliefs

Table 1 provides a listing of the major themes related to the knowledge, attitudes, and beliefs participants had regarding alcohol use and pregnancy, along with example focus group questions, related findings, and illustrative quotes. In discussions at the beginning of the focus groups, a majority of the women expressed negative opinions of pregnant women who drink and provided a variety of strong pejorative comments to describe these women, such as *irresponsible, selfish, stupid, uneducated*, and *ignorant*. However, in 8 of the groups one or more participants expressed support for drinking in limited quantities (the occasional glass of wine) or indicated that they drank alcohol during pregnancy. No participants endorsed the safety of drinking alcohol in larger quantities.

In terms of knowledge of FAS, all groups except one had at least one member who had heard the term. However, at least some participants in 11 of the 19 other groups knew nothing about the condition. Younger women (ages 18–24) appeared to have less specific knowledge of FAS; at least some women in 7 of the 9 groups of that age category had no information about the term. More women appeared familiar with specific outcomes related to alcohol use during pregnancy; women in all 20 groups were able to describe problems that alcohol use during pregnancy might cause. The most frequently cited consequences

included brain damage (mentioned in 5 groups), learning problems (10 groups), developmental delays (13 groups), miscarriage or premature birth (10 groups), and low birth weight or growth problems (14 groups).

Misconceptions—Although women across the groups expressed knowledge of the general harm of alcohol use during pregnancy, misconceptions about safe use later in pregnancy and the safety of drinking lesser amounts or certain types of alcohol were evident. When asked whether there was a safe time to drink during pregnancy, at least some women in 14 of the groups identified the first trimester as a crucial time period when the brain and other organs were being developed. Many participants also expressed "knowledge" of the safety of drinking in the third trimester; some women reported that they had heard this from their doctor.

When asked specifically about how much is too much when it comes to drinking during pregnancy, younger (18- to 24-year-olds) Black/African American and Hispanic women appeared more likely to agree that any alcohol use during pregnancy was too much. In fact, 4 of the 6 groups of these women appeared to agree that it was better to abstain from alcohol to avoid the risk. More generally, women who opposed any alcohol use frequently stated that when faced with uncertainty about the amount of alcohol that could cause harm, it was not worth the risk of damaging the child. White women, especially those in the older groups (25- to 35-year-olds), seemed more likely to say that they either knew someone who drank early in their pregnancy who had a healthy baby or that they themselves drank and had a healthy baby. They also appeared more likely to advocate the safety of some minimal drinking during pregnancy. In 2 of the 3 groups of White 25- to 35-year-olds, participants seemed to be in agreement that pregnant women could occasionally consume one glass of alcohol. In the third group, though some women advocated abstaining, others mentioned the safety of alcohol use in the third trimester and that they had known pregnant women who consumed alcohol and had healthy babies.

The focus group guide did not include questions on the types of alcohol women used, but comments throughout the discussions demonstrated that many of the women held a common misconception about the safety of wine consumption. Across age groups, racial/ethnic categories, pregnancy status, and geographic locations, women reported that wine differed from liquor or other types of alcohol and perceived wine as safer to drink during pregnancy than other types of alcohol. Several women reported that "red wine is processed differently by the body" than other types of alcohol. In 7 of the groups, participants mentioned hearing information about the benefits of wine specifically from their doctor or health professional. Although women in most groups perceived benefits of wine consumption (both while pregnant and more generally), younger women across all races expressed more skepticism of this information or less willingness to take the chance of drinking while pregnant. In addition, Black/African American women, though not less likely to hear about the benefits of wine, appeared less likely to believe or follow it. Several recent mothers in one group of Black/African American 18- to 24-year-olds described red wine consumption as more common among White women. Black/African American women in the focus groups suggested that this made White women's decisions to abstain from drinking more difficult than that of Black/ African American women who they said preferred liquor.

