

**THE EFFECTS OF MATERNAL SUBSTANCE USE ON GESTATIONAL
DEVELOPMENT AND NEONATES**

Honors Thesis

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Kelly McElligott

Paula Burnett DNP, RN, CNE
Faculty Advisor
Department of Nursing

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Abstract

This paper will focus on the effects of maternal substance use on the gestational development of neonates. The research for this paper will be gathered through a systematic review of the literature, which will include both quantitative and qualitative peer-reviewed articles published within the last six years. The articles will be gathered using databases including CINAHL and EBSCO. The research will include many substances that can have an effect on gestational development including alcohol, cannabis, amphetamines and opioids. The articles will not be limited to a specific maternal age range or ethnic or racial background, but rather all of the articles will include women who used substances at any point during their pregnancies. The demographics of the women and their socioeconomic status will be taken into consideration when analyzing the outcomes of the fetuses. For the purposes of this article, there will be a zero tolerance of substance use allowed during pregnancy and any use above zero would be considered abuse. The research will look into the roles of the women, their existing families and the physicians. The research will also explore the relationship between previous substance use and use during pregnancy. Some current research supports that there is a definite risk in healthy development of a fetus when substance use occurs during pregnancy. There are many outside factors, such as marital status, socioeconomic status and social class, that play a role in the resources available as well as the treatment provided to these women and fetuses. The goal of this study is to spread awareness of the effects of substance use during pregnancy and to help not only health care providers, but also women become more educated in the area, and therefore make more knowledgeable choices.

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Introduction

Fetal development is an extremely delicate process that has been experienced by families all over the world since the start of time. For nine straight months, the female acts as the sole provider in sharing all of her body's resources to fuel the fetus to grow into a healthy baby. There are many factors that contribute to the ongoing dispute on substance safety during pregnancy, and a major issue is physicians. According to research, "approximately 1-3% of all children born in the U.S. are affected by alcohol." (Truong, Reifsnider, Mayorga & Spitler, 2012). Unfortunately, not all doctors agree that substance use must be completely stopped during all three trimesters of pregnancy, and believe that in moderation substance use, especially alcohol, is tolerable by the fetus. However, countless trials and research articles beg to differ and support the idea that the safest pregnancy is one that abstains from all substance use. In addition to the support from physicians to use substances in moderation, there are currently more substances that are becoming legal in various countries, making substances more easily accessible to the general public.

Background/Significance

Substance abuse during pregnancy profoundly impacts the healthy development of the unborn child. Despite known knowledge about the long-term effects that substances cause on gestation and neonates, there are providers and parents that refuse to believe all substances are harmful and advise mothers that limited substance use during pregnancy is safe. A study found that even, "consumption of 1-2 drinks/week," contributes to the risk of delivering a baby preterm. (Truong et al., 2012). With the increase in substance availability and ongoing debate on their legal status, this issue is

going to become even more prevalent in generations to come. When mothers make the decision to continue or begin using substances during pregnancy, they put their fetus and neonate in grave danger. According to Truong, when a mother drinks, she puts her child at risk for developing fetal alcohol syndrome, an irreversible condition that contributes to cognitive and behavioral delays for the duration of the child's life. In addition, when substances are used during gestation the fetus is at increased risk to be born prematurely, affecting the chance of survival, as well as being born with a low birth weight, affecting the overall growth and development. (Truong et al., 2012).

Age is another factor to consider when looking into maternal substance use. According to a study, "the normative timing of pregnancy in the U.S. is for women ages 20-34." (Meschke, Holl & Messelt, 2012). During this time frame, it is important to look at the whole picture of the mother's life. Demographics play a large role in a mother's substance use during pregnancy. It is more common for a woman who is unmarried and pregnant to experience depression-like symptoms and turn to substance use. On top of that, it may be harder for women who are single or who do not have the financial means to reach out to a rehabilitation program to seek help. It is important to look at the big picture and see in what ways maternal substance use can be decreased if not stopped.

