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Beliefs and Behaviors of Pregnant Women with Addictions Awaiting Treatment Initiation

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Abstract

Substance use during pregnancy poses clear risks to children's healthy development. However, women with addictions face unique barriers to accessing substance abuse treatment and often delay or avoid treatment seeking. The objective of this study was to examine women's beliefs about the impact of use on the developing baby and to examine the protective behaviors that women with addictions engage in during the period of time between when they first find out they are pregnant and when they begin substance abuse treatment. Semi-structured interviews were conducted with 15 women who were either pregnant or postpartum and who had used illicit substances during pregnancy. All participants were currently receiving inpatient substance abuse treatment services to address their addiction and were asked to retrospectively report on their experiences. Interviews were transcribed, imported into a qualitative data analysis software, and iteratively coded for themes.

Women reported being concerned about the impact of substance use on the developing baby, in particular, about the physical and long-term developmental consequences of prenatal exposure. Given these concerns, women described trying to protect the baby from harm on their own, outside of accessing traditional treatment services. They sought information anonymously, increased their engagement in health-promoting behaviors, and decreased their use of alcohol and other drugs. The results suggest that women who use alcohol and other drugs during pregnancy are often motivated to protect their baby from harm and are engaging in harm reduction behaviors prior to accessing treatment services.

Keywords

addiction; pregnancy; prenatal exposure; maternal substance use; child maltreatment prevention

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Introduction

Pregnant women's use of alcohol and other drugs is a known risk factor for long-term negative child outcomes. A large extant literature indicates that there are negative consequences to babies who are exposed to illicit substances in utero. Newborns who are exposed are at risk for longer hospital stays (Pan & Yi, 2013), lower birth weight (Ostrea, Ostrea, & Simpson, 1997), and symptoms of withdrawal during their first few days of life (O'Donnell et al., 2009). In childhood, these children are at increased risk for developmental delays, academic difficulties, and emotional and behavioral disorders (Behnke et al., 2013; Eustace, Kang, & Coombs, 2003; Lester et al., 2009).

Maternal use of drugs and alcohol after the baby is born poses additional risks for children, increasing the likelihood that children will experience a host of negative adverse early experiences. In particular, women who abuse substances are at high risk for perpetrating maltreatment (Murphy et al., 1991; Smith, Johnson, Pears, Fisher, & DeGarmo, 2007). Children of parents who struggle with alcohol addiction are two to three times more likely than children who do not have a parent addicted to alcohol to experience a number of negative childhood experiences, including emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect (Dube et al., 2001). Given that substance use while parenting increases the risk for a host of negative experiences, helping women access treatment services and subsequently stop using substances is a key component of reducing risk for child maltreatment and other poor child outcomes.

Despite the clear risks associated with this behavior, within the United States continued substance use during pregnancy remains problematic. Women with addictions face unique barriers to accessing substance abuse treatment programs and often delay or avoid treatment seeking. Why do pregnant women continue to use illicit substances without accessing treatment despite acknowledging the risks to their developing babies? In this study, we seek to answer this question by examining women's beliefs about the impact of their substance use on the developing baby and the protective behaviors they engage in due to these concerns. Through in-depth interviews, we identify specific concerns mothers have about the developing baby and how this affects their decisions to try to reduce harm on their own, outside of formal treatment.

This research makes at least two important contributions. First, we contribute to the existing research on harm reduction strategies (Flavin, 2002; Murphy and Rosenbaum, 1999) by providing a more detailed understanding of the motivations and strategies pregnant women using illicit substances but not in treatment employ to reduce the chances of harm. The sensitive nature of the topic and the attendant challenges in accessing this population of women has contributed to their underrepresentation in the literature. Our research thus fills an important gap by giving voice to an often-unheard population.

Second, and more practically, findings were developed to inform policies and practices regarding strategies to facilitate treatment. Helping women to access substance abuse treatment is a critical step in addressing the needs of pregnant women with addictions (Ondersma, Simpson, Brestan, & Ward, 2000). Research indicates that even when a mom

has used substances early on in pregnancy, there are benefits to the developing baby when maternal substance use decreases or ceases during pregnancy (Shankaran et al., 2004). Accessing treatment can help women stop using substances during pregnancy, thus preventing the consequences of prenatal exposure while also enabling moms to begin parenting while clean from using substances.

This research identifies women's beliefs and experiences during the critical time of pregnancy and is well positioned to inform efforts to engage this population in treatment services as early as possible during pregnancy. To effectively prevent the multigenerational transmission of prenatal exposure, trauma, and the poor outcomes that are associated with maternal addiction, there needs to be a refocus of research efforts towards informing a *preventative* framework. A stronger understanding of the experiences of women who continue to use substances outside of accessing treatment can help inform systems designed to support this population in reducing harm to their developing babies. Given the difficulty engaging pregnant women with addictions in treatment (Boris, 2009), it may be particularly helpful for outreach programs to be informed by women's specific concerns, pre-existing beliefs, and engagement in positive behaviors on their own outside of accessing treatment. Being well informed can enable programs to build upon pre-existing beliefs and motivations. It is essential to learn how to support women in beginning inpatient and outpatient support services that increase the likelihood that women will stop using substances and be able to maintain sobriety. These efforts hold promise for decreasing the prevalence of prenatal exposure as well as preventing maternal substance use while parenting.

Literature Review

In the United States, prenatal substance use continues to be a widespread problem. Estimates of the extent of substance use throughout pregnancy vary and can be difficult to determine. One notable study used data from the 1992 perinatal substance exposure study, which collected and analyzed urine from pregnant women in California at the time of birthing, to identify recent substance use. Results of this study showed that an estimated 7% of women used alcohol and 5% of women used illicit substances throughout pregnancy (Finch, Vega, & Kolody; 2001). Similarly, an annual survey sponsored by the Substance Abuse and Mental Health Services Administration identified that from 2012 to 2013, approximately 5.4% of pregnant women currently were using illicit drugs, with 9% of women in their first trimester, 4.8% of women in their second trimester, and 2.4% of women in their third trimester using illicit substances (U.S. Department of Health and Human Services, 2013). It is clear that substance use throughout pregnancy remains a widespread problem within the United States, despite clear research identifying risks to the developing child.