Reasons for Drinking and/or Abstaining from Alcohol—When asked to provide reasons why women drink while pregnant, women in 17 of the 20 groups mentioned stress or stressors, including the child's father, money, or the pregnancy itself. Alcoholism/addiction was the second most common reason discussed (in 15 of the 20 groups). Other commonly mentioned reasons for drinking during pregnancy included ignorance about the outcomes (10 groups); peer pressure (10 groups); selfishness, immaturity, and irresponsibility (10 groups); having an unplanned pregnancy or desire to abort the child (10 groups); participating in celebrations or social gatherings (7 groups); that the mother "doesn't care" about the baby (6 groups); and depression (6 groups). Though only a few women mentioned not knowing that they were pregnant as a direct response to this question, it did emerge as a theme when discussing their own alcohol use behavior during pregnancy (as a response to other questions). Overall, with the exception of drinking because of celebrations or social gatherings, the reasons women gave as to why women drink during pregnancy tended to carry negative connotations in that women are seen as distressed (using alcohol to manage stress, depression, or alcoholism) or neglectful of the child (succumbing to peer pressure, having an unplanned pregnancy, selfishness, or simply not caring). The women also provided similar reasons that nonpregnant women like themselves drank (stress, peer pressure, depression, alcoholism); however, they more frequently mentioned drinking socially with friends, at social gatherings, or at celebrations as reasons for drinking alcohol (mentioned in all 16 groups that were asked this question).

The participants overwhelmingly described the health and safety of the baby as the main reason women would not drink during pregnancy (mentioned in all 19 groups that were asked this question). Individual women frequently mentioned birth defects, miscarriage, or general harm to the fetus that could occur and felt that it was not worth the risk to drink. Participants in many groups also mentioned social pressure as a reason to refrain from alcohol use, but descriptions of these pressures differed by race/ethnicity. In 2 groups of White women and 2 mixed-race groups, women described these pressures as perceived judgments of a pregnant woman who is drinking as being irresponsible and an unfit mother, judgments that came from society at large or from family and friends. Women in 4 Hispanic and 3 Black/African American groups described social pressures more in terms of advice and support from family or close friends.

Social Influences and Related Strategies

The next section of the discussions focused more specifically on the social pressures that women face when it comes to alcohol use during pregnancy (see Table 2). A woman's partner, her family, and her friends all could act either as strong supporters of the woman's efforts not to drink or as negative influences by pressuring them to drink. In the 17 groups that discussed whether people they spent time with drink, almost all participants had at least some people in their lives who drink alcohol. In fact, many of the women indicated that most or all of the adults around them drink. These alcohol drinkers included close and extended family members, friends, and the women's own partners. In 6 of the groups, at least one participant reported having a family member who is an alcoholic. Beyond direct social pressure, the alcohol use behaviors of a woman's partner, family, and friends could play a

major role in women's drinking by providing them with exposure to alcohol and modeling of alcohol use.

Partners' Views—Generally, participants indicated that their partners shared their belief that they should not drink while pregnant (or, in a few cases, that an occasional glass of wine was viewed as okay). However, some participants had partners who drank around them while they were pregnant and encouraged them to be around others who were drinking. In 2 of the Hispanic groups of women who had recently had a baby, a few women indicated that their partner encouraged them to drink as well. More commonly, participants described ways that their partner discouraged them from drinking alcohol while pregnant (discussed in 11 groups), including reinforcing their decision to not drink during pregnancy, not drinking heavily around them, not bringing alcohol into the house, not bringing alcohol around their pregnant partner, and leaving situations where others were drinking if the woman felt uncomfortable.

Family and Friends—Discussion of family members' influence revealed support of abstinence during pregnancy for some women in 10 of the groups, but other women (in 7 groups) focused on negative family influences. In a couple of groups, women described a family member who drank heavily during pregnancy. In other instances, women indicated that a family member had either encouraged them or someone else to drink while pregnant. In 4 groups, participants talked about older relatives who thought it was acceptable to drink while pregnant. These older relatives may have drunk while pregnant, did not see it harm their children, and saw their personal experiences as evidence that drinking does not harm unborn babies.

Many of the 15 groups that discussed their friends' views included discussions of how it depended on the individual; some friends would drink around them or support their drinking during pregnancy and others would discourage it. Women in 8 groups described friends who drank alcohol while pregnant. In some cases, women did not know their friends' opinions because neither they nor their friends had children yet. It appears that many of the women would not discuss their views on alcohol use during pregnancy with others unless a situation arose that prompted the discussion. Women who did discuss issues related to alcohol and pregnancy with others generally talked to friends and relatives who may have less experience with pregnancy than they do. These discussions particularly occurred if the women were concerned that their friend or relative could be harming their baby by drinking or other behavior, but in 6 of the groups participants described little success with such discussions.