Aim of Study

The purpose of conducting this research was to look into the misconceptions of maternal substance use during pregnancy and see where the communication of the full effects is inadequate. There are far too many infants born withdrawing from countless substances and not enough resources available for mothers. Research has supported that women of varying ages who become pregnant continue to use and abuse substances

throughout their pregnancies. It is clear that there is a significant lack of communication in terms of physicians and patients and the resources available to help them deliver a healthier baby.

Methods

A systematic review of the literature was the method used to look further into the effects of substance use during pregnancy on fetal development. I have used the database CINAHL and EBSCO as my main sources of gathering articles to examine. The criteria I am using when selecting my data is only peer-reviewed articles that have been published within the last 6 years (2010-2016). My articles are all about women who are using substances while pregnant and look into the different demographics that played a role in their substance use. The articles include articles published all over the world; I did not choose to narrow my search to a specific region. I looked for articles that included both qualitative and quantitative methods of data collection. My keywords were: maternal substance use or abuse, neonates, pregnancy and development. I composed a flow map included in Appendix A where I specifically narrow down my research articles by process of elimination in choosing which articles best fit my topic of research. There was no specific exclusion criteria, my articles all pertain to women because only females can become pregnant and then experience the ramifications of substance use and pregnancy. Some articles discussed how a woman's relationship status played a role in whether or not they engaged in substance use while pregnant. I did not look into a specific age range or race. I left my research open to get a look at women of all ages I all different cultures.

Results

After reviewing the literature, many common themes arose about maternal substance use and the effects on gestational age and neonates. Eight articles that fit the parameters of the research topic and each touched upon different aspects of maternal substance use during pregnancy were used as the basis of this systemic review of the literature. The first study looked at urine samples of 690 Danish women in various age groups at their 12-week ultrasound visit and tested to see if any substances were being used. The urine tests were spread out between 8 hospitals to assess different populations of people. To the surprise of researchers, 3.6% of the women tested positive on their initial urine test, and then again on a repeated test. Initially, the researchers were predicting that 1-3% of the pregnant women would test positive for substances in their urine, showing just how underestimated this issue is. Further, of the group that tested positive for substance use, 88.4% tested positive for opiate use. The study also brought to light a very important theme that just because a woman receiving prenatal care does not appear to be using substances, all women should be tested during their prenatal visits. Health care providers should not just assume women are abstaining from substances, because it is clear there are more women than predicted using. (Rausgaard, Ibsen, Jørgensen, Lamont & Ravn. 2014).

An additional study with a similar theme set out to look at the incidence of babies born with neonatal abstinence syndrome (NAS) as well as the number of babies born exposed to narcotic use in Ontario, Canada. The study was conducted in 2010, and during that time the number of maternal narcotic users went from 8.4% to 17.2%, showing just how quickly the number of maternal substances users is rising. Of the 482

live births looked at in this study, 61 of the babies were born to mothers who exposed them to substances during gestation. In this study, many of the mothers who used during pregnancy were seen to use the substances in a binging pattern. A common theme found through the study was how mothers who used narcotics during pregnancy were more likely to deliver a premature baby. Premature delivery requires a longer hospital stay, adding more stress to the mother and her family. Mothers who engaged in narcotic use were also more likely to use alcohol and other substances as well. Babies who are born addicted to substances experience withdrawal symptoms and have a much harder beginning of life. The babies often experience hyperirritability and have trouble consoling themselves. As the drug use among individuals rises, health care providers are noticing a domino effect in the number of babies exposed to substances during gestation. More and more mothers are testing positive for drug use at prenatal visits, or if missed, more babies are born preterm experiencing NAS. (Kelly et al., 2011).

