



Pregnancy and Drug Addiction in Rural Areas

Senior Project

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Abstract

There is much research on the misuse of drugs and the lasting effects that these actions may leave. However, there is less of a look into the substance abuse in rural communities, especially for those who are pregnant. This research paper looks to investigate the information that is present on the topic of substance abuse amongst those who are pregnant particularly within rural communities. Information was gathered using peer reviewed literature to further understand the prevalence of this problem as well as the fetal outcomes that may arise from the use of substances while pregnant. A thorough analysis of the literature helps understand the main concerns and provides a baseline of understanding the lasting impacts of substance abuse during pregnancy. Post literature review, this paper provides a breakdown of the research and information present on this topic.

Pregnancy and Drug Addiction in Rural Areas

As the opioid crisis continues, the steady increase in substance abuse of any kind is also evident, even in those who are pregnant. The misuse of drugs leaves a lasting impact on both the person who is pregnant, and the fetus itself. This may set the fetus back from proper growth and development in the womb (National Institute on Drug Abuse, 2021). The improper development initially, can lead to problems later on in life that are permanent. The effects on the person who is pregnant can also be permanent and life changing. This research paper looks to dive deeper into the topic of drug addiction and pregnancy seen in rural areas.

What is Drug Addiction?

Drug addiction, also known as substance abuse disorder, is a title commonly used in today's society, however, drug addiction is defined as being a chronic (lasting at least one year) condition that is distinguished as a compulsion. This compulsion is difficult to control even though the repercussions are harmful with long term use (National Institute on Drug Abuse, 2018). Substance abuse can be classified as a cycle which in turn may cause the drug addicted person to go into remission that may be followed by a relapse (National Institute on Drug Abuse, 2018). Due to the mere fact that drug addiction is a chronic condition, relapse can occur at any period in life. Common triggers that may lead to an addict to relapse include depression, exhaustion, isolation, stress, and even big life events that may cause a noticeable change (American Addiction Centers, 2021).

Drugs and the Brain

The use of drugs can affect the central nervous system (CNS) which includes structures such as the spinal cord and the brain itself. The CNS plays a role in many

functions of the body and is the main translator of the signals being given off of the body (National Institute on Drug Abuse, 2018). The brain controls both voluntary and involuntary movements that your body makes. Voluntary movements include playing an instrument, lifting a weight, kicking a ball, and other skilled movements that are made with skeletal muscles. Involuntary movements can include breathing, digestion, control of your muscles, and other actions that your body successfully does without requiring thought to perform. On the other hand, the spinal cord can be seen as the “road” that these signals travel on to get to the brain to further be interpreted (National Institute on Drug Abuse, 2018).

The CNS, specifically the brain, is composed of cells called neurons that help control the flow of information to effectively reach its destination. Neurons are tasked with sending, receiving, and processing “messages”, however, the use of some drugs may interfere with that process (National Institute on Drug Abuse, 2020). Drugs such as marijuana and heroin mock the makeup of neurotransmitters and therefore activate a neuron. Due to the fact that these chemicals are not a part of the natural makeup of the CNS, these cause atypical messages to be sent (National Institute on Drug Abuse, 2020). Amphetamine or cocaine, on the other hand, causes a rapid fire of the neurotransmitters which in turn sends massive amounts of signals to be sent throughout the body (National Institute on Drug Abuse, 2020).

When using drugs for an extended amount of time, the circuits in the brain are altered, and further leads to addiction. Drugs can cause a feeling of euphoria or an overwhelming sense of happiness and feeling carefree. It is thought that when using substances, the body is overwhelmed with the influx of neurotransmitters that lead to the

feeling of euphoria (National Institute on Drug Abuse, 2020). The body remembers this pleasurable feeling, which in turn, leads to the longing for this euphoric feeling and repeat use of the drug. As time passes, the brain may require larger amounts of the drugs in an attempt to seek that euphoric feeling that was first felt, which is called tolerance (National Institute on Drug Abuse, 2018). As the tolerance of a person grows, the risks of overdose harmful lasting effects from drug use are higher.

Drugs and Pregnancy

Pregnancy lasts around 40 weeks, and these 40 weeks are split into three trimesters. Each trimester is characterized by approximately 13 weeks in which many milestones are met which reinforces the importance of living a healthy life throughout the 40 weeks of pregnancy. During the first trimester the fetus' organs have begun to develop, fatigue is also common in the first trimester (Oneida, 2017). In the second trimester, the sex may be detectable and the fetus will begin to move around (Oneida, 2017). It is important to remember that the fetus is still developing the features necessary for life. Lastly, in the third trimester false contractions (Braxton Hicks) may be felt, the fetus is still developing, at 37 weeks the fetus is considered "preterm", and at 39 weeks the baby is considered full term and fully ready for life outside of the womb (Oneida, 2017).