In an effort to address the problem of maternal addiction and prenatal exposure, policies increasingly consider substance use in pregnancy to be a form of child abuse or a criminal act (Guttmacher Institute, 2016; Paltrow & Flavin, 2013). In the past decade, the negative consequences regarding parental rights for substance use during pregnancy have increased. Several states have changed their policies to include prenatal substance abuse as grounds for terminating parental rights. Currently, eighteen states consider use of substances during pregnancy as a form of child abuse that can lead to child welfare involvement. In addition, in

2014, the state of Tennessee became the first state to explicitly criminalize substance use in pregnancy, enabling judicial consequences in addition to child-welfare consequences (Guttmacher, 2016).

These policies are designed to decrease prenatal exposure by increasing the consequences for women who continue to use substances in pregnancy. Unfortunately, these policies have had an unintended effect. The increased consequences of substance use during pregnancy create additional barriers to accessing care in that women are more reluctant to disclose their substance use to health care professionals because of concerns about child welfare involvement or criminal prosecution (Flavin & Paltrow, 2010; Friedman, Heneghan, & Rosenthal, 2009; Jessup, Humphreys, Brindis, & Lee, 2003).

In addition, doctors and health care professionals are often mandated to report suspected use of substances during pregnancy to child welfare agencies, which may prevent women from having open conversations about their addiction with health care providers due to fear of the negative consequences that may be associated with this disclosure. While women with addictions may have added motivation to decrease their substance use—to have a healthier pregnancy and baby, they also have increased consequences to accessing services. For pregnant women with substance abuse disorders, disclosure may pose a threat to continued guardianship of their children. Pregnant women with addictions who want to stop using substances are thus caught in a bind. The services they need to access to become clean and become a better parent pose a risk to their ability to parent their children at all. Given that these policies have had the unintended effect of preventing women from disclosing their substance use and seeking services, numerous health and mental health organizations have written position statements in opposition to increasingly criminalizing substance use in pregnancy (e.g., American College of Obstetricians and Gynecologists, 2011; American Psychiatric Association, 2001). Yet barriers to access related to criminalization and stigma persist.

Indeed, women's concerns about child welfare involvement reflect the high rate of interaction that this population has with the child welfare system. It is estimated that half of mothers in substance abuse treatment have had contact with this system (Grella, Hser, & Huang, 2006). In one study with mothers undergoing hospital detoxification, only 21% were guardians of all their children and approximately 1 in 5 of their children were currently living in nonrelative care (Schilling, Mares, & El-Bassel, 2004). Similarly, in a study of women entering an inpatient treatment facility with services for parenting women, 65% were living apart from at least one of their children (Knight & Wallace, 2003). Given the high rates of separation from dependent children in this population, fears about the consequences of disclosing substance use are not unfounded and are often related to women's own prior experiences with the child welfare system.

Beyond fear of child welfare involvement, pregnant women and mothers with young children face additional barriers to accessing substance abuse treatment services. Despite increased recognition of the needs of women with children and recent efforts to increase the availability of treatment programs to meet these needs, services remain limited (Brady & Ashley, 2005; Brendel & Soulier, 2009). It is estimated that 21% of residential treatment

facilities have dedicated programming for pregnant women and 15% provide for childcare needs (Brady & Ashley, 2005). Even when facilities allow for children to reside at the facility, there are often young age cut-offs (e.g., only children under age 6 years) and there can be long waiting lists for admission. For women with dependent children, the practical need for caregiving is often a paramount barrier to seeking care and having access to appropriate services. Because of these barriers to accessing care, a significant proportion of women with addictions may delay or avoid disclosing their addiction to health care professionals and accessing traditional substance abuse services during pregnancy (Lester, Andreozzi, & Appiah, 2004).

Providing women with services before their children are born is a critical step in mitigating risk for prenatal exposure as well as child abuse and neglect. Despite the negative effects of continued substance use on fetal development and child outcomes, the factors underlying substance use cessation in pregnant women are not well understood. Without understanding pregnant women's motivations to stop using substances, their behaviors outside of accessing services, and their pathways to beginning treatment, we lose the opportunity to intervene earlier in pregnancy for more women. Increased efforts to engage women in treatment hold promise for preventing fetal substance exposure and enabling women to become substance-free mothers.

Unfortunately, there is currently limited research focused on the experiences of women who are pregnant and not yet accessing services. Rather, the majority of research relating to substance use during pregnancy focuses on either addiction more generally or focuses on the developmental impact on the child. The literature often does not adequately consider the intersection of addiction research and parenting research by considering the unique needs of pregnant women with addictions (Suchman & Pajulo, 2013). The need for preventative intervention efforts focusing on supporting pregnant women with addictions has been identified as a key area where increased research is needed. Research in this area can support the larger goal of developing and identifying effective interventions for enabling this population to cease using substances (Lester, Andreozzi, & Appiah, 2004).

Although the experiences of pregnant women with addictions who are not yet accessing treatment services is underrepresented in the literature, a few previous research studies indicate that, during this period of time, women attempt to decrease harm to the baby on their own, outside of assistance from health care providers. In the book *Pregnant Women on Drugs* (1999), researchers Sheigla Murphy and Marsha Rosenbaum provide the most comprehensive interview-based research to date on the experiences of pregnant women with addictions. This book is based upon interviews with 120 women who were using substances during pregnancy and not accessing substance abuse treatment services. Based on interviews, conducted in the early 1990s, this book describes women's concern about the ways in which their drug use damages the baby in utero, while also describing the ways that women change their behavior given this concern. Strategies to reduce harm, briefly mentioned in this book, include switching or substituting using a substance that women considered to be less harmful, trying to cleanse their bodies of drug-related toxins (e.g. by taking prenatal vitamins, by drinking liquids like pickle juice or plum juice that they thought would have a cleansing impact), and accessing prenatal care services. Our research builds

upon this important work by further identifying harm reduction and health promotion behaviors and by providing an important update to findings.

Jeanne Flavin, in her 2002 article about cocaine use during pregnancy, considers how these behaviors that women engage in during pregnancy relate to a harm reduction framework. In a harm reduction framework, risk associated with substance use occurs along a continuum where changes to behaviors that reduce risk are considered harm-reduction behaviors-even as substance use continues. A harm reduction framework has generally been utilized in terms of reducing harm to the user (e.g. through strategies for decreasing use and maintaining safety while continuing to use). However, Flavin explains how a harm reduction framework is also applicable to pregnant and parenting women where the welfare of their children is strongly impacted by their substance use and where women engage in behaviors with the intent of protecting the developing baby. These harm reduction strategies may be particularly important to understand during pregnancy when the mother's safety and the child's safety are intrinsically intertwined, and where the consequences of use on the developing baby can be particularly detrimental.