Continuing on with the effects of substance use during gestation, the next study looked into one of the more serious side effects these neonates withstand: low birth weights. The study was a systematic review of the literature that sought out whether or not there is a clear relationship between maternal binge drinking and preterm births as well as low birth weight infants born in the United States. A common issue fetuses exposed to alcohol experience is FAS or fetal alcohol syndrome. This is a serious lifelong developmental issue that the child will have to live with for the rest of their lives. Some mothers either do not believe this is caused by drinking during gestation, or they believe it is irreversible: both of those ideals being false. Even if the child is born without FAS, it is likely that the infant will have serious cognitive and behavioral issues.

The research found that alcohol consumed at any point throughout the pregnancy showed effects to the fetus, especially preterm birth. Even women who engaged in 1-2 drinks per week saw adverse effects to their infant. The issue this study brought about is the lack of knowledge and communication in the causes and prevention of preterm and low birth weight infants, so the numbers continue to rise. The study went on to look at different demographics and looked into women of various races, ethnicities and ages, and still the same results were found. (Truong, Reifsnider, Mayorga & Spitler, 2012).

A common misconception that researchers were curious about was the age range of mothers who were more likely to use substances during pregnancy. It is commonly assumed that younger mothers would be the majority of mothers giving birth to children exposed to substances, but this next study went on to explain that age is but a number when it comes to substance use. Maternal substance use during gestation was seen across the board in terms of maternal age. The study went on to look at what predisposing factors could lead a mother to drink such as history of alcohol abuse, depression and being unmarried to name a few. The study found that although teen pregnancies seem to have the most predisposing factors against them, there are more women, particularly 35 years and up, who engage in substance use during pregnancy. As discussed in the previous study, alcohol consumption during pregnancy can lead to serious effects on the fetus, commonly seen as FASD or fetal alcohol spectrum disorders, more seriously FAS. Not only will the child have serious developmental delays, the hospital bills and care for the child will be much more strenuous and expensive for the mother. (Meschke, Holl & Messelt, 2012).

A different study looked into just what services are available for women who are seeking treatment for their substance use during their pregnancies and just how easily accessible the services are. This study focused more on the demographics of women who were using substances during their pregnancies and the challenges these mothers faced when seeking help. The case study included interviews not only with mothers, but also with child protection service workers. Of the twenty-two women interviewed, only one used heroin exclusively, the others reported being polydrug users. Also, of this group, the women shared that the majority of their pregnancies were not planned. Unplanned pregnancies and substance use, in this study, seemed to go hand in hand. Along with unplanned pregnancies, the research found that women who lived unstable lives, such as being victim to domestic abuse, also saw an increase in substance use during gestation. There was also a high risk of repeated pregnancies where substance use was an issue. The study found that a good portion of the women included in the study had either been exposed to child protective services as a child or had a previous child looked into by the system. The relationship of women who have multiple pregnancies while using substances is a frightening realization, because clearly there is a gap in the system. Child service agencies observe the maternal substance use through routine urine tests and checkups, but it is evident that this is not enough. Many cases where child services are involved include multiple children born to the same mother repeatedly engaging in substance use. Since most child service agencies only follow through with the mother until the infant is twelve months old, it is suggested that the watch period needs to be extended to prevent these repeat offenders. (Tsantefski, Humphreys & Jackson. 2013).

Another very common theme in the literature was looking at the comparison between withdrawal medications for maternal substance users and which medications were safest for the fetus. The medications looked at were buprenorphine and methadone in place of opiate substances. A retrospective audit completed on mothers seeking help for their substance use during gestation compared the end results and neonatal withdrawal periods of mothers who sought methadone or buprenorphine from a prescriber instead of continuing with higher risk drugs. The study found that even with the switch to methadone or buprenorphine, just under half of the infants faced at least one complication after delivery. The complications faced included infection, jaundice, small for gestational age, low birth weight, poor feedings and respiratory distress syndrome. The other half of the infants still faced NAS, with two infants being stillborn. The study found that even mothers who switch to methadone or buprenorphine are going to have infants that experience withdrawal periods on top of numerous complications, however methadone and buprenorphine can at least be given in controlled doses and monitored by a licensed prescriber. The outcomes for these neonates are better if the mother seeks antenatal care and switches to a safer substance, but ultimately even these controlled substances are not safe for the fetus. (Blandthorn, Forster & Love, 2010).