Responses to Offers of a Drink While Pregnant—To explore how women react to offers of alcohol when pregnant, the guide included questions on how they would respond if there was a chance they might be pregnant, while they were trying to get pregnant, or when they were actually pregnant. Probes used after the initial question focused on specific strategies described in other substance use prevention research: simply refusing the offer (just saying no), avoiding or leaving situations where people were drinking, or providing explanations/excuses.[39] At least some of the women in 4 of the 6 groups who recently had a baby admitted that they had accepted an occasional drink while pregnant. A number of

women in the other 14 groups admitted their willingness to drink until they found out for sure that they were pregnant. These women did not think it could "hurt anything," especially if done in moderation, and they wanted to have fun while they could. Those who said they might drink while pregnant noted that they were referring to small amounts of alcohol infrequently and not getting drunk or drinking shots of liquor. Other women indicated that they would not drink at all if there was even a chance they were pregnant. Much of the resultant discussion reinforced earlier points (e.g., women would say no because of the chance of harming the baby).

Many participants indicated that they would simply say "no thanks" to offers of alcohol while pregnant, even before the moderator mentioned the refuse probe. Women also commonly agreed that they would feel comfortable avoiding or leaving situations where others were drinking heavily, especially because "drunk people can act stupid or dumb" or because they may become exposed to other dangers such as cigarette smoke. Other women would still go to a club or party because they did not want to miss out, but in those cases they may use other strategies to help them abstain, such as going with others who were not drinking or avoiding offers by "faking" drinking alcohol (holding something that looked like a drink, like Sprite and orange juice). Women found explaining that they were pregnant effective for turning down alcohol offers but not as useful early in pregnancy if they did not want others to know about their pregnancy yet. Other useful explanations or excuses included being on a diet, taking medication, not feeling well, and acting as a designated driver.

Sources of Health Information and Related Messages

The final section of discussion focused on women's sources of health information in general and information related to alcohol use and pregnancy more specifically, along with suggestions for important messages to communicate about alcohol and pregnancy for women like the participants (see Table 3). Women in the majority of the groups mentioned the Internet (in 19 groups) and their doctor (in 13 groups) as their major sources of health information. Both responses were mentioned in both locations and across the various subgroup segments (age, race/ethnicity, and pregnancy status). Women also used both doctors and the Internet as trusted sources of information on drinking alcohol during pregnancy. Other sources that provided general health information included magazines, books, family members and friends (in 8 groups each), television (in 4 groups, all Hispanic and White), and the pharmacist (in 2 groups). Women additionally mentioned government agencies (e.g., the CDC), the March of Dimes, public assistance programs (e.g., Special Supplemental Nutrition Program for Women, Infants and Children), talk show hosts (e.g., Oprah and Dr. Phil), and pregnant celebrities as trusted sources of information on alcohol use during pregnancy.

Several participants mentioned using the Internet to confirm information received from their doctor or as a source for a second opinion. Participants who used the Internet as a main source of information used it for a number of reasons, including convenience, because they could get a large amount of information on a topic quickly, were looking up a sensitive topic, did not have time to go to a doctor, were trying to self-diagnose problems, or wanted

to chat with people with similar conditions on message boards. The women visited various Web sites to obtain health information, including Google (in 6 groups), WebMD (in 11 groups), BabyCenter (in 5 groups), Planned Parenthood (in 2 groups; both Black/African American and 18- to 24-year-olds), and blogs (in 3 groups), along with other sites.

