Substance Use and Addiction During Pregnancy

Introduction

Substance use during pregnancy is not uncommon. Pregnant women have been found to consume alcohol during the first trimester of pregnancy, and both illicit and prescription drug use have become a public health concern for women during pregnancy. Fetal exposure to substances affects normal fetal development and is associated with a high rate of low birth weight, childhood development issues and cognitive impairment. Health professionals must approach the subject of substance use during pregnancy in a careful manner and from a position of being nonjudgmental and of providing unconditional support.

Substance Use And Early Identification

The main theme of this section is the early identification of substance use in pregnant women, which can often be a difficult topic to approach during pregnancy. It is not uncommon for the pregnant client and even family members to minimize a substance use problem when it exists. The health professional should anticipate there would be shame and fear of being reported to child protection services as well as possible legal charges. If there is a mental illness associated with substance use, the pregnant client may already be living with a sense of stigma, guilt and remorse for their behaviors. It’s also important to recognize that women with a substance use disorder generally lack insight into their condition, and may not be aware they are pregnant while using. There may be a history of irregular menstrual cycles compounding the lack of attention being paid to the possibility of a pregnancy perhaps months after conceiving.
Normal signs of pregnancy, such as nausea and vomiting, abdominal discomfort and general malaise or tiredness, tend to be related by the pregnant women to routine symptoms of drug or alcohol use and withdrawal. This lack of attention to the possibility of being pregnant can go on for an extended time, possibly into the second trimester, hence putting the fetus at risk of prolonged drug or alcohol exposure.

Screening for substance use in pregnant women is often challenging and frustrating for clinicians. Unfortunately, by the time the reality of substance use and addiction becomes known the fetus has already been exposed to damaging levels of drugs, alcohol and/or nicotine in the first trimesters of a pregnancy. Once the issue of substance use and addiction is made known, the health provider will have to address multiple issues related to the pregnant woman’s physical condition, severity of withdrawal, mental health, and education needs related to lifestyle. This is a stressful encounter for both the woman with the unexpected pregnancy and the clinician attending to the welfare of the mother and the unborn child. Using an empathic approach and showing unconditional regard will immensely help the expectant mother and her family progress during the pregnancy to hopefully make more healthy choices and commit to abstinence for the remainder of the pregnancy and beyond.

**Special Considerations for Teenage Mothers**

Teenage mothers may be particularly nervous about pregnancy, labor, and delivery. The teen is less likely to finish high school and struggle with finances as an adult if she does not receive extra care and coaching. Children born from such young mothers are at an increased
risk for struggling with health problems as well as educational and behavioral issues. The clinician caring for a teen mother should be sure to address the availability of a complete support system, and assure the young mother that she will be able to thrive into a healthy adult.  

**Alcohol Use During Pregnancy**

Alcohol use is very harmful to developing fetuses and should be stopped completely during pregnancy. There is no safe amount of alcohol during pregnancy, although issues associated with alcohol use increase with the amount as well as which trimester alcohol was consumed during the pregnancy term. Fetal development is at the highest risk during the first trimester.

Complications of alcohol use during pregnancy include fetal alcohol syndrome, a disorder that varies from mild behavioral changes to severe neurocognitive issues. Signs and symptoms of fetal alcohol syndrome in the neonate include heart defects such as a ventricle septal defect or an atrial septal defect. Infants with fetal alcohol syndrome tend to be weak and have specific facial features, such as small and narrow eyes with a small head and a fine, smooth upper lip, which are generally indicators of the disease.

The pregnant woman with an alcohol use disorder will often find it very difficult to stop consuming alcohol. The prevalence of alcohol consumption in pregnant women is significant. Health professionals that include prevention strategies during the first prenatal visits and that educate pregnant patients about alcohol consumption and the effect on the fetus may help to reduce potential harmful exposure of the fetus to alcohol. The Centers of Disease Control and Prevention
(CDC) has reported that 10.2% of pregnant women used alcohol and 3.1% of pregnant women acknowledged binge drinking within the month prior to being evaluated (between years 2011 to 2013). This represents an increase of the rates of fetal exposure to previous years; although some researchers have suggested that the reported increase may be due to changes in study design rather than an actual increase in the rates of alcohol use in pregnant women. Nonetheless, researchers have found that when studies of alcohol use during pregnancy are extended over time that pregnant women have reported a higher incidence of alcohol use.