During pregnancy, the fetus is attached to the placenta through the umbilical cord. Through this attachment, the fetus is able to get all of the necessary nutrients and oxygen to grow and develop. Once the baby is birthed, the umbilical cord is clamped and the baby is no longer receiving the nutrients and oxygen from the placenta (Children's

Hospital of Philadelphia). Once the baby takes its first breath, the lungs then expand and the baby can carry on breathing for itself (Children's Hospital of Philadelphia).

It is estimated that approximately five percent of those who are pregnant use at least one substance that is addictive (National Institute on Drug Abuse, 2021). The ability to identify a substance abuse disorder serves as half of the battle. Timely identification is imperative to prevent the inevitable effects that will occur to the fetus and potentially the one who is pregnant. The use of drugs during pregnancy can result in detrimental effects on the fetus's health that may last a lifetime (National Institute on Drug Abuse, 2021). Many addictive substances are able to travel through the placenta which may eventually reach the fetus (National Institute on Drug Abuse, 2021). Due to the placenta's ability to absorb some substances, it is imperative that the person who is pregnant is cognizant of what is being consumed as it has the potential to travel to the baby as well.

Fetal Outcomes

Neonatal Abstinence Syndrome (NAS)

This condition is defined as the newborn going through withdrawal at birth or within 14 days after birth (National Institute on Drug Abuse, 2021). Withdrawal is defined as the decrease or discontinuation of taking a specific addictive substance. Withdrawal may cause physical, mental, and emotional symptoms that may be harmful (Sharp, 2021). Symptoms of withdrawal vary greatly depending on the substance that was used, however, some symptoms include agitation, nausea, vomiting, seizures, hallucinations, and flu-like symptoms (Sharp, 2021). The length of time that withdrawal may last varies on what type of substance one is withdrawing from and how great their dependence is (Sharp, 2021). The effects of withdrawal can be incredibly unsafe and will

likely be uncomfortable (Sharp, 2021). It is important that those who are planning on withdrawing from any substances seek medical care to help manage any adverse effects that may be experienced.

NAS can occur from the use of opioids, however, the use of alcohol, barbiturates, benzodiazepines, and caffeine during pregnancy can also cause NAS (National Institute on Drug Abuse, 2021). The newborn born with NAS may present with symptoms that include excessive/high pitched crying, abnormal sucking reflex, irritability, rapid breathing, poor feeding, sweating, vomiting, fever, slow weight gain, and irritability (National Institute on Drug Abuse, 2021). The newborn may have life lasting effects from the experience of going through withdrawal. The national rate of NAS in North Carolina in 2018 was 10.5 cases per 1,000 hospital births (HCUP, 2021). This rate is 3.2 cases per 1,000 births higher than the national average (HCUP, 2021).

Fetal Alcohol Spectrum Disorder (FASD)

Consumption of alcohol during pregnancy can negatively impact the developing fetus in the womb. Approximately 20%-30% of those who are pregnant have admitted to drinking alcohol at some point during their pregnancy, usually during the first trimester (NIAA, 2021). About 10% of those who are pregnant reported drinking alcohol in the previous month (NIAA, 2021). Alcohol is a substance that is able to travel to the fetus through the placenta. There is no known amount of alcohol that is considered safe to consume while pregnant and no specific alcohol is more harmful than another (CDC, 2020). It is important for the person who is pregnant to understand that no matter when they drink, it is never too late to stop drinking during pregnancy. The cessation of drinking alcohol at any point throughout the pregnancy can promote positive outcomes as

the fetus' brain develops throughout the whole pregnancy (CDC, 2020). The consumption of alcohol at any point during pregnancy may cause deficits such as: learning disabilities, small head size, abnormal facial features, small for gestational age, speech and language delays, vision or hearing problems, problems with the heart, kidneys, or bones (CDC, 2020).

The lasting effects of FASD last a lifetime, and there is no definitive cure for this. However, early recognition and intervention can improve the quality of life and development of the child (CDC, 2020). The treatment plan put in place will vary depending on each case, and these plans will be altered based on the results shown through follow ups and close monitoring. There are some elements in which give the chance to decrease the severity of the impacts of FASD including early diagnosis (before the age of six), secure household where violence is nonexistent, and close collaboration with the special education and social services offered (CDC, 2020).

General Fetal Outcomes

The misuse of any type of substances (illicit or prescribed drugs, marijuana, nicotine, or alcohol) can result in negative fetal outcomes that may have a lasting impact on the newborn well into their lifetime. Some of these effects include increased risk of stillbirth, increased risk of sudden infant death syndrome (SIDS), birth defects, premature birth, low birth weight, small for gestational age, and fetal demise (National Institute on Drug Abuse, 2021). Newborns who had exposure to alcohol and nicotine beyond the first trimester have an increased risk of SIDS by twelvefold (National Institute on Drug Abuse, 2021). Those who used marijuana while pregnant have a 2.3 times greater risk of stillbirth (National Institute on Drug Abuse, 2021).