While Flavin's study provides an important foundation for understanding the prevalence of specific harm-reducing strategies (such as gaining the appropriate amount of weight and drinking more water), her methods rely upon a survey design that included pre-determined questions such as asking whether a woman whether she has gained an appropriate amount of weight or has increased water consumption as a result of pregnancy. Flavin recognizes this as a shortcoming, noting that in her study "women's responses are fitted into predefined categories that may not accurately reflect their behaviors or perceptions (p. 982)."

Our qualitatively-oriented study contributes to the research literature on harm-reduction behaviors during pregnancy by providing women the opportunity to discuss their motivations and behaviors in their own words. In doing so, this study characterizes the specific concerns that women have about the effects of use on the developing baby and identifies a wider range of strategies that pregnant women use to try to protect their babies from harm. In addition, all women in the sample eventually obtained treatment services, thus our research also uniquely considered the experiences of women who eventually access traditional support services to cease their use of substances.

Methods

Because our primary interest was to understand how women construct their behaviors based upon their experiences and interpretations, we used a qualitative research design and conducted semi-structured interviews. Interview-based data collection enables researchers to explore in greater detail the subjective experiences and motives of others. As researchers Gergen, Josselson, & Freeman (2015) discuss in a recent article considering the promises of qualitative inquiry in psychological sciences, qualitative data enables understanding others beyond a focus on measurable aspects of existence. Qualitative inquiry uniquely considers the narrative experience of lived existence. Given that the focus of psychological literature with this population has been primarily on the harm that women with addictions perpetrate against their children due to prenatal exposure, a shift back to women's own lived narratives

and experiences provides an opportunity to understand mothers' experiences and behaviors from their own perspectives.

Another benefit of qualitative methodology is that it is ideal for exploring topics where there is limited research literature and for generating hypotheses that can later be tested (Palinkas, Horwitz, Chamberlain, Hurlburt, & Landsverk, 2011). Given the limited research pertaining to women's experiences using substances prior to accessing treatment, qualitative methods are well-suited for additional preliminary and open-ended research on this topic. Qualitative methodology also provides the opportunity to build upon the reviewed research by Murphy and Rosenbaum—identifying how the experiences of women who use substances during pregnancy have changed over the past two and a half decades given the changes that have occurred in multiple arenas, including: the landscape of substances use, understandings of prenatal exposure, policies targeting addicted mothers, and access to information within the United States.

Sample Description: The Mothers

Fifteen women receiving inpatient substance abuse treatment participated in the study. Participants were either pregnant (in their second or third trimester of pregnancy) or postpartum (parenting a baby younger than age 6 months) at the time of participation. Participants ranged from ages 23 to 38 ($M = 27.3$, $SD = 3.84$), and ranged from pregnancy with their first child to pregnancy with their fourth. Five participants were having their first child; five, their second child; one, her third child; and four were having their fourth child. Eleven participants identified as Caucasian, three identified as Native American, and one participant identified as Hispanic. The women who participated had low socioeconomic status (SES) and limited financial resources. None of the women had completed an associate's or bachelor's degree, and only nine had completed high school or obtained a GED. All participants reported receiving government assistance, including food stamps, and 73% of the women reported an annual income less than \$5,000.

The substance abuse treatment center where participants were recruited is located in a medium-size city (~150,000) located in the Pacific Northwest. This treatment center specializes in providing integrated substance abuse treatment and parenting services to pregnant and parenting women, 18 years or older, and primarily serves a high-risk and low-SES demographic, with most participants receiving Medicaid. Twelve to 14 beds in the facility are dedicated to pregnant and parenting women and mothers can reside at the treatment center with their young children. Parenting programs and childcare are provided alongside comprehensive inpatient and outpatient substance abuse treatment services. The treatment center consistently serves more than 40 pregnant or postpartum women each year, with a suggested 90-day duration of stay. Outpatient services are also available.

Because the treatment center is located on the West Coast, where methamphetamine addiction is particularly problematic (Maxwell & Rutkowski, 2008), approximately half of the women who access treatment at this treatment center report methamphetamine dependency. Of the 15 women we interviewed, nine (60%) identified methamphetamine as their main addiction. Most participants reported illicit poly substance use. During the course

of pregnancy, 47% of the sample reported using alcohol, 80% tobacco, 60% marijuana, 80% methamphetamine, 40% heroin, 7% cocaine, and 33% other opiates.

Recruitment

Women were recruited to participate in the project through announcements in parenting classes, referrals by treatment staff, and flyers posted at the treatment center. The first author of this study was teaching attachment-focused biweekly parenting classes at the treatment center at the time of recruitment. These classes were small, with approximately four to eight pregnant and parenting women attending on any given day. Classes used the Circle of Security parenting intervention, a relationship-based intervention that is designed to increase parent–child attachment (Hoffman, Marvin, Cooper, & Powell, 2006). Class content included supportive parenting practices and discussions of personal parenting challenges and strengths. None of the participants were in the class at the time that they participated in the research study due to concerns about having dual relationships with participants. However, the first author had pre-established relationships with a third of the participants from teaching this course. Having an established relationship with the treatment center and with some individual participants affected the ability to collect data with this high-risk population and shaped the quality of the data collected, in that interviews with participants who already knew the interviewer often had a uniquely open and honest quality.

Materials and Procedure

Participation in the study included filling out questionnaires and completing a semi-structured interview. Participation occurred with the first author of the study in a private room at the treatment center and lasted between 2 and 3 hours. Each participant was compensated \$40.

Given the sensitive nature of these interviews, the interviewer engaged in strategies to help decrease participant discomfort. Strategies utilized that have been identified within the research literature include creating a comfortable safe physical environment for interviewing, focusing on establishing rapport, and asking open-ended and sensitive questions (Elmir, Schmied, Jackson & Wilkes, 2011). Participants chose the room where interviews took place, chose how their child (when applicable) would be cared for during the interview, and chose to take breaks as needed.

Informed consent was obtained from all individual participants included in the study. All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Human subjects' approval was obtained through University of Oregon's Institutional Review Board. The authors do not have any conflicts of interest to disclose besides the first author's multiple roles as both a researcher and clinician at the treatment center.