The 2009 National Birth Defects Prevention Study included over 4,000 women who were interviewed about their consumption of alcohol during the course of their pregnancy. In this study, alcohol use was reported by 30% of pregnant women interviewed and binge drinking was reported by 8% at least once during the course of the pregnancy. In a prior large 2004 study, the Pregnancy Risk Assessment Monitoring System (PRAMS), women were evaluated for preconception behavior three months prior to pregnancy, which placed them at risk for an alcohol-exposed conception; and, 50% reported alcohol use.

Other varied demographic factors associated with alcohol use in pregnant women include age, racial origin, level of education and employment. For example, the higher rates of alcohol use in pregnant women occurred in women between the age of 35 – 44 years and in black women. Also, there was a significant prevalence of fetal alcohol exposure in women with higher education, who were older and that had a college degree or attending college, which was hypothesized to be due to their acceptance of alcohol consumption and binge drinking.
There is ongoing research related to demographic factors influencing prenatal alcohol consumption and factors contributing to fetal exposure to harmful levels of alcohol.

Being unmarried was found to have a direct correlation to binge drinking during pregnancy. Unmarried pregnant women were found to have 4.6 times the prevalence of binge drinking as compared to married pregnant women. Additionally, there was a significantly higher frequency of binge drinking in unmarried pregnant women as compared with unmarried binge drinkers. The increased frequency and volume of binge drinking reported by pregnant women may reflect a greater prevalence of alcohol use in women who continue to binge drink during pregnancy. The important relevance of such studies is to inform clinicians of the multivariated factors influencing alcohol use in pregnant patients and how to screen during the early prenatal phase as well as all throughout the term of a woman’s pregnancy.

Heavy alcohol use in pregnancy has also been associated with a range of negative birth outcomes, including increased risks of miscarriage, stillbirth and infant mortality, congenital anomalies, low birth weight, reduced gestational age, preterm delivery, and small-for-gestational age. The evidence for low to moderate alcohol use in pregnancy has been either inconclusive or shown no increased risk for these adverse pregnancy outcomes. Alcohol use in pregnancy has the most well established adverse fetal health effects and is associated with the development of fetal alcohol spectrum disorders and adverse neurodevelopmental outcomes. In addition, prenatal drinking is associated with long-term effects, such as cognitive and behavioral challenges, adverse speech and language outcomes, executive
functioning deficits in children, and psychosocial consequences in adulthood.

Several screening tools, such as CAGE, TWEAK, or AUDIT-C, exist for assessing a newly pregnant woman’s alcohol use. Whichever screening tool the clinician uses, it’s important the subject of alcohol use be approached with sensitivity and a plan formulated to stop drinking that the patient and fetus can tolerate.  

**Tobacco Use During Pregnancy**

According to the American College of Obstetrics and Gynecology, all women should be screened for tobacco use at their initial prenatal appointment. Women should be asked if they have ever smoked cigarettes, the last time they smoked cigarettes, and if they currently smoke. Many women are afraid to report their tobacco use and should be informed of the risks associated with smoking while pregnant whether they report they are smokers or not. Risks to the mother include poor weight gain and preeclampsia. The fetus is also put at major risk; the fetus of a smoking mother is more likely to develop congenital malformations, acquire fetal growth restriction, be born prematurely, suffer from sudden infant death syndrome (SIDS), or display long-term behavioral problems in childhood.

Smoking during pregnancy exerts direct adverse effects on birth outcomes, including damage to the umbilical cord structure, miscarriage, increased risk for ectopic pregnancy, low birth weight, placental abruption, preterm birth, and increased infant mortality. Also
of concern are the deleterious health effects of secondhand smoke on newborns, which include higher rates of respiratory and ear infections, SIDS, behavioral dysfunction and cognitive impairment. Additionally, women who were smokers before pregnancy might stop breastfeeding early so that they can take up smoking again.

If a clinician suspects that a mother is not admitting her cigarette use, they may perform a urinalysis to detect for cotinine in the urine. Cotinine is a chemical substance found in cigarettes and is detectable 3 to 5 days post cigarette use.