In a similar study, methadone and buprenorphine were again looked at in terms of their safety and effectiveness on fetal development and the presence of NAS, but the research was conducted as a literature review rather than a trial. The article discussed how any prescriber of a substance to a pregnant woman should be conscious of the risk to benefit ratio. Since methadone and buprenorphine both cross the placenta the fetus is at risk for adverse reactions to the drugs, however it is seen as a safer bet than allowing the

mother to continue using opiates. This study went on to discuss which approach is safer for the fetus, seeing as methadone is an older more widely prescribed medication over buprenorphine. After reviewing literature that compared non-stress tests and fetal heart rates of mothers using both drugs, the results were interesting. The research found that more fetuses actually experienced a decrease in motor activity during gestation and had comparably lower heart and respiratory rates compared to those exposed to buprenorphine. Further, the research found in some instances, not all, neonates experienced a shorter withdrawal period when exposed to buprenorphine versus methadone. Further research has to be conducted to get a better representation of the effects of buprenorphine since methadone has been prescribed for a much longer time. The research stresses that although methadone and buprenorphine suppress the urge to use opiates, they are not a cure for addiction and still have adverse affects on the fetus. (Jones, Finnegan & Kaltenbach, 2012).

In a final study, literature regarding maternal and neonatal outcomes using specifically buprenorphine was researched. The information considered for the study included both published articles and clinical trials conducted. The article looked into buprenorphine alone because other research has suggested a shorter period of NAS when compared to methadone or opiates. This research continued to support the idea that buprenorphine causes a shorter period of NAS in comparison to methadone, and less motor functions were suppressed. Looking further into the long-term effects a neonate might face, this research looked into the transference of buprenorphine into breast milk. The research found that even though the buprenorphine is able to pass to the breast milk, it passes in such low concentrations leading researchers to support the idea that, thus far,

there are no side effects noted in mothers who breast feed while continuing to use buprenorphine. (Jones et al., 2012)

Discussion

Countless ideas and themes were relevant across the board in terms of the effects of maternal substance use on gestation and further neonatal development. Common demographic information about the women who were more likely to use substances during pregnancy included but was not limited to marital status, employment status, upbringing, and in some cases age. Women who were single and tended to lack a support system were seen to be under more stress and turned to substance use. In addition, women who did not have jobs and were under financial stress were less likely to seek antenatal care and their substance use went unnoticed until birth. These factors all contribute to the number of women using substances and consequently the number of fetuses and neonates affected.

Research on the effects of substance use on fetal development in all cases studied concluded there are adverse effects any time substances are used during gestation. Even in moderation, fetal development runs the risk of being altered. Substances not only effect how the fetus grows and develops, but it affects the safety of the mother and the pregnancy. Many illicit drugs lead to hypertension, which is a huge component in placental issues and early delivery. As discussed in the results, preterm fetuses are faced with many growth and development risks due to the lack of time in the mother.

Even mothers who sought treatment for their substance use were faced with the reality that even though some of the substances that can be prescribed, such as methadone and buprenorphine, do not come without risks as well. Many neonates still experienced

withdrawal and growth issues, although much less and of shorter duration than those exposed to opiates. The safest way to ensure the least amount of harm to the fetus is to abstain from substance use throughout the entire pregnancy.

Conclusion/Recommendation

The information examined in this study is important for health care providers and the public to understand because research is continuing to see an increase in the number of maternal substance users, leading to various adverse effects on gestational development. The topic is one that has been overlooked for many years and still carries some information that is contradicted by physicians. Research goes to support that even drinking alcohol in moderation leads to serious developmental and behavioral delays. On top of that, use of substances during pregnancies lead to a plethora of issues for the neonate to face. Numerous studies looked into the use of methadone and buprenorphine as treatment options for mothers, and found not only do these substances not cure opioid addiction, but also they are not completely safe for the fetus either. More awareness needs to be brought upon the issue of substance use during pregnancy to reduce the number of infants bore experiencing withdrawal.