Administered questions included those from a demographic questionnaire and the Maternal Inventory of Substance Use (MISU; Shankaran et al., 2004). The MISU is a verbally administered questionnaire that tracks a woman's use of individual substances (i.e. tobacco, alcohol, marijuana, methamphetamine, opiates, cocaine, and prescription pills) from 3

months prior to pregnancy through all three trimesters. Participants are asked to identify the amount and frequency of use for each substance they used during each period of time. As a part of the MISU, a pregnancy calendar is created that notes the baby's due date and the different trimesters, calculated using a handheld gestation calculator. In addition, notable major life events, including cessation of substance use, initiation of treatment, and children's births, are recorded on the calendar.

Women were then interviewed about their experiences using substances during pregnancy and prior to accessing care, by way of a semi-structured interviewing format. Interview questions were open-ended, informed by the previous research literature, and developed with the goal of sparking conversation around specific topics. All participants responded to the same core set of questions. The MISU calendar was referred to frequently during the interview and provided a framework for discussing key events and behavioral changes during the course of pregnancy. Women were asked questions about how they found out that they were pregnant, their emotional reaction to being pregnant, their concerns about their baby, and their overall beliefs about the effects on fetal development of using substances during pregnancy. In addition, they were specifically asked about the behaviors they engaged in, including seeking support, seeking information, changing their substance use during the course of pregnancy, and engaging in other positive behaviors during pregnancy. For example, women were asked, "Did you ever try to stop using substances on your own during pregnancy?" If participants responded that they had, they were then asked, "what happened." These questions helped to focus on particular content relevant to understanding women's behaviors before accessing treatment. Conversations initiated by these questions were open-ended. Thus the semi-structured nature of the interview allowed for flexibility. Notably, this flexibility enabled later interviews to be informed by trends in the data. For example, initial questions about seeking information were open ended (e.g., Where did you seek information? What information were you looking for?). However, following the first five interviews it was noted that participants were relying heavily on the Internet as a source of anonymous information, so during later interviews participants were specifically asked about Internet use. Questions were added pertaining to search terms, sites visited, and hours spent online.

Qualitative Analyses

The qualitative methods for our analyses were primarily based in constructivist grounded theory (Charmaz, 2014). Grounded theory methods refers to qualitative research that is inductive in nature, where collected data is reviewed and themes are developed based upon this data, thus preventing data from being matched to pre-conceived beliefs (Glaser, 1992). Constructivist grounded theory builds upon traditional grounded theory with a focus on identifying participant's perspectives, multiple truths, the impact of interactions with the researcher, and the way that participants construct their own realities (Breckenridge, 2012).

Analyses for this project began with the open-ended overarching question, "What are women's beliefs and behaviors during the time period when women know that they are pregnant and are not yet accessing treatment?" Although we began with an understanding of the relevant literature on this topic, which informed the initial interview questions, we

engaged in primarily inductive data-driven qualitative analyses where data collection and analysis occurred side-by-side and where codes were continuously refined using a “constant comparison” method (Glaser & Strauss, 1967). Once a coding system was refined, all interviews were reconsidered given this finalized coding system.

For our analyses, all interviews were audio recorded, transcribed by a research assistant, and then checked by a second research assistant for accuracy. Transcripts were then imported into a qualitative data management software package (NVivo). Data were iteratively coded by the first author to identify themes. Transcripts were read numerous times, key pieces of transcripts were line-by-line coded, and eventually, a more focused coding scheme was developed based on these initial codes. This coding scheme was refined through constant comparison with interview data.

A single coder was utilized for this project due to the sensitive nature of this data, the close relationship that the first author had with individual participants, and the close relationship that the first author had with the treatment center. Some experts suggest that having one coder is “sufficient and preferred” (Bradley, Curry, & Devers, 2007) in instances where bringing on other coders who are less familiar with the topic poses a risk of diminishing the positive impact of the first coder’s closeness to the data and topic at hand (Janesick, 2003). As further described in a recent article about qualitative methods for health services research, “In such cases, the researcher is the instrument: data collection and analysis are so intertwined that they should be integrated in a single person who is the ‘choreographer’ of his/her own ‘dance’ (Bradley, Curry, & Devers, 2007.)

The focused codes, when grouped together, are the major themes presented in this article. Focused codes were checked across participants to determine the extent to which findings held true for all the participants in the project. To protect participants’ confidentiality, identifying information in quotes has been removed and/or altered as necessary.

Reflexivity Statement

This project was developed by the first author after witnessing as a clinician the need for women to begin treatment as early in their pregnancies as possible. Often, during parenting classes with mothers in treatment, women who did not receive treatment until their babies were older would grapple with the guilt of knowing just how much harm they caused when they were using. In addition, women would describe the feeling of being isolated and lacking support during early pregnancy, leading the first author to become interested in understanding this population’s experiences so that we can better support women in accessing the support that they need. As a clinician at the treatment center as well as a researcher, this research was developed with the practical clinical needs of this population in mind. Hearing women discuss how much they wish that they had gotten clean earlier in pregnancy and how much they worry about their children being impacted by their substance use highlighted the need to engage this population in treatment early in pregnancy.

This research was also influenced by the first author’s personal background. While conducting these interviews and leading groups, the first author was pregnant and then subsequently parenting her first child. The experience of being pregnant highlighted the

importance of supporting women during and following pregnancy. The data collected and presented in this paper is influenced by these experiences. In addition, interviews with individual participants were impacted by the shared experience of pregnancy and early child rearing, with this experience highlighting universal aspects of the human experience. This shared experience enabled a natural back and forth sharing of information, an aspect of interviewing that can enhance rapport and positively impact the quality and depth of information presented through interviews (Elmir, Schmied, Jackson, & Wilkes, 2011).

Triangulation of Findings

The interviews that form the basis of this paper took place as a part of a larger mixed-methods research project that included both the presented qualitative data collection phase and a subsequent quantitative data collection phase. Themes identified in this paper informed collection of quantitative data with an additional 54 women receiving inpatient treatment. This methodology functions as the “development” of a conceptual framework in which qualitative methods inform and characterize the items administered in subsequent survey form. This process is considered ideal for generating an overall conceptual framework where questions are developed based upon interview-based data and then further explored through quantitative analyses (Palinkas et al., 2011).