Prenatal women who are ready to quit smoking may need counseling or education on tips for staying tobacco free. Women should discuss common triggers that prompt cigarette cravings such as socializing with other smokers, feeling stressed, or even simply finishing a meal. Once triggers are identified, clinicians and healthcare support staff may provide better counseling on how to avoid or cope with triggers. Some people replace cigarette smoking with chewing gum, some try to take their daily work break with non-smokers so that they aren’t tempted, while others try chewing on or breathing through straws.

Quitting smoking often causes withdrawal symptoms whether an individual is pregnant or not. Pregnant women may find these symptoms extra uncomfortable, especially if they are already experiencing discomfort related to their pregnancy. Common nicotine withdrawal symptoms include tremors, irritability, headaches, fatigue, stomach discomfort, and restlessness. To deal with symptoms, clients should be encouraged to take walks, rest when tired, and drink plenty of water.10
Criteria to diagnose tobacco withdrawal is identified in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), which are listed in the table below.\textsuperscript{11}

**DSM-5 Diagnostic Criteria for Tobacco Withdrawal**

<table>
<thead>
<tr>
<th>Daily Use of Tobacco for at Least Several Weeks.</th>
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<tbody>
<tr>
<td><strong>Abrupt cessation of tobacco use, a reduction in the amount of tobacco used, followed within 24 hours by four or more of these signs or symptoms</strong></td>
</tr>
<tr>
<td>Irritability, frustration, or anger</td>
</tr>
<tr>
<td>Anxiety</td>
</tr>
<tr>
<td>Difficulty concentrating</td>
</tr>
<tr>
<td>Increased appetite</td>
</tr>
<tr>
<td>Restlessness</td>
</tr>
<tr>
<td>Depressed mood</td>
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<tr>
<td>Insomnia</td>
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The signs or symptoms identified cause clinically significant distress or impairment in important areas of functioning in individuals affected by a tobacco use disorder. During pregnancy, these symptoms can become intensely difficult and may also be complicated by other comorbid substance use that typically is associated with smoking, such as alcohol consumption, which the clinician should also screen for during the prenatal visit.
Drug Use And Pregnancy

A significant number of women use drugs socially, illicitly, or by prescription during the course of a pregnancy. In general, it is recommended that drugs should not be used during pregnancy to avoid harm to the fetus. This section highlights the main types of drug use that health professionals should be screening for during a woman’s prenatal visits.

Cocaine Use

There have been several large and thorough studies recently, which have all identified several risk factors associated with cocaine use during pregnancy, including premature rupture of membranes, placental abruption, preterm birth, and low birth weight. There have been inconsistent reports on the long-term effects of prenatal cocaine exposure on language, motor, and cognitive development, with a few studies describing positive findings and some studies reporting very little or no effects. This inconsistency is probably connected to difficult effects of the postnatal environment, including unsteady and disordered home environments, dysfunctional parenting, and heavy maternal polysubstance use. Similar to cocaine use in pregnancy, methamphetamine use is linked with shorter gestational ages, lower birth weight, fetal loss, developmental and behavioral defects, preeclampsia, gestational hypertension, and intrauterine fetal death.

The literature suggests that most women who are addicted to cocaine are of childbearing age. Pregnant women using addictive substances have been reported to be approximately 5%, which includes use of one or more substances. Significantly, it has been reported that fetuses
exposed to cocaine are approximately 750,000 cases annually. This data suggests a critical need for clinicians to be proactive and to screen for drug addiction during pregnancy. Clinicians caring for women with a drug use disorder and addiction also need to be mindful that there may exist fear of stigma and of legal action, which may lead to barriers of open communication and patient engagement.12

There are also medical conditions associated with cocaine use during pregnancy that may require referral to a medical clinician or obstetrician. Pregnant women using cocaine may experience migraines and seizures, premature membrane rupture, and separation of the placental lining from the uterus prior to delivery. Cocaine use may also cause cardiovascular changes beyond those typically expected during pregnancy. For example, cocaine use may lead to high blood pressure (hypertensive crises) and possibly spontaneous miscarriage, preterm labor, as well as difficult delivery. Clinicians diagnosing cocaine use in pregnant women need to refer to a medical clinician for follow up and appropriate care of physical complications related to use and/or withdrawal. Additionally, an important member of the interdisciplinary team caring for a pregnant woman with addiction is the chemical dependency counselor or therapist. This professional is specially trained to provide focused and comprehensive care related to substance use and addiction, including psychological counseling, family and parenting counseling and assistance during the course of recovery related to transitioning into a routine within the patient’s community. Often pregnant women in a chemical dependency treatment program are fearful and anxious about returning to a job or entering the workforce with a history of substance use. They need ongoing assistance and follow-up after transitioning into an area of
employment. Specifically, these women will need follow-up on how well they are adjusting in their role as a parent as well as their ability to abstain from using drugs.