From a nursing and public health perspective, further research should be done to determine a safer way for mothers and infants to withdraw from substances. Currently, the method of controlled withdrawal during pregnancy is not completely safe for the fetus, and the infant still experiences withdrawal symptoms. Also, there needs to be clear communication between health care providers and women on the parameters of safe substance use during pregnancy. Despite countless studies, some health care providers still support the idea that limited substance use in pregnancy is safe. If communication is

not clear, there will not be a drastic decrease in substance use during pregnancy. Further recommendations should also include looking into the care women receive before and after the pregnancy. Research suggests checkups through child services last for about twelve months in these cases, and it is not uncommon to see the same women use substances again during future pregnancies. More investigation needs to be done for all women seeking prenatal care, and more extensive testing needs to be done so the fetus can receive treatment as soon as substance use is suspected. Health insurance policies and prenatal clinics also need to look into their requirements for visits so that women with less financial support can seek treatment during pregnancy.

Appendix A

- Blandthorn, J., Forster, D. A., & Love, V. (2011). Neonatal and maternal outcomes following maternal use of buprenorphine or methadone during pregnancy: Findings of a retrospective audit. *Women and Birth, 24*(1), 32-39.
doi:10.1016/j.wombi.2010.07.001
- Jones, H. E., Finnegan, L. P., & Kaltenbach, K. (2012). Methadone and buprenorphine for the management of opioid dependence in pregnancy. *Drugs, 72*(6), 747-757.
doi:10.2165/11632820-000000000-00000
- Jones, H. E., Heil, S. H., Baewert, A., Arria, A. M., Kaltenbach, K., Martin, P. R., ... Fischer, G. (2012). Buprenorphine treatment of opioid-dependent pregnant women: a comprehensive review. *Addiction, 107*, 5-27. doi:10.1111/j.1360-0443.2012.04035.
- Kelly, L., Dooley, J., Cromarty, H., Minty, B., Morgan, A., Madden, S., Hopman, W. (2011). Narcotic-exposed neonates in a first nations population in northwestern Ontario. *Canadian Family Physician, 57*, 441-447.
www.cfp.ca/content/57/11/e441.full.pdf+html
- Meschke, L. L., Holl, J., Messelt, S. (2012). Older not wiser: risk of prenatal alcohol use by maternal age. *Matern Child Health J, 17*, 147-155. doi:10.1007/s10995-012-0953-7
- Rausgaard, N. L., Ibsen, I. O., Jørgensen, J. S., Lamont, R. F., & Ravn, P. (2014). Prevalence of substance abuse in pregnancy among Danish women. *Acta Obstetricia Et Gynecologica Scandinavica, 94*(2), 215-219.
doi:10.1111/aogs.12528

Truong, K. D., Reifsnider, O. S., Mayorga, M. E., Spitler, H. (2012). Estimated number of preterm births and low birth weight children born in the United States due to maternal binge drinking. *Matern Child Health J, 17*, 677-688.

doi:10.1007/s10995-012-1048-1

Tsantefski, M., & Humphreys, C., & Jackson, A. (2013). Infant risk and safety in the context of maternal substance use. *Children and Youth Services Review, 47*, 10-

17. <http://dx.doi.org/10.1016/j.chilyouth.2013.10.021>

Appendix B

Flow Map:

Keywords: maternal substance use or abuse pregnancy

Initial search 1015 articles

Criteria: Peer Reviewed

793 articles

Criteria: Published between 2010 – 2016

224 Articles

42 Abstracts meet study criteria

42 read and 20 articles were relative and useful
8 have been thoroughly reviewed at this point