The Role of the Health Provider—Although the participants in the focus groups viewed their health care providers as a trusted source of information, the information that health care providers provide regarding alcohol use and pregnancy appears limited. None of the women's providers linked potential risks to a fetus with the behavior of using alcohol while sexually active and not using contraception. Their providers instead focused on excessive alcohol use leading to higher risks of pregnancy or acquiring sexually transmitted diseases. Alternatively, providers simply told them, "Don't do it." Other women indicated that their providers asked about alcohol use, but if it was not a large amount, they did not discuss any other issues related to it. Even women who told their health care providers that they were trying to conceive did not get clear messages about abstaining from alcohol use. Only a few of the participants' providers mentioned eliminating or decreasing alcohol consumption while trying to conceive, and no participants stated that their provider discussed more in-depth information on the potential effects of alcohol use when trying to get pregnant, although 2 women indicated they had received relevant brochures.

Across all groups, messages that women received about alcohol use during pregnancy from their health care providers differed from woman to woman. The majority of the participants' providers usually told them not to drink during pregnancy. However, numerous participants described instances where their health care providers stated that it was okay to drink alcohol during pregnancy; usually these providers endorsed drinking wine in moderation. A number of women also indicated that their provider reassured them about their drinking alcohol early in pregnancy (before they knew they were pregnant) but urged the women to abstain from alcohol for the rest of the pregnancy. The mixed messages from their own or from different providers confused the participants and many of the women expressed a desire for medical providers to present more consistent messages to their patients on this issue.

Important Messages to Communicate About Alcohol use and Pregnancy—The participants' experiences with limited and sometimes inconsistent information about alcohol use and pregnancy led them to suggest that women like themselves need to receive accurate and more extensive information. Some of the women stated that health care providers should be required to discuss the consequences of alcohol use during pregnancy with their patients who are trying to get pregnant or who are currently pregnant.

The participants provided varying suggestions for the content of the information from health care providers and other sources. Some participants preferred statistics about the number of women who drank during pregnancy and faced related consequences, along with more information on FAS. In several groups, participants suggested that messages should describe consequences for both the mother and the child, including how alcohol affects the mother's body and the likelihood the mother will have to take care of a special needs child for the rest of her life. Other participants preferred a personal story to help more people identify with and pay attention to the message; for example, showing a picture of a child with FAS and

describing the story of his mother's alcohol use and the child's current life situation. Participants across various groups wanted to use graphic images and scare tactics to get women's attention. They thought that graphic pictures could be more effective by providing a firsthand look at the consequences of alcohol use during pregnancy. Many participants likened these to advertisements discouraging smoking, such as those showing discolored teeth.

In addition to the content of messages, the women shared their preferences on where to place information about alcohol use during pregnancy. The most frequently mentioned channels included television (in 6 groups) along with schools and sex education classes (7 groups). Other channels the women mentioned included the Internet in general (2 groups); social networking sites such as Facebook or MySpace (one group); ads on public transportation (e.g., at bus stops, on buses, or in train systems; 3 groups); the radio (3 groups); billboards (3 groups); pregnancy books; and magazines. In addition, some women mentioned having alcohol and pregnancy related information available in locations such as at Lamaze classes (one group), doctor's offices (2 groups), Planned Parenthood (one group), and through public assistance programs (e.g., Special Supplemental Nutrition Program for Women, Infants and Children; one group) or in libraries, nail salons, liquor stores, bars, clubs, and public bathrooms (one group each). Community events and community organizations (e.g., churches) also appeared promising as channels for this information. One suggestion, of providing a related hotline number (by one group), could be incorporated into many of the other channels.

DISCUSSION

The focus group findings indicate that many of the women acknowledged the dangers of drinking alcohol during pregnancy and none endorsed drinking more than limited quantities of alcohol. These women already use multiple strategies to resist the temptation of alcohol, examples of which can be shared with other women. The discussions also shed more light on the most compelling reason for women to limit their alcohol use—namely, for the health of their babies. The Internet provides an important channel through which women can both learn about resistance/ refusal strategies and become motivated to limit their alcohol use, because many women now use it as a primary source of health information.