Multiple factors related to the amount and extent of each substance used impact how the affected woman adapts to being pregnant; this as well as fetal response to drug or alcohol exposure during the prenatal visits needs to be monitored. Compounding substance use, the clinician may also discover exposure to violence at home, compromising socioeconomic conditions, poor maternal nutrition, and other health concerns, such as an issue of sexually transmitted disease. There may be a variety of comorbid conditions combined with substance use that may affect maternal and fetal outcomes.

Researchers most recently have been able to learn that fetal exposure to cocaine use leads to developmental issues later on in the child’s life. Deficits in cognitive functioning, behavioral disturbances and sustained attention to tasks may later exist. Such deficits may continue into the child’s later years, including adolescence and as a young adult. Youth exposed to substances during their mother’s prenatal history are at increased risk for language and memory deficits, which may be identified during a neurocognitive evaluation. Brain scans have been helpful in exposed teens and suggest at-rest functioning of certain brain regions, including attention, planning, and language, which may differ from that of non-exposed peers. Long-term effects of prenatal cocaine exposure need to be further explored. Premature delivery and low birth weights, including smaller head circumferences and shorter length, often occur in infants born to mothers that use cocaine. Reduced intelligence and social skills in
infants born to mothers known to use cocaine while pregnant may not be immediately apparent but remains a cause of concern throughout the child’s life. Knowing the full consequences of maternal drug use to the unborn child is often a difficult task, and complicated by the ability of the mother using substances to care for the child as well as environmental factors, such as exposure of the mother and child to domestic violence and other socioeconomic factors.

**Opioid Use**

Opioid use in pregnancy is correlated with a greater risk of low birth weight, respiratory problems, third trimester bleeding, toxemia and mortality. Maternal opiate use is associated with an increased risk of neonatal abstinence syndrome (NAS), whereby opiate exposure in utero triggers a postnatal withdrawal syndrome. A recent study showed that 45% to 94% of infants exposed to opioids in utero, including methadone and buprenorphine, might be affected by NAS. NAS comprises a variety of signs and symptoms, including irritability, feeding difficulties, tremors, hypertonia, emesis, loose stools, seizures, and respiratory distress, and leads to neonatal morbidity as well as increased cost burden on the health system.

Opioid exposure in pregnancy has also been associated with postnatal growth deficiency, microcephaly, neurobehavioral problems, and SIDS. Cigarette smoking, which is very common in pregnant women with an opioid use disorder (77–95%), further complicates the clinical picture of opioid use relative to poor pregnancy outcomes. Clinicians need to keep in mind how undesirable consequences of prenatal substance use may be confused in the setting of comorbid physical and psychiatric illness. Women with substance use disorders
also frequently experience inadequate prenatal care, poor nutrition, chronic medical problems, poverty, and domestic violence. Furthermore, substance use in pregnancy may also result in an early dysfunctional maternal-infant relationship that can potentiate the negative effects of prenatal drug exposure.

**Cannabis Use**

Some pregnant women view cannabis use as harmless in pregnancy; however, it has been linked with several deleterious effects, including preterm labor, low birth weight, small-for-gestational age, and admission to the neonatal intensive care unit. Prenatal cannabis use has also been linked with adverse consequences to the brain development of fetuses and adolescents, reduced attention and executive functioning skills, poorer academic achievement and more behavioral problems. The adverse effects of cannabis are frequently observed with comorbid substance use, and are greatest in heavy users.

The harmful chemical in cannabis to the fetus is tetrahydrocannabinol (THC), which is the chemical in cannabis that produces the feeling of being high. The THC may lead to learning difficulties later on in the child’s life. No form of cannabis use is safe enough to prevent harmful exposure to the fetus. Some women may believe nonsmoking types of cannabis are safer to use than smoking; however, all forms contain THC and are harmful to the developing fetus. Additionally, the American Academy of Pediatrics advises that mothers who breastfeed infants should avoid cannabis use. THC crosses over to the baby during breastfeeding to cause harmful effects; it is stored in body fat, and the mother’s breast milk and the baby’s brain consists of a major
amount of body fat.\textsuperscript{14}

As with other drug use during pregnancy, there is no known safe amount of cannabis use during pregnancy or while breastfeeding. This fact is complicated by the reality that cannabis is legal in many U.S. jurisdictions for adults. Clinicians need to screen for cannabis use in pregnant women and discuss safe alternatives to cannabis use when preparing women for pregnancy and during prenatal visits.