Appendix C

Citation Author(s)/ Year	Design	Target Population, Sample Size, Location	Type Intervention	Outcomes/Aims	Results	Limitations	Maternal Substance Use and Pregnancy and/or Neonatal Development	Nursing Implications/Gaps
Blandthorn, J., Forster, D. A., & Love, V. (2011). Neonatal and maternal outcomes following maternal use of buprenorphine or methadone during pregnancy: Findings of a retrospective audit. <i>Women and Birth, 24</i> (1), 32-39. doi:10.1016/j.wombi.2010.07.001	Quantitative	96 Women, average age – 29 years old, Royal Women’s Hospital	Data collected included: demographic characteristics; gestation at booking; number of antenatal visits; labour and birth outcomes; recorded drug use; neonatal outcomes; and infant withdrawal outcomes.	The outcome was that there is definitely a rise in poly-substance use among pregnant women. The aim is to better educate and control this situation.	Further prospective research is required to explore whether factors such as specific substances are more likely to be associated with infant withdrawal.	Study was conducted at one hospital making the data slightly biased. A wider range of data would have helped.	Neonatal outcomes are better for infants of substance using mothers if the women have been engaged in antenatal care	Educating maternity care providers as to the risks of substance use in pregnancy is important. Eighteen percent of the women in this audit were prescribed pharmacotherapy and attended low risk pregnancy clinics. Given the prevalence of poly-drug use and the likely under-reporting of this in women prescribed pharmacotherapy, it is crucial for staff to ask women directly about substance use.
Jones, H. E., Finnegan, L. P., & Kaltenbach, K. (2012). Methadone and buprenorphine for the management of opioid dependence in pregnancy. <i>Drugs, 72</i> (6), 747-757. doi:10.2165/11632820-000000000-00000	Qualitative	Women engaging in substance use, primarily opioids	Findings are included from reviewing comparative studies involving methadone and buprenorphine use in replacement of opioids during gestation.	The outcomes and aim was to look at the difference in the duration of withdrawal periods for neonates exposed to methadone or buprenorphine versus opioids.	The results supported the idea that methadone and buprenorphine are safer for a neonate.	The study did not include a clinical trial; rather it looked at published literature. Another clinical trial to compare would be helpful	The research showed that neonates suffer much less withdrawal periods when on buprenorphine and methadone in replacement of opioids. The duration of NAS was much shorter, and the neonates suffered less motor function abnormalities.	The implications from this study would be to continue to push and educate women who are using substances such as opioids during pregnancy seek help and gain treatment. The treatment with these substances provides a much safer outcome for the fetus.