This mixed methodology also enables triangulation of themes identified during qualitative analyses. One of the critiques of qualitative methods is often the possibility of subjectivity of analyses. This can be a particular concern when a single coder develops the coding structure. For this study, triangulation provides evidence that in a larger sample of 54 women who used substances in pregnancy and who are now accessing inpatient treatment at the same treatment center, a majority of women also report engaging in harm reduction strategies during pregnancy. Although the full methods and results of this quantitative data collection are tangential to the interview-based research presented in this paper, it is notable that on administered questionnaires 72% of the sample reported decreasing their use of illicit drugs during pregnancy, 65% reported limiting access to illegal substances, and a majority of the sample reported engaging in health promoting behaviors during pregnancy (e.g. 83% took prenatal vitamins, 57% made healthier food choices, 63% increased their sleep). These results provide additional evidence supporting key themes presented in this paper.

Results

The qualitative analysis yielded ten themes, clustered under four thematic categories: beliefs about the negative impact on the baby of substance use during pregnancy, seeking information about the consequences of substance use, reducing substance use outside of accessing treatment services, and engaging in healthy behaviors to protect the baby from harm. The ten themes are described below and presented in Table 1.

Beliefs About the Negative Impact on the Baby of Substance Use During Pregnancy

Thirteen of the 15 participants expressed the belief that substance use during pregnancy negatively affects the developing baby. Two participants stated that they believed there is no impact of certain illicit drugs. Many participants expressed that they were concerned about

the effects of use, but these concerns were tempered with the belief that the effects of prenatal exposure is variable and that substance use in pregnancy does not always lead to negative consequences.

Concerns about the effects on the baby of using illicit substances during pregnancy focused on the physical repercussions of prenatal exposure, the developmental consequences, and concerns about the intergenerational transmission of addiction. When asked to describe the effect of prenatal exposure, many women gave examples of other children they knew whose mothers had used substances during pregnancy. In some instances, women discussed children who were physically or developmentally compromised by prenatal exposure. However, women who did not believe that prenatal exposure has a significant effect or who thought the impact was variable gave examples of women they knew who had children who did not appear to be affected by their mother's use.

Theme 1: Prenatal Substance Exposure Can Physically Impact the Baby—In terms of the physical effects of prenatal exposure, women described concerns about physical changes that could be easily visible and detected at birth. These characteristics included women describing concerns about babies born with “pieces missing,” “having cleft lip,” “webbed feet,” “only 9 fingers,” “lumpy head,” “funny eyes,” “deformed,” “with defects,” and being “smaller than everybody else, like a runt.” When asked to describe how babies are impacted by mom's use of substances during pregnancy, one woman responded, “If they've used meth their whole pregnancy, I've heard that and seen actually some babies that are born with, you know, their ears could be folded down a little bit, or their eyes, they could have trouble with their eyes. You know, clubbed foot. I mean, I've seen it and heard it.” Another woman explained, “Your kid is going to come out either dead, blind, or handicapped.” These specific physical concerns are notable in that women who were skeptical about the impact of prenatal exposure mentioned that the babies they saw who had been prenatally exposed did not have these types of noticeable physical problems.

Theme 2: Prenatal Exposure Can Lead to Learning and Developmental Problems—Women also described concerns about medical and developmental challenges that could result from prenatal exposure. They mentioned mental health diagnoses, medical conditions, and difficulties with learning and intelligence. Specifically, different women in the study expressed the belief that prenatal exposure could lead to “SIDS,” “Down Syndrome,” “ADHD,” children being “mentally retarded,” “autism,” “fetal alcohol syndrome,” “learning disabilities,” “lack of oxygen when you're developing the brain,” and “children being ‘slow.’”

Women sometimes described devastating cognitive and developmental impairment due to prenatal exposure. One woman explained, “My [friend] did a lot of pills and alcohol and had a baby... he was like six months old and couldn't eat on his own and it was due to drugs and alcohol. He has a feeding tube for the rest of his life and he can't really talk to you.” Another woman similarly described her friend's children who were prenatally exposed to alcohol as “Crippled. They are a vegetable for the rest of their life. They are in wheelchairs.” Other women described worrying about the impact on their child's cognitive development. One woman described, “the consequence [of my substance use on my child] is he's slowly

developing in his brain,” and another woman explained, “we don’t know how her brain was affected or... if it’s going to affect any of her skills further down the line.”

Theme 3: Prenatal Exposure Can Lead to Intergenerational Transmission of Addiction—A few participants also expressed concerns about children growing up to have an addiction because of being exposed prenatally. Women described the belief that being exposed to the substances during the fetal stage could lead the child to be more sensitive to the pull of addiction. One woman explained, “I’m just scared that my son’s going to turn out like how I am. I don’t want him to try meth. It’s not a good drug.” Another woman described a similar concern, “I was a quick addict. Once I started, I wasn’t able to stop... I think you put that gene in your baby. When you’re an addict, when you’re a product of two addicts, you have a gene that gets put into you and so with your baby.” Another woman described her concern that when children are “bom high,” they will “have a tolerance level of zero... like if they use at all in their life, they have massive addiction problems.”

Theme 4: Prenatal Exposure does not always have a Negative Impact—Two participants of the fifteen expressed the belief that prenatal exposure does not negatively impact the baby. For example, one of these women explained, “I don’t personally feel like heroin or opiates really affect [children] like developmentally or physically... I really don’t think that substance exposed babies [that term], is applicable... I just don’t think that it has an effect like they say it does.” Another woman explained that children who were prenatally exposed may even experience some benefits, “I hate to say it, but I think that a lot of babies that have been drug exposed may be more gifted, more creative, and more beautiful.”

More frequently than believing that there was no negative impact was the belief that the effects of prenatal exposure are variable. One woman described, “It’s the luck of the draw. Like you’re [baby is] either going to be healthy or not and even if they stop [using substances in pregnancy] then they still have the health problems or their baby’s still born early.” Or as another woman explained, “Each case is individual... I know a lot of women who have used every day of their pregnancy and have had very healthy children... and I’ve known women who have used every day with their pregnancy and had very sick children. So, circumstances are individual.”

Women described knowing children who were exposed to substances prenatally who did not seem to be impacted, lending evidence to the belief that the impact is variable. As one woman described, “So far from what I’ve seen, any girl that I know that’s done dope throughout their pregnancy, their kids are really overachievers. Which, I’m not trying to say, ‘use meth, it’ll make your kids smart.’ I’m just saying that the ones that I do know, there’s nothing wrong with their kids.”