\textbf{Medication Safety And Pregnancy}

Many pregnant women will inquire about medication safety at their initial prenatal check-up. Many common medications taken outside of pregnancy, such as ibuprofen or aspirin, are not recommended or safe to take while pregnant. Firstly, all prenatal clients should be taught to report any medications they are taking to their health clinician. Pregnant clients should also ask their medical clinicians about the safety of any medication they would like to take whether it is prescribed or purchased over the counter.

From 1979 until 2015, the Food and Drug Administration (FDA) created pregnancy risk categories for medication labeling in order to simply identify the risks behind specific medications. While this method is being phased out in favor of a more specific standard package, the category labeling method is still taught and found in medication packaging today. These categories include those outlined below.\textsuperscript{15}

\textbf{Category A Medications}

Pregnancy Category A will have been studied to show that no fetal
abnormalities were reported in human studies. Medications commonly considered pregnancy category A includes synthroid, also known as levothyroxine, and most multivitamins. Medications in this category are considered the safest and have only remote possibilities of risk to the fetus.

**Category B Medications**

Pregnancy Category B medications are taken when the benefit of the medication outweighs any purported risks. There are usually no good studies in humans; however, animal studies show little to no fetal abnormalities. Pregnancy category B medications may also include pharmaceuticals that have shown some issues in animals but when used by pregnant women have not led to any malformations.

Most insulins used to treat diabetes and amoxicillin used to combat bacterial infections are in this category. As with all medications taken while pregnant, the benefit of medication should outweigh the risk of harm to the fetus.

**Category C Medications**

Pregnancy Category C medications are always first looked at in terms of a cost-benefit analysis. This is because little studies will have been performed to show the risks involved with taking medications in this category. Category C medications generally have no good studies done in pregnant humans, while animal studies are either lacking or showing some potential for fetal harm. Low-dose fluconazole is used to treat vaginal yeast infections and falls into this category.

Most Selective Serotonin Reuptake Inhibitors (SSRIs) such as
sertraline and citalopram fall into the Category C medications. While risks are not well known or controlled while taking these medications, the possible problems associated with untreated depression may outweigh the risks. For example, women with untreated depression are less likely to practice self-care, adhere to prenatal care, and refrain from harmful substances like tobacco and alcohol. Infants born to mothers with untreated depression are likely to suffer from low birth weight.

**Category D Medications**

Pregnancy Category D medications have shown that infants exposed to this drug have had issues directly correlated to exposure. Still, in some circumstances, use of this medication may outweigh the risks, especially in cases where the mother is being treated for seizures with phenytoin or with some chemotherapeutic agents for cancer. Other category D medications include paroxetine and lithium.

**Category X Medications**

Pregnancy Category X medications are considered the most teratogenic of medications. There are no situations in which taking these medications outweigh the risks to the fetus. Studies on both humans and animals show that pregnancy category X medications result in direct fetal abnormalities, usually severe enough to cause death in utero or after birth. Such medications include isotretinoin, which is used to treat severe cystic acne, and warfarin, used to prevent deep vein thrombosis or stroke.

**New Model for Medication Classification**

A new model for medication classification uses a more inclusive
labeling system with information related to pregnancy, lactation, and men and women of reproductive age. The FDA made this switch in order to help women and men of reproductive age fully understand the implications of their medications without having to understand a letter-style grading system.\(^{16}\) Rather, the sections are broken up into easy to read sections with detailed explanations of potential risks.

The pregnancy labeling comprises both labor and delivery along with the nine months of gestation. A risk summary, clinical considerations, cost-benefit analysis, and available data are discussed. Further, lactation and information of the safety of using the drug while breastfeeding is discussed, as well as the amount of the drug that passes into the breast milk, and the potential effect on the infant receiving the medication through the mother’s breast milk.