Women's partners, family members, and friends do influence the women's attitudes and behaviors. However, they sometimes appear to lack accurate knowledge about the risks of alcohol use preconceptionally and during pregnancy to the point that they encourage women to drink during those times. Other troublesome findings include that the participating women continue to hold some misconceptions about alcohol use and pregnancy (e.g., timing of consumption during pregnancy, type of alcohol consumed) and, more serious, that a substantial number expressed willingness or intent to continue drinking alcohol regularly until they confirm that they are pregnant. Decisions to continue these behaviors may be influenced by the information women receive—or do not receive—from their health care providers. Participants indicated that their health care providers neglected to discuss the issue of alcohol use during the preconception period or during pregnancy and that some providers continue to endorse moderate alcohol (wine) use during pregnancy. The women

expressed a desire for their health care providers to present them with consistent and clear messages regarding this issue. Though women did not mention health educators as a preferred source of information explicitly, they nevertheless can play a valuable role in providing women with accurate and more extensive information to fill this gap. Women view channels already used by health educators as important sources of accurate information, whether these channels consist of sex education classes, public assistance programs, or other social and community settings.

As indicated in the Results section, there were relatively few consistent differences found between the audience segments (age, race/ethnicity, and pregnancy status). This was surprising especially considering some of the other demographic differences between the groups. Focus group participant responses often varied as much within groups as they did between the groups. Though this finding appears to weaken arguments for segmenting audiences in future studies, the segmenting process was valuable in encouraging the recruitment of a more demographically diverse sample than that used in many other studies. It also provides some assurance that messages and campaigns developed from this study may apply to broader target audiences of women.

Limitations and Considerations for Further Research

The findings of this qualitative focus group study are not meant to be generalizable; rather, they reflect the knowledge, attitudes, and beliefs of the women who participated in the focus groups. Participants in the focus groups appear generally more highly educated than women in that population on average. Higher education has been linked specifically to higher rates of alcohol use during pregnancy in some studies.[4,16,20,29,31] In addition, across the groups, most of the women reported drinking at least some alcohol in the prior 30 days and better represent women more at risk of alcohol use during pregnancy than women in the general population. Finally, having more than one group per segmentation block of race/ethnicity, age, and pregnancy status may have assured the capture of a fuller range of ideas and themes within each segment. Although the results include some overall descriptive comments about differences between the segments participating in the focus groups, these apparent differences may not represent women in those demographic groups as a whole. Further survey research with a sample of women across the relevant age, ethnic/racial, and pregnancy status groups could provide a better picture of the representativeness of the findings described above.

Because of time limitations, the focus group guide and discussions focused more on alcohol and alcohol-related attitudes and behavior. Women who are not currently pregnant potentially face another major risk factor for AEP; that is, inconsistent, ineffective, or no use of contraception. This highlights the need for similar formative research to assess some of the themes not covered in these focus groups, such as issues about the effectiveness, benefits, and barriers of contraception use (especially in combination with alcohol use) and pregnancy planning.

This project uncovered other areas for further exploration. In particular, research with health care providers could shed light on reasons why they do not discuss the risks of alcohol use or continue to present information that confuses women and conflicts with governmental

recommendations and recommendations from their own medical professional organizations[7,10] on abstinence from alcohol use during pregnancy. Research could also examine the effectiveness and reach of messages emanating from health care providers and those who develop health education programs. In addition, the types of graphic images proposed by focus group participants need to be compared with other prevention messages (such as those based on changing norms, building skills, or other informational messages) to assess which are more effective in changing alcohol use behaviors in these targeted populations. This work can also assess which messages, channels, and presentation formats best resonate with women of childbearing age.

Translation to Health Education Practice

This research has a number of implications for health education practice, especially for the revision of existing educational materials and the development of new materials and messages. First and foremost, it highlights the need for a comprehensive educational effort or campaign to target several audiences including different segments of women of childbearing age, various influencers (partners, family members, and friends), and health care providers. Based on the above findings, other considerations for the development of health education programs related to alcohol use prior to and during pregnancy include the following:

- Provide clear and consistent messaging on alcohol use and pregnancy:
  - Continue to have messages accurately describe the negative outcomes of alcohol use during pregnancy, especially on the baby but also possibly on the mother.
  - Tailor messages according to women's pregnancy status (i.e., pregnant, trying to get pregnant, and not trying to get pregnant but at risk for an AEP).
  - Address common myths and misconceptions. Provide specific messages about the risk of all forms of alcohol use during all trimesters of pregnancy to refute messages women receive from their providers and others about the safety (and benefits) of red wine and other alcohol use later in pregnancy.
  - Articulate the risks of alcohol use while actively trying to conceive (prior to pregnancy confirmation).
  - Provide women with alternate means of handling stress and social pressures that might lead them to drink when they are pregnant or trying to get pregnant.
  - Teach women strategies to help them resist pressures or offers of alcohol.
- Social support strategies:
  - Target the partners, family members, and friends of women and encourage them to support women's decisions to abstain from alcohol

use during pregnancy; emphasize the risks and clarify the misconceptions as described above.