Seeking Information About the Impact of Substance Use

Of the 15 women, 13 reported that they had sought information about the effect of their substance use during pregnancy on the developing baby. Women reported reading information in books, talking with friends, talking with parents, and learning about the outcomes associated with prenatal exposure during prenatal appointments. Notably, the most commonly discussed means of accessing information was through Internet searches. Many

women described being concerned about disclosing their addiction to health care providers. In particular, 10 women explicitly reported having concerns about child welfare becoming involved because of their substance use in pregnancy. For example, one woman explained, “I was so traumatized by DHS [child welfare] that I did not want them to be able to track me, so I didn’t want to go to the doctor.” The Internet was mentioned as an important way to access information because it provides a means of seeking specific information anonymously.

Theme 5: Women use the Internet to Access Information—Eight women reported relying on Internet searches. Two women in particular described becoming fixated with using the Internet to search out information. They reported searching for the same information on a daily basis while continuing their use of substances during pregnancy. One woman described this fixation, “Anybody on meth, they’re going to tweak on it [finding out how it impacts the baby]. So they’ll spend hours on the Internet like I did. I did spend hours, so I must have been worried. Hours, hours, and hours, 20, 40, 50, 70 hours. I would Google it almost every time I got high. It would be the same stuff and I would just read it and go over it and do it all again.” Another woman similarly explained, “I would Google meth, meth babies, meth in babies, because I wanted to know if it was in his system... if he’s high in my body, if it makes him high... [I spent] an amazing amount of hours, like to where I would make myself crazy over it. I would get so worked up and upset.”

Women’s Internet searches were goal driven in that they researched the impact on the developing baby of the particular substances they were using or had a specific question about how their use affected the baby. In later interviews, after noticing the frequency with which women relied on the Internet for accessing information, women were asked about specific search terms they used to find information online. They reported searching terms including “meth babies,” “methamphetamine use while you’re pregnant,” “meth feces,” “pregnant, drugs, fetus,” “heroin and pregnancy,” and “dopamine effects.”

Theme 6: Specific Knowledge is Obtained through Internet Searches about the Impact of Substance Use on the Baby—Women reported finding specific information about the way that substances impact the baby. Women often described learning that using certain substances, alcohol in particular, is especially problematic during pregnancy. They often discussed the differential effects on fetal development of different substances they were using. When asked about the impact of different substances, one woman explained, “Nothing is good to use while you are pregnant, but alcohol is the worst I think... They say that alcohol can affect them at any point in time. And Fetal Alcohol Syndrome, you know, you just see a lot more effects with it. Like with my research on the Internet, meth they say, I don’t know if it’s true, but they say that there’s nothing they can actually attribute to meth use in the womb, like affecting the baby, except the environment... they are brought up in.” Echoing a similar sentiment, another woman explained that through her search on the Internet she found that, “Mostly alcohol was really bad, but there was no proof that meth did anything to the babies... I know that alcohol for sure is very very bad. It just melts your brain and your baby can be all messed up. I don’t know about marijuana and I don’t know about meth... I think it has to do with how they’re raised.”

Women reported difficulties finding accurate information about the consequences of substance use on the baby. In particular, women described having difficulty finding solid research on the effect of prenatal exposure to methamphetamines, noting that most of what they could find suggested that there was no impact on the baby. A woman described learning from other people and through Internet searches that “They’ve never really actually come up with any concrete proof that doing methamphetamines your whole pregnancy messes up your kid.” Another woman described the difficulties of finding accurate information about the impact of methamphetamine use on the baby when relying on the Internet. She explained what happens when you first search the effects of methamphetamine use on the Internet: “First some crazy stuff comes up, then you look at the bottom and it says not actual meth babies, so they’re taking pictures of deformities that are not from meth babies. ...” Another explained, “Most of them were just opinions, most of the time it would send me to like a forum kind of, where people like talked about it, like answered questions and such. So there’s just a bunch of opinions usually.” It is notable that women described being critical consumers of the information they found through these searches. They had to identify which pieces of information were accurate and which pieces of information were misleading or inflammatory.

Reducing Substance Use Prior to Accessing Treatment Services

All the women interviewed described making attempts to reduce their use of substances on their own, prior to accessing treatment, in an attempt to protect their babies from harm. Women described strategies they used to decrease their use. The most commonly described strategy was using willpower to try to stop completely. Women also frequently described limiting their access to drugs to try to decrease their use of substances or to completely refrain from continued use.

Theme 7: Women Try to Stop Using Substances on their Own Prior to Accessing Health Care Services—Women described the ways that they tried to stop using substances on their own outside of accessing substance abuse treatment services. Some women described simply making the decision to stop on their own. “I didn’t want to be fucked up anymore, and I cried and I tried and I tried to stay clean. I’d go like 4 days and then I’d have to go get high. It was like I had to do it.” Other women described stopping but then becoming sick due to withdrawal and using again. “There was a couple of times I just tried stopping, just getting sick. I would get a day into the sickness and it would just get to the point where it’s just... I’m running out the door [to get more drugs.]”

Other women tried to wean themselves more slowly. “I tried to wean myself off of it, like [I’m] only going to do this hit today and then tomorrow I’m not even going to do nothing, and then I’ll just be good from there on out.” Other women tried switching substances; for example, one woman tried to decrease her use of methamphetamine by drinking coffee. She explains, “I was just like, well, ok, in the morning I can just drink coffee instead [of using methamphetamine].” When this didn’t work, she tried switching to drinking alcohol, “I will just replace that [methamphetamine] with X amount, with alcohol,” which also was unsuccessful.

Theme 8: Women Try to Stop Using Substances by Limiting their Access to

Drugs—Women often described trying to limit their access to substances as a strategy for decreasing their use. Six of the 15 women described physically moving locations as a means of distancing themselves from their addiction. They explained that moving away from an area where they knew how to easily access drugs and had a friend group that was using might help them stop. As one woman explained, “I decided to move to [city]... to live with my brother so that I could get away from my friends, because they’re always the ones that are causing me to be the user that I was.”