Finally, the new FDA labeling system covers females and males of reproductive potential. The information provided discusses the need for pregnancy testing, contraceptive concerns, and data on how fertility may be affected by the medication. Health clinicians should be familiar with both systems of drug labeling in order to prepare prenatal patients on both systems of medication labeling. It deserves restating that, when in doubt, pregnant mothers should be advised to contact their clinician’s office when they are unsure about medication safety.

**Substance Use And The DSM-5**

This section discusses national risk categories and criteria to diagnose a substance use disorder, specifically, relating to women during pregnancy.\(^{17}\) In the U.S., women comprise 40 % of those with a lifetime drug use disorder and 26 % of those who meet criteria for
both an alcohol and drug use disorder during the prior 12 months. Furthermore, women are at the highest risk for developing a substance use disorder during their reproductive years. This means that women who are pregnant or soon to become pregnant are at increased risk for a substance use disorder. According to a national survey conducted in the U.S. in 2012, 5.9% of pregnant women used illicit drugs, 8.5% consumed alcohol and 15.9% smoked cigarettes, resulting in over 380,000 offspring exposed to illicit substances, over 550,000 exposed to alcohol and over one million exposed to tobacco in utero. Similar patterns of use have been observed in Europe and Australia.

The most commonly used substance in pregnancy is tobacco, followed by alcohol, marijuana and cocaine. However, polysubstance use is as high as 50% in some studies. Recently, there has been an increase in opiate use in pregnancy. Between 2000 and 2009, there was a five-fold increase in opiate use in pregnancy, which coincided with widespread increase of opiate prescription misuse in the United States.

There is little information available on the extent of substance use, other than tobacco, among pregnant women in low-income and middle-income countries. The prevalence of tobacco use in these countries related to maternal rates is as high as 15 percent. While data on illicit substance use in pregnancy is lacking for most middle- and low-income countries, according to the World Health Organization (WHO), cannabis is the most common illicit drug worldwide, followed by amphetamine-type stimulants and opiates; they are reportedly likely to be used by women of reproductive age.

Prenatal substance use can bring about several deleterious consequences for both mother and baby, as described in the following
case study. The concern for the impact of substances on the developing fetus can motivate some women to reduce drug and alcohol use during pregnancy. In the only prospective study on prenatal substance use, 96% of women with heavy drinking, 78% of women with marijuana use, 73% of women with cocaine use, and 32% of cigarette smokers achieved abstinence during pregnancy. Conversely, there was reported a dramatic rise in substance use from 6 to 12 months postpartum; relapse occurred in 58% of abstinent smokers, 51% of abstinent women using alcohol, 41% of abstinent women using marijuana and 27% of abstinent women using cocaine within 3 months post partum. The relevance of the study findings for clinicians is that while the levels of abstinence in pregnancy may be high, there also exist high rates of substance use relapse postpartum. Unfortunately, maternal relapse happens at a time of high childcare needs and when infant development is dependent on maternal bonding. It is also important to note that this was a study conducted in the U.S. and that the levels of abstinence may not be equivalent in other countries.

In middle- and low-income countries women may encounter significant socioeconomic stressors, low levels of education, and limited available treatments for substance use. The current evidence suggests that substance use in pregnancy continues to be a critical public health concern. Clinicians need to be aware of the pregnancy outcomes, neonatal and long-term developmental consequences of prenatal substance use, and current available treatments for pregnant women.

**Case Study**
Savannah was born to parents who were both alcoholics. Her mother was also raised by alcoholic parents and suffered abuse growing up, and never wanted to be a parent. Shortly after Savannah was born, her parents separated and her mother was unable to property care for her. Often, Savannah went without being fed or having adequate hygiene, such as bathing and teeth brushed. An aunt tried to help on occasion when her mother would call for help from family during periods of heavy drinking. Eventually, her aunt called child protection services to remove Savannah from her mother’s home.

When Savannah became an adolescent, she tried to visit with her mother but often felt disappointment and rejection from her mother who continued to drink alcohol heavily in addition to multiple substance use. Her noticed that she had episodes of depression in addition to becoming oppositional and defiant. She was sent to a residential treatment center for psychiatric and therapy when she was 11 years old. The depression and a growing need to avoid peers her own age continued through most of her early adolescent years. She lost interest in school or goals to progress in her ongoing treatment and began to socialize with other adolescents using substances, such as cannabis, alcohol and tobacco.