  - Develop messages or use formats that encourage women to have conversations about alcohol and pregnancy and teach them how to discuss it with others in nonconfrontational ways.

- Information and messaging for health care providers:
  - Encourage discussions about alcohol use and related risks as a standard element of preconception health counseling (together with taking folic acid, testing for sexually transmitted diseases, etc.).
  - Supply health care providers with accurate, up-to-date information and tools that encourage discussion on this topic with all women of childbearing age.
  - Encourage health care providers to present a consistent message of abstinence from alcohol use for women who are pregnant or at risk of pregnancy.
- Use/monitoring of electronic media:
  - Develop Internet-based messaging to reach women about the topic of alcohol use and pregnancy.
  - Monitor Web sites, blogs, and other places online where women go for their health information (including Google and WebMD) to make sure they see accurate messages about alcohol and pregnancy.

Findings from this formative work provide important insights to health educators into how to develop appropriate, audience-centered messages and strategies. These findings also help inform the development of health education programs regarding alcohol use and pregnancy and emphasize the need to provide ongoing education about this issue for health care providers, along with women's partners, friends, and family members. Finally, health education approaches addressing the risks of alcohol use and pregnancy should include clear, consistent, and accurate messaging, utilize the Internet and community channels, and teach strategies for handling stresses and offers alongside more commonly provided information on AEP outcomes.

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TABLE 1

Themes, Major Findings, and Relevant Quotes Related to Knowledge, Attitudes, and Beliefs About Alcohol Use During Pregnancy

Theme and Example Question	Major Finding	Relevant Quotes
Attitudes toward alcohol use during pregnancy		
What thoughts come to mind when you think about a woman drinking alcohol during pregnancy?	Most participants expressed negative views of women who drink while they are pregnant; some supported limited alcohol use (usually wine)	"That would have to be the dumbest thing you can do." "I actually always use the word ignorant." [Atlanta, Black/African American, 25–35, trying/planning to get pregnant]
		"Like it's, you know, research indicates that, you know, a glass of wine during pregnancy, you know, every now and again, is okay." [Chicago, White, 25 – 35, trying/planning to get pregnant]
Knowledge of FAS		
What problems do you think that drinking during pregnancy might cause?	Many women across all of the groups held at least some accurate knowledge about the consequences of alcohol use during pregnancy, including specific indicators of FAS	"The baby doesn't function as well as other babies its age. I guess mental retardation. They don't have like developed, they have underdeveloped like motor skills." [Atlanta, Hispanic, 18– 24, trying/planning to get pregnant]
Knowledge—misconceptions		
What have you heard about drinking during different stages of pregnancy?	Many of the women held common misconceptions including the safety of alcohol use later in pregnancy and that drinking some types of alcohol (i.e., wine) is okay and may provide benefits	" … not at all, but if somebody was to drink, I think the first two trimesters are the most important so limit the usage. And then if you want to, once the third trimester comes around, and you're fine and the baby's fine, then, you know, do what you got to do." [Chicago, White, 25 – 35, trying/planning to get pregnant]
		"I've heard that in your third trimester it was all right to have a glass of wine every now and then." [Atlanta, White, 18 – 24, trying/planning to get pregnant]
Reasons women drink and/or abstain from alcohol during pregnancy		
What are reasons that a woman might drink alcohol while pregnant?	Perceived reasons for drinking during pregnancy included stressors (stress and depression), alcoholism, social pressures, and not caring about the child The most common reasons for a woman deciding to abstain from alcohol use while pregnant was for the health of the baby, followed by social pressure	"But a woman who, I think knowing, with the education that we have and the medical health, a woman who would drink alcohol during pregnancy, it would stem from either a sign of depression or something along the lines of that. So I just, I think that typically there's something going on, psychologically, emotionally, that would cause a woman to do that knowing the effects on the baby." [Chicago, Black/African American, 25 – 35, recently had baby]
		"You might have like a genius inside of you and then you drink alcohol and they just might be average and you never know that they had that potential and you like stunted it." [Atlanta, Black/African American, 18– 24, recently had baby]

Abbreviation: FAS, fetal alcohol syndrome.