Pregnancy, Drugs, and Rural Communities

Rural areas experience a greater incidence of health disparities than urbanized areas.

Rural areas are characterized by a low population density and according to the Census Bureau rural areas are populations, housing, or territories that are not in an area that is classified as urban (2010). A health disparity is defined as a “difference in health status when compared to the population overall” (Rural Health Information Hub, 2019). Some of these disparities include a higher occurrence of disease, increased death rates, decreased life expectancies, and increased rates of pain and suffering (Rural Health Information Hub, 2019). The disparities listed previously are often guided by factors such as limited healthcare access, limited resources, limited financial ability to pay for medical treatment, and limited means of transportation (AMCHP, 2020). The treatment options for those who are pregnant in rural communities often differ from those who are in urban areas (Jumah, 2016). Access to resources for those who live in rural areas was found to be one of the biggest barriers that plays a role in preventing those who are pregnant from being able to seek help for their substance abuse (Jumah, 2016). In rural areas, there often is a massive shortage of providers that are able to prescribe medications to treat substance misuse (Jumah, 2016). For those who are pregnant, living in a rural area, and opioid dependent they showed more interest and utilization of the resources offered if they were strategically placed in an accessible location (Jumah, 2016). Socioeconomic and cultural factors were additional barriers to seeking care in rural communities (Jumah, 2016).

Overall, the effects of substance abuse can last a lifetime especially for those who are pregnant. Not only are these effects seen in the person who is pregnant, the fetus is also largely impacted. It is incredibly important that those who are pregnant and addicted

to substances seek help to prevent and/or minimize the effects on both them and their fetus. There is no specified amount of time in which it is “too late”, and stopping at any time during pregnancy will help the fetus finish out developing the best that they can. For those who are pregnant and living in rural communities, early detection and quality healthcare is the biggest concern. The use/misuse of any substance that is foreign to the body can cause adverse effects on the fetus and the one who is pregnant, and should be confirmed with a provider before use during pregnancy to promote the best outcome possible.

References

- American Addiction Centers. (2021, March 16). *Warning Signs of Relapse: Depression, Stress, and Other Triggers*.
<https://americanaddictioncenters.org/adult-addiction-treatment-programs/signs-of-relapse>
- Association of Maternal & Child Health Programs. (2020, November). *Promoting Access to Care for Women of Reproductive Age with Mental Health and Substance Use disorders in Rural Communities*.
[http://www.amchp.org/Policy-Advocacy/health-reform/resources/SiteAssets/Pages/default/AMCHP%20GHPC%20Rural%20Health%20Issue%20Brief%20\(Final\).pdf](http://www.amchp.org/Policy-Advocacy/health-reform/resources/SiteAssets/Pages/default/AMCHP%20GHPC%20Rural%20Health%20Issue%20Brief%20(Final).pdf)
- Centers for Disease Control. (2020, October). *Fetal Alcohol Spectrum Disorders (FASDs)*. <https://www.cdc.gov/ncbddd/fasd/alcohol-use.html>
- Healthcare Cost and Utilization Project. (2021, March). *HCUP Fast Stats: Neonatal Abstinence Syndrome (NAS) Among Newborn Hospitalizations*. Agency for Healthcare Research and Quality.
<https://www.hcup-us.ahrq.gov/faststats/NASServlet?radio-2=on&location1=NC&characteristic1=01C11&location2=US&characteristic2=01C11&expansionInfoState=hide&dataTablesState=hide&definitionsState=hide&exportState=hide>
- Jumah, N. A. (2016). Rural, Pregnant, and Opioid Dependent: A Systematic Review. *Substance Abuse: Research & Treatment*, 10, 35–41.
<https://doi.org/10.4137/SART.S34547>

National Institute on Alcohol Abuse and Alcoholism. (2021, March). *Fetal Alcohol Exposure*.

<https://www.niaaa.nih.gov/publications/brochures-and-fact-sheets/fetal-alcohol-exposure>

National Institute on Drug Abuse. (2018, June 6). *Understanding Drug Use and Addiction Drug Facts*.

<https://www.drugabuse.gov/publications/drugfacts/understanding-drug-use-addiction>

National Institute on Drug Abuse. (2020, July 10). *Drugs and the Brain*. National Institute on Drug Abuse.

<https://www.drugabuse.gov/publications/drugs-brains-behavior-science-addiction/drugs-brain>

National Institute on Drug Abuse. (2021, April 13). *Substance Use While Pregnant and Breastfeeding*.

<https://www.drugabuse.gov/publications/research-reports/substance-use-in-women/substance-use-while-pregnant-breastfeeding>

National Institutes of Health. (2018, October 1). What are the parts of the nervous system