By the time she was 15 years old, Savannah was heavily drinking alcohol and using other substances. Her moods and judgment to make healthy choices deteriorated. She became sexually active with men much older than her own peers and became pregnant. Her newborn infant was born premature with low birth weight, which was related to Savannah’s alcohol and drug use while pregnant. Her aunt remained involved with Savannah’s financial and medical health needs throughout her pregnancy and realized she was unable to care for her
new baby because of her addiction problem. Her newborn was removed from her care and placed into foster care by the time the baby was one month old. Savannah was unable to maintain steady employment, and suffered from chronic depression following the birth of her child. She eventually had a second child who was also born pre-term and then placed into foster care as well.

Savannah suffered from early childhood neglect and trauma related to her parents’ heavy alcohol use and violence in the home. Clinicians involved in her mental health and addiction treatment recommended intensive inpatient care and community follow-up. She was able to maintain visits with her children as long as she was sober and the children were safe during contact with their mother.

**Treatment Of Substance Use During Pregnancy**

The case study above highlights the need for effective screening, prevention and treatment of substance use in pregnant women to avoid harmful exposure to the developing fetus and difficult outcomes all throughout the life of their child. There are only a small number of effective therapies for substance use in pregnancy, which primarily involve behavioral counseling.

Brief interventions, in particular those that utilize motivational interviewing, have been shown to reduce prenatal alcohol use. A recent randomized trial utilizing a telephone-based brief intervention suggests that this method may achieve similar results to the in-person intervention method of moderating prenatal drinking. Some additional interventions to reduce prenatal drinking that have recently been described include screening via non-healthcare community workers,
counseling by midwives, and multimedia and educational efforts aimed at improving awareness.

**Motivational Interviewing For The Pregnant Client**

Motivational incentives or contingency management as an adjunct to other addiction treatment is a particularly promising strategy to engage women in prenatal care and counseling for substance use. Clinicians can use motivational interviewing (MI) in a number of situations, yet it should always be recognized that no one could be forced to change. Many clinicians witness the personal situations of clients and their families and grow frustrated by feeling powerless to help. Motivational interviewing helps guide the pregnant woman using substances toward making different choices that can foster change in her life.

Motivational interviewing has been used successfully among pregnant clients needing to make lifestyle changes in order to improve their own health and that of their baby. MI may be an option for soliciting change among pregnant women in order to help them make healthy choices, such as following a healthy diet and engaging in regular exercise. It can also be used among some women who must make changes because they struggle with substance use or are smokers, both of which can cause health problems and increase the risk of complications during pregnancy.

Pregnant women may engage with members of the health team who can provide motivational interviewing and who are often in the role of counseling or educating patients about pregnancy support. A woman may have several visits with a clinician during pregnancy as part of
routine prenatal care. Regardless of whether a pregnant patient needs assistance with changing negative or harmful habits, motivational interviewing can be part of regular contact with the patient.

Once a woman makes a decision about the focus of her care during pregnancy, the practitioner and patient then work together to successfully incorporate the steps needed to accomplish the goals. Regular reevaluation of the expectant mother’s level of motivation, the need for services, and any issues or problems that have developed should be done throughout the process with the goal of getting the patient through a healthy pregnancy by guiding her to improve self care.\(^{18}\)

Unfortunately, some women who are pregnant make unhealthy choices or engage in activities that can be detrimental to their health and can risk harming the baby. Substance use, such as alcohol, drugs, or smoking cigarettes can increase the risk of complications for the mother and fetus and may cause problems during labor and delivery. The American College of Obstetricians and Gynecologists (ACOG) supports the use of motivational interviewing to affect change among women who are pregnant to promote positive behavior choices.\(^{19}\)

Motivational interviewing can be a part of regular routine prenatal visits for pregnant clients or, if a problem has developed during pregnancy, such as the identification of substance use, it can be a stand-alone objective in which the clinician and patient sit down together to discuss the choices and effects on the pregnancy. When MI is incorporated into routine prenatal visits, the clinician could be someone such as the physician or advanced practice nurse, or a
registered nurse that is managing the patient’s care. Adding MI to a regularly scheduled appointment adds little time to the overall encounter, but the results can be significant. According to ACOG, the process of active listening and motivational interviewing during a visit only adds approximately three minutes to the total time spent at the appointment.\(^\text{19}\)