<p>Jones, H. E., Heil, S. H., Baewert, A., Arria, A. M., Kaltenbach, K., Martin, P. R., ... Fischer, G. (2012). Buprenorphine treatment of opioid-dependent pregnant women: a comprehensive review. <i>Addiction, 107</i>, 5-27. doi:10.1111/j.13600443.2012.04035.x</p>	Qualitative	44 non-randomized studies involving the use of buprenorphine	The paper reviews published literature involving clinical trials looking at the outcomes of buprenorphine use	The outcome and aim was to compare outcomes of maternal treatment using buprenorphine	The results indicate that the use of buprenorphine is in fact safer for the mother and the fetus and that buprenorphine is safer than methadone.	The study was limited in the aspect that there was not another method compared in which the mother and fetus were free of adverse effects	The research supported that buprenorphine is going to be a better form of withdrawal medication for mothers using opioids during pregnancy because research support sit has less side effects than methadone, the more commonly accepted form of drug therapy.	The implications would be to continue to look into this method of drug therapy and get the word out to increase prescriber awareness and make this method more widely used since it is clinically proven to be more effective and less harmful than popular therapies.
<p>Kelly, L., Dooley, J., Cromarty, H., Minty, B., Morgan, A., Madden, S., Hopman, W. (2011). Narcotic-exposed neonates in a first nations population in northwestern Ontario. <i>Canadian Family Physician, 57</i>, 441-447. www.cfp.ca/content/57/11/e441.full.pdf+html</p>	Retrospective Chart Review	Mothers and neonates for 482 live births during January 2009 to June 2010 in Ontario, Canada.	The research includes data collected through summaries of patients' charts and prenatal clinics.	The outcome and aim of the study is the document the incidence of neonatal abstinence syndrome and the rising rates of narcotic use during pregnancy.	The study found that the incidence of narcotic use during pregnancy has greatly increased from 8.4% to 17.2% during the time of the study alone. The study also looked at the end effects of substance use during gestation and the number of infants born with NAS.	The population of women limited the study; only 482 pregnancies were looked into in one population of people. The study was also limited in the fact that data was collected on a basis of trust and by word of mouth. It is hard to make conclusions that stick when people can lie about their substance use and symptoms.	The study supported that there is a serious jump in the number of women engaging in substance use while pregnant and that there need to be clear interventions to decrease this occurrence. The study also came to the conclusion that more needs to be done within communities to help this population.	The implications would be to look further into this area and to continue to work on community-based initiatives to facilitate these patients in receiving care. Also, there should be further studies into was healthcare providers can assist in slowing down the progression of maternal substance use during pregnancy.
<p>Meschke, L. L., Holl, J., Messelt, S. (2012). Older not wiser: risk of prenatal alcohol use by maternal age. <i>Matern Child Health J, 17</i>, 147-155. doi:10.1007/s10995-0120953-7</p>	Quantitative	9,004 women from north central U.S who were pregnant from all ages who engaged	Descriptive and logistic regression analyses were completed on surveys completed at prenatal visits	The descriptive analyses were done to examine age group differences in the occurrence of prenatal alcohol use and identify predisposing risk factors if any	The study concluded that women of all ages engaged in drinking, there was no specific age range that had more or less occurrences. The study did find however, that	The limitations this study faces are the fact that it is limited in number of participants and the scope of the survey. The study suggested a qualitative study may have	The study supports the idea that substance use is evident among all pregnant women of all ages. The study showed that alcohol use is in fact high during pregnancy and the most accurate was to assume if a women will engage in prenatal alcohol use	Nursing implications would include looking into the predisposing factors and clearly passing along education to women in birthing years about the important to abstain from alcohol during their pregnancy. The study would also benefit, as stated, from further research in a different method. Further more extensive research would benefit the data