Others described asking friends and/or family to help them stop using by limiting their access to substances. Women described writing letters to family members and friends, posting notes about their home being substance free on their door, or even having family members keep their drugs under lock and key. As one woman explained, “I was trying [to stop]. My mom ended up holding my pills for me in her safe at one point. She was trying to help taper me down.” Another woman explained, “We posted a big sign on the front door saying, ‘No Drugs.’ I mean, we told everyone to stop coming over.”

Theme 9: Women Alter their Use of Substances Based on Beliefs about how Substances Impact the Developing Baby

—Women described changing aspects of their substance use in an attempt to decrease the harm related to their use. For example, four women described reducing or ceasing their use of alcohol while continuing to use other substances, stating that they reduced their use of alcohol because of concerns that alcohol has particularly negative consequences for babies. Two women described continuing to use methamphetamine but no longer using it intravenously. As one woman explained, “I told myself in my head, at least I’m not shooting it ... at least I’m not doing that anymore.” Two women described continuing to use opiates but only using prescription pills, and not heroin, which they considered to be more harmful to the baby.

Women also described using a constant amount of specific substances, in particular opiates, because of their concern that changes in the dosing of the substance could affect the baby. For example, one woman described completely stopping her use of alcohol, decreasing her use of methamphetamine, but keeping her opiate use steady because she believed it was in the best interest of the baby. “I had been using heroin straight for five years and I know that you can’t stop, and I know that it’s really bad when you’re pregnant. That it [stopping suddenly] can cause a miscarriage.” Another woman used a consistent amount of methamphetamine, explaining, “My body was so used to having it that when I just all of the sudden cut myself off, that it might affect my pregnancy more that way.”

Engaging in Health Promoting Behaviors**Theme 10: Women Engage in Healthy Behaviors to Protect the Baby from**

Harm—Alongside trying to decrease substance use to protect the baby from harm, women also described engaging in healthy behaviors they thought would have a positive effect on the developing baby. Women described the importance of eating healthy foods, eating on a regular basis, drinking enough water, gaining adequate weight, getting enough sleep, and being physically active. One woman explained how, despite continuing to use substances,

she made sure to stay healthy in other ways. “I took really good care of myself as far as everything else besides using meth... I definitely always made sure I got sleep every night and I made sure that I took my prenatal vitamin, and I always ate. We always ate our meals and everything on time. They were always healthy... I still stayed physically active.”

Some women described how daily self-care routines could become altered by addiction. Women who used methamphetamine described how it was important to eat and sleep regularly during pregnancy, because methamphetamine use can dramatically alter eating and sleeping schedules. One woman described, “I started eating more frequently knowing that I’m pregnant and that it’s the least that I could do, and sleeping. Even when I was on meth, I would sleep every night and I would eat. Those were two things that I made sure I always did, sleep and eat.” One woman suggested that it might not be meth itself that affects the developing baby negatively, but the changes in behaviors associated with methamphetamine. “I think what would affect the baby more than meth is the mother not sleeping, not eating, um, poor nutrition, and not taking care of themselves.”

Women also discussed taking prenatal vitamins. Nearly all the participants started taking prenatal vitamins in pregnancy, with at least five women taking these vitamins before accessing traditional treatment services and while still using substances (not all women were specifically asked about the timing of their prenatal vitamin use, because this question was added after the first interviews). One woman continued to use prenatal vitamins after a prior pregnancy because she felt they could have a protective effect on her body.

Women also described other ways they tried to protect their babies from harm during pregnancy and while still using. They included decreasing their stress, taking supplements (e.g., fish oil, iron pills, vitamin B6), eating only organic foods, and being an “active person.”

Discussion

The study’s findings suggest that in many instances women who continue to use substances during pregnancy and who are not yet accessing services believe that substance use during pregnancy can negatively affect the developing baby and, motivated by this concern, engage in positive behaviors. These behaviors include seeking information, decreasing their substance use, and increasing healthy behaviors. Although there is variation in the concern about the ramifications of prenatal exposure and engagement in behaviors designed to reduce harm to the developing baby, as a whole, our results suggest that continued use of substances during pregnancy is not because of indifference toward the developing baby. In contrast, in interviews women expressed concern about the ramifications of their use on the baby coupled with a desire to stop using substances and have a healthy pregnancy. Their engagement in behaviors suggests motivation to decrease their substance use but difficulty in accomplishing this goal.

Although motivation to stop using would seemingly lead women to seek services to address their substance addiction, the research literature, as well as our conducted interviews, demonstrate that there are unique barriers to accessing treatment for this population,

including concerns about child welfare involvement or justice system involvement. Given the motivation to protect their unborn babies from harm and the barriers to accessing treatment, this study's findings suggest that women often decide to take matters into their own hands, delaying accessing treatment.

On their own, the majority of women in the study describe obtaining information about the impact of use on the baby in utero, often relying upon the Internet as an anonymous source of information. They seek specific information about ways the substances they are using affect the baby and conduct goal-oriented Internet searches. When asked specifically about the potential consequences of prenatal exposure, the majority of women, all but two, stated they believe that substance use during pregnancy has a negative impact on the baby. Women often looked to examples around them, considering the outcome of children they know whose mothers used during pregnancy. In some cases, these children provided evidence that prenatal exposure can cause drastic negative effects. In other cases, these examples provided evidence that the effects are variable or even that prenatal exposure to certain substances is not problematic.

In particular, two women expressed their belief that prenatal exposure to some illicit drugs did not cause harm to the baby, citing examples of children they knew whose mothers had used opiates and methamphetamine throughout their pregnancy who were seemingly unaffected by prenatal exposure. When specifically asked about the symptoms of prenatal exposure, women often list dramatic effects that are unlikely to be caused by maternal substance use (e.g., being born with "pieces missing" or "webbed feet"). As such, there is likely a disconnect between the expectation of how prenatally exposed children look and act versus the reality of the often more-subtle effects. Because concerns about the effects of prenatal exposure shape women's motivation to try to decrease their substance use, future research should further identify the predictors and consequences of variation in the beliefs about the consequences of use.

Even with this variation in women's beliefs about the repercussions of prenatal exposure, all women described that prior to accessing treatment they had engaged in behaviors designed to reduce harm to the developing baby. In particular, each woman in the study described trying to decrease use of substances on her own, outside of accessing traditional services. Women describe changing behaviors that are easily malleable, including increasing engagement in healthy behaviors and decreasing or making positive changes to their substance use. These strategies for reducing harm suggest that women often make the changes to their substance use they are able to make on their own outside of seeking treatment services.