TABLE 2

Themes, Major Findings, and Relevant Quotes Related to Social Influences on Alcohol Use During Pregnancy

Theme and Example Question	Major Finding	Relevant Quotes
Partner support		
Do you think your opinion about alcohol use during pregnancy is shared by your partner? What is their opinion about alcohol use during pregnancy?	Women's partners tend to share similar views and discourage them from drinking while pregnant, with some notable exceptions	[About her husband] "We went to a party and there was people drinking, or like a house party or a get-together, and there was people drinking. He'll be like, 'Let's just go home.'" [Chicago, Hispanic, 18 – 24, recently had baby]
Family/friend influences		
Do you think your opinion about alcohol use during pregnancy is shared by your family members? What are their opinions about alcohol use during pregnancy?	Family and friends influence women's alcohol behaviors both positively and negatively	[Describing her mother] "She give me liquor when I'm pregnant. So I don't think, you know, Ithink she care but she'll be like, 'Oh, it's not going to hurt the baby, just have a little bit,' you know." [Chicago, Black/African American, 18– 24, trying/planning to get pregnant]
		"It comes down to the person, to the people. I mean, you could have one good friend that says, 'No don't do it,' and you could have an equally good friend that says, 'Who cares?'" [Chicago, White, 18– 24, recently had baby]
Response if offered a drink while pregnant or trying		
If there was a chance you might be pregnant and someone offered you a drink, what would you say or do? Why?	If offered alcohol while pregnant, almost all of the women would turn that offer down, but a number of women did drink while pregnant or plan to drink while actively trying	"You know, you don't have to explain why you don't want to drink. You know, if I say, 'No,' I say, 'No.'" (REFUSE) [Atlanta, Black/African American, 18– 24, recently had baby]
	When they do decide to resist an offer of alcohol, the women endorsed each suggested option (just saying "no," providing an explanation or excuse, avoiding the situation, and leaving)	"Yeah, I'd make up an excuse not to drink. 'I have a cold,' or something. 'I'm taking medication,' something." (EXPLAIN) [Chicago, Hispanic, 18– 24, not trying to get pregnant]
		"Well, one thing is if you, if you've got five girlfriends and three of them are serious drinkers and you ain't trying to drink, go out with the other two." (AVOID) [Atlanta, Black, 25 – 35, trying to get pregnant]
		"I'm the type of person if I want to go, I'm uncomfortable, if I don't feel comfortable, 'Okay, I'm leaving. Have a good time.' It doesn't bother me." (LEAVE) [Atlanta, Hispanic, 25 – 35, recently had baby]

TABLE 3

Themes, Major Findings, and Relevant Quotes Related to Sources of Health Information and Messages Regarding Alcohol Use and Pregnancy