		in none to frequent alcohol use during gestation.			there is more weight placed on socioeconomic factors than age when looking at risk factors for drinking alcohol while pregnant.	revealed more information regarding predisposing risk factors. The survey was also somewhat brief, based on nature of the study the brevity worked to benefit the number of participants.	is by predisposing risk facts over age.	found.
Rausgaard, N. L., Ibsen, I. O., Jørgensen, J. S., Lamont, R. F., & Ravn, P. (2014). Prevalence of substance abuse in pregnancy among Danish women. <i>Acta Obstetricia Et Gynecologica Scandinavica Acta Obstet Gynecol Scand</i> , 94(2), 215-219. doi:10.1111/aogs.12528	Quantitative	690 pregnant women in Denmark	Urinary screening for substance abuse took place at haphazardly chosen dates between January and May 2013, at the time of the 12-week ultrasound scan, voluntarily and anonymously, in eight hospital antenatal clinics in the Region of Southern Denmark	The outcome was that even though Denmark provides free health care there is a lack in report of women who use substances while pregnant. This leads researchers to believe there needs to be more screenings done at prenatal visits.	This study, which we look upon as a pilot study, found an overall prevalence of substance abuse among pregnant women of 3.6% and that the age of pregnant women with confirmed positive samples was not significantly different from the age of the entire cohort	Limitations included that the women were to remain anonymous so it was difficult for researchers to get the most information possible.	Of 690 pregnant women who attended for ultrasound scan, 608 (88.1%) provided a urine sample. A total of 42 urine samples were positive on AccuSign (33 for opiates; four for cannabis; two for benzodiazepines; two for amphetamine; and one for methamphetamine) No one tested positive for more than one substance. Of screened samples positive for opiates and cannabis, 19 of 33 were subsequently diagnosed as positive for opiates and three of four for cannabis.	Accordingly, we would encourage an increased focus on substance abuse particularly among pregnant women without apparent indicators of abuse. A recent review from our group demonstrated that no biological sample has the ability to identify all substance users, and each sample has different advantages and disadvantages. Accordingly, we concluded that continuous maternal self-reporting of abuse and repeated urine testing during pregnancy provides the most accurate record of substance abuse
Truong, K. D., Reifsnider, O. S., Mayorga, M. E., Spitzer, H. (2012). Estimated number of preterm births and low birth weight children born in the United States due to maternal binge drinking. <i>Matern Child Health J</i> , 17, 677-688. doi:10.1007/s10995-012-1048-1	Qualitative	American sociodemographic groups in 2008	A stimulation model was created to estimate the number of preterm births and low birth weight babies were born in the United States in 2008	The outcome of the study was to estimate the burden of maternal binge drinking and the effect it had on delivery timing and neonatal birth weight.	The results of the study were clear and supportive of the aim. There was a clear relationship between alcohol consumption and low birth weight and preterm delivery. The drinking did not	The limitation of this study was the fact that it was a stimulation model. Since binge drinking during pregnancy is very underreported it is hard to stimulate an	The study supports the ideas that substance use during pregnancy has grave effects on the fetus. There was a clear relationship between alcohol consumption and birth issues, the major one being growth and development impairments.	This stimulation study shows that there needs to be more concise research conducted on this topic. More reports need to be taken base on maternal substance use so that research can be more accurate. If research is more accurate there will be more validity and health care providers may take this topic more seriously.

					have to be in binge fashion to support the data, the study found that even moderate drinking increased the chances of experiencing these difficulties.	accurate representation of the facts.		
Tsantefski, M., & Humphreys, C., & Jackson, A. (2013). <i>Infant risk and safety in the context of maternal substance use</i> . Australia: Elsevier.	Qualitative	Twenty women in Australia accessing a specialist alcohol and other drug obstetric service	Data sources included structured interviews with counselors and child protection workers and semi-structured interviews with mothers	Despite extensive activity by the Women's ADS in the perinatal period, engagement with services tended to be superficial and not well sustained: Women were reluctant to keep appointments made on their behalf and service providers failed to provide assertive outreach. Support to women with neonates at imminent risk of removal was largely confined to residential parenting assessment and skill development services, which provided minimal long-term support.	The present study demonstrates accurate assessment of at-risk substance-exposed infants by a specialist AOD obstetric provider and supports research identifying a subgroup of infants at increased risk of separation from mothers. The longitudinal method illustrates that practice is hamstrung by reliance on statutory services to monitor and intervene and that the current response does not lead to resolution of the issues that bring infants to the attention of child protection.	Limitations would include the sample size, since only twenty women were looked at it is a small sample size to directly relate to the whole population	The perinatal period was a time of optimism and concerted effort by mothers and service providers. At this time, women were likely to share the professional perception of risk and to address risk factors which could jeopardize care of the infant: drug use and domestic violence. While some disputed the need for mandated intervention, women involved with CP theoretically acknowledged the important role the service plays in protecting women and infants, generally accepted the presence of significant family problems and understood why notifications were made. Most women reduced or ceased drug use, and, as directed by CP, five women agreed to separate from, or not to return to, relationships with violent men.	If we are to restore the client's place in human service intervention, and uphold parental rights to care for infants and the rights of infants to remain safely with parents, scarce resources need to be targeted to the most vulnerable mother/infant dyads, men need to be engaged as fathers and a relationship with a trusted professional needs to be established to ensure effective child welfare practice.