Motivational interviewing can be incorporated into many discussions and topics that are covered through prenatal appointments for pregnant women. Most pregnant patients go through a course of appointments in which the mother’s and the baby’s health are evaluated during the time of pregnancy, with prenatal visits coming more often as the estimated date of delivery draws near. The ACOG has reported that motivational interviewing has been effective in a number of areas among pregnant patients, including reducing fears related to childbirth, reducing the amount of alcohol consumption, smoking cessation, increasing education and promotion of breastfeeding after delivery, and limiting risky behaviors that can lead to sexually transmitted infections.\(^\text{19,20}\)

When clinicians specifically work with women who use alcohol during pregnancy, intervention through motivational interviewing is extremely important to prevent the development of fetal alcohol spectrum disorders (FASD). FASD is a range of conditions that can develop with alcohol use during pregnancy and can cause growth problems, central nervous system abnormalities, behavioral issues, and problems with everyday functioning. These problems are noted after birth and continue throughout the child’s lifetime. FASD is preventable with eliminating exposure to alcohol, which is why proper identification and
intervention among pregnant women who use alcohol is so important.

A clinician who works with pregnant women can assess for those who are high risk by using the FASD Clinician Toolkit developed by ACOG to identify those at risk and to intervene using motivational interviewing techniques to guide these women toward change. According to ACOG, a multicenter study conducted on pregnant women who were engaged in risky drinking behaviors showed 70% reduction of risk in having an alcohol-affected infant six months after engaging in motivational interviewing designed to educate them about the dangers of alcohol during pregnancy.

After determining who would benefit from motivational interviewing for high-risk behaviors during pregnancy, the clinician can spend some time with the client to discuss unsafe behaviors and the effects on the fetus. The interview should not be long and could be incorporated into a routine prenatal visit. The ACOG uses the FRAMES approach to demonstrate how to proceed in the discussion, which include the aspect of feedback, responsibility, advice, menu of options, empathy and self-efficacy.²¹

• **Feedback**

  Provide information and data to the client about the effects of alcohol use on the developing fetus. In some situations, the client may not be aware of the dangers of alcohol consumption during pregnancy.

• **Responsibility**
The client needs to be made aware that she is responsible for herself and the health of her baby and it is up to her to make a choice about using alcohol while pregnant.

- **Advice**
  
  After asking permission, the provider advises the client about what she can do to avoid alcohol and the positive effects that can happen when she makes healthy choices.

- **Menu of Options**
  
  The client receives a list of options to consider for changing her risky behavior or for how to find other alternatives to using alcohol when it is used as a coping strategy.

- **Empathy**
  
  Throughout the exchange, the provider conveys a sense of empathy and understanding for the client, recognizing the difficulties in making a change.

- **Self-efficacy**
  
  The provider helps the client to become more confident in herself by taking charge of her health and knowing she is taking better care of her unborn baby. By promoting self-efficacy, the client may be more likely to commit to the change and maintain healthy behaviors through the rest of her pregnancy.

If the pregnant woman is attempting to make changes but is unable to carry out the work, the clinician should explore these reasons with her
to determine if there are other methods of achieving the same goal that she could implement more easily. If the woman is unwilling to change, the clinician should continue to work with her through motivational interviewing to come up with solutions for change, and making referrals to other professionals as needed.

Summary

Effective therapies for substance use in pregnancy tend to be limited, and primarily involve behavioral counseling. Brief interventions, in particular those that utilize motivational interviewing, have been shown to reduce prenatal exposure to harmful substances. Motivational incentives combined with addiction treatment are particularly promising strategies to engage women in prenatal care and counseling for a substance use and addiction disorder. Many clinicians witness the personal situations of clients and their families and often feel powerless to help. A case study was provided that elucidated the devastating effect on substance use during pregnancy to the mother and to the developing child exposed in utero and after birth.

A significant number of women use one or more substances illicitly, socially, or by prescription during the course of a pregnancy. Health professionals should be screening for mother and fetal exposure to harmful substances during prenatal visits pregnancy. It is the healthcare professional’s role and responsibility to watch for unvoiced needs of prenatal patients. Health professionals should anticipate there would be shame and fear felt by the expectant mother who may already be living with a sense of stigma, guilt and remorse for using substances. Regular reevaluation of the expectant mother’s level of
knowledge, motivation, need for services, and any issues or problems that have developed during the term of her pregnancy should occur with the goal of guiding the patient through a healthy pregnancy.