Theme and Example Question	Major Finding	Relevant Quotes
Credibility of source		
What is your main source for health information?	The Internet and women's own health care providers acted as women's main sources of health information and information on alcohol use during pregnancy	"I think your doctor is your confidante and you respect what they have to say and their education and you feel comfortable with it and whatever the recommendation is you feel comfortable with it, go for it." [Atlanta, Hispanic, 25 – 35, recently had baby]
		" … and the Internet because after I go to the doctor, then I'm going to make sure myself, because I need to see it." [Atlanta, Black/ African American, 18 – 24, recently had baby]
Accuracy of source		
What has your health care provider told you about the risks of alcohol use if you are having sex without using contraception?	Few health care providers discussed the risks of alcohol use during pregnancy with non-pregnant women	[Re: combining alcohol use with sex without contraception] "You can get pregnant. Or you can get sick from diseases." [Chicago, Hispanic, 18– 24, recently had baby]
	Many of the women's health care providers told them to not drink alcohol during pregnancy but a substantial number of the health care providers endorsed minimal drinking	"I find it interesting that medical doctors vary in their opinions on alcohol during pregnancy. Some say it's okay and others say definitely don't do it, and that amazes me." [Chicago, mixed age and race, recently had baby]
Suggested message content		
What are the most important messages to communicate about alcohol and pregnancy to someone like you?	Participants felt that women need to receive accurate and more extensive information about alcohol use during pregnancy, especially from their health care providers	"You would tell your doctor if you were trying to get pregnant or you are pregnant. So at that point is the right time when they should give you that brochure explaining what FAS is and some of the things it can cause and just give it to you on your way out." [Atlanta, White, 25 – 35, not trying to get pregnant]
	The women preferred different types of content for these messages, from statistics and facts to personal stories to more graphic images demonstrating the consequences	"Visually show a baby that has the alcohol syndrome, show how they're not able to thrive as much as a healthy baby. It's like you're giving your baby life but you're starting his life off on the wrong foot because already coming into the world having to battle stuff." [Atlanta, Hispanic, 18– 24, trying/planning to get pregnant]
Suggested message channels		
If you wanted more information on drinking during pregnancy, where would you go?	In addition to health care providers, the women suggested multiple channels for information about alcohol and pregnancy including television, the Internet, and health education classes	"I think they need to make it more like cigarettes. There's such a big campaign with the whole TRUTH, you see it on billboards, you see it on buses, you hear it on the radio, even on commercials where my kids are like I'm never going to touch a cigarette." [Chicago, Hispanic, 18 – 24, recently had baby]

Abbreviation: FAS, fetal alcohol syndrome.

TABLE 4

Distribution of Focus Groups by Audience Segment and Subgroup[a]

	White Age 18– 24	Black Age 18– 24	Hispanic Age 18– 24	White Age 25– 35	Black Age 25– 35	Hispanic Age 25– 35	Total[b]
Women who have had a baby within the past year	1	1	1	1	1	1	6
Women who are currently trying to get pregnant or who plan to become pregnant in the next year	1	1	1	1	1	1	6
Women not trying to get pregnant but who are at risk of having an alcohol-exposed pregnancy	1	1	1	1	1	1	6
Total							18[b]

[a] All participants were nonpregnant women of childbearing age (18–35 years).

[b] Half of the focus groups occurred in Atlanta and the other half occurred in Chicago. Each city had one additional mixed group of participants (mix of age, race/ethnicity, and pregnancy status), for 20 groups total.

TABLE 5

Demographic Breakdown of Focus Groups by Pregnancy Status

Demographic Variable	Overall	Had Baby Within the Past Year	Trying or Planning to Get Pregnant in the Next Year	Not Trying to Get Pregnant but at Risk for AEP	Mixed Pregnancy Status[a]
N	149	46	49	45	9
Mean age (years)	25.7	26.4	26.1	24.1	28.2
Race/ethnicity[b]					
White	48%	41%	47%	53%	56%
Black/African American	35%	37%	33%	36%	33%
Hispanic	39%	41%	39%	42%	11%
Other	5%	4%	0%	11%	11%
Some college or more	75%	85%	71%	71%	87%
Average income	~,$40 – 60K	~,$40 – 60K	~,$40 – 60K	~,$40 – 60K	~,$60K
Employed	66%	52%	82%	62%	78%
Married	36%	48%	33%	24%	56%
Have health insurance/Medicaid	75%	83%	69%	71%	89%
Ever gave birth	56%	98%	43%	31%	44%
In a sexual relationship	96%	91%	98%	98%	100%
Drank in past 30 days	83.9%	78%	80%	93%	89%
Mean number of days[c]	5.6	5.2	5.0	6.1	7.6
Mean number drinks[c]	2.8	2.4	2.6	3.3	2.0
Mean number of times binge drinking[c]	1.9	1.4	2.0	2.5	1.4

Abbreviation: AEP, alcohol-exposed pregnancy.

[a]Each city had one additional mixed group of participants (mix of age, race/ethnicity, and pregnancy status).

[b]Percentages add up to more than 100% because respondents could pick more than one choice.

[c]In the past 30 days among those who had at least one drink over that time period.