Although women described being able to make some positive changes, they also described struggling to decrease their use of substances they were dependent upon and often making unsuccessful attempts to quit. These attempts, although often unsuccessful, suggest motivation to stop using during pregnancy to have a healthy baby. Eventually, all the women in the study accessed substance abuse treatment services, suggesting that those who eventually access inpatient treatment are likely to attempt to reduce their substance use and

engage in healthy behaviors on their own before seeking these services. The process of positive self-change begins well before seeking inpatient treatment services.

Notably, attempts to decrease harm to the developing baby were often informed by knowledge that women had obtained about the impact of different substances on fetal development. For example, some women describe decreasing their alcohol use because they believed that alcohol use could be particularly harmful to the developing baby. Similarly, some women described keeping their use of opiates steady because of the belief that this strategy was in the best interest of the baby. Overall, women describe how information they are able to access and beliefs they hold about the effects of substance use on the baby, guide the positive changes they try to make.

When interpreting the results from the study, the characteristics of the sample should be kept in mind. The sample uniquely includes only women who eventually entered substance abuse treatment either during pregnancy or during the postpartum period. Thus, this sample does not represent all pregnant women with addictions. This sample may represent pregnant women with addictions who are more motivated to make positive changes to their substance use than would a sample that includes women who did not obtain treatment services. Also, this sample did not include women who were able to stop using alcohol and other drugs on their own and therefore did not need the help of inpatient services.

There are some clear limitations to this research. Primarily, all interviews were retrospective, with women reporting about the time before they entered inpatient substance abuse treatment. Although it would be ideal to engage women in conversation while they are using and pregnant, concerns about the child welfare system's involvement would likely significantly impair recruitment and the truthfulness of reporting for women who were still using.

A second limitation is that this research was conducted with a small sample. However, given the dearth of research on the beliefs and behaviors of women who use substances during pregnancy and the difficulty in accessing this population, this research provides an important contribution to the literature in this area in that it identifies behaviors that should be further explored through additional research studies. One additional limitation of this study is that participants were recruited from one treatment center in the Pacific Northwest that serves primarily low-income women and that treats women with high rates of methamphetamine addiction. Given the shared characteristics of the sample, regional differences in substance use and regional standards of treatment access and child welfare involvement, findings should not be overgeneralized. Despite these limitations, the results of this study strongly suggest that women who continue to use drugs and alcohol during pregnancy are often concerned about the impact of their use on the developing baby, and even if initially unwilling to access services, are often engaging in positive behaviors designed to decrease harm to the baby.

This research suggests that a new dialogue is needed about how to address addiction in pregnancy by engaging women's motivation to stop using and building upon women's pre-existing protective behaviors toward their baby in utero. Our research suggests that

additional support is needed to help women overcome some aspects of their addiction and that continuing to use substances during pregnancy is not necessarily related to poor motivation or disinterest in the developing baby. As a 2006 report from the Institute of Medicine explains, individuals with substance use disorders face unique negative stereotypes that affect their access to supportive patient-centered care (Institute of Medicine Committee on Crossing the Quality Chasm, 2006). These stigmas include the belief that individuals with addiction are not capable of making decisions about their treatment. For pregnant women with addictions, this stigma is likely exacerbated because of the potential impact of substance use on the developing baby. By understanding that women are motivated to stop using substances but need assistance, as a society we can build programs that engage women's existing motivation to have a healthy pregnancy while promoting patient-centered care.

This research adds to the literature that suggests that there are other options for addressing addiction during pregnancy rather than focusing efforts on increasing the consequences for pregnant women who continue to use substances. While not directly lending evidence that criminalizing substance use leads to poorer outcomes, this research suggests that a new dialogue is warranted about how to address addiction in pregnancy. While increased consequences for substance use in pregnancy prevent women from accessing the treatment that they need, acknowledging that women are often concerned about their babies and already engaged in health promoting behaviors enables a starting place for supporting women in accessing the services and support that they need.

Our research suggests that women are often making decisions based upon the limited information they can find without disclosing their addiction. There are strong clinical and public health implications for this finding. Understanding that women are seeking information and trying to make positive behavioral changes suggests the importance of ensuring that women have access to information that is high quality and easily understood, and that women have access to systems of support that can help them be as successful as possible.

The narratives provided by addicted mothers suggest the importance of having high quality information available anonymously, particularly on the Internet, that can support women in making positive changes when they are unwilling to discuss their substance use with health care professionals. Women explicitly describe the ways that information about the differential impact of various substances guides their decisions to reduce their substance use. The need for this information is accentuated by the fact that some women describe engaging in behaviors they think will have a protective effect on the baby, but that instead may pose added risk (e.g. using alcohol instead of other substances).

As this research indicates, there are many opportunities to support women with addictions during pregnancy in the process of making positive changes that reduce harm to the developing baby. However, research on how to support women in making these changes is quite underdeveloped. Providing women with high quality and accessible information may both help women make positive choices on their own and increase willingness to disclose addiction and seek out greater systems of support. Future directions for research should

include identifying best practices for supporting women in reducing harm on their own given their motivation to have healthy pregnancies. In addition, future directions should include researching how to build upon this existing motivation to increase engagement in traditional support services, including prenatal health care services and substance abuse treatment services.

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Table 1.

Beliefs and Behaviors of Pregnant Women with Addictions Awaiting Treatment Initiation: Identified Themes and Overarching Categories

Category 1	Beliefs about the negative impact on the baby of substance use during pregnancy	
	Theme 1	Prenatal substance exposure can physically impact the baby
	Theme 2	Prenatal exposure can lead to learning and developmental problems
	Theme 3	Prenatal exposure can lead to intergenerational transmission of addiction
	Theme 4	Prenatal exposure does not always have a negative impact
Category 2	Seeking information about the impact of substance use	
	Theme 5	Women use the Internet to access information
	Theme 6	Specific knowledge is obtained through Internet searches about the impact of substance use on the baby
Category 3	Reducing substance use prior to accessing treatment services	
	Theme 7	Women try to stop using substances on their own prior to accessing health care services
	Theme 8	Women try to stop using substances by limiting their access to drugs
	Theme 9	Women alter their use of substances based on beliefs about how substances impact the developing baby
Category 4	Engaging in health promoting behaviors	
	Theme 10	Women engage in healthy behaviors to protect the baby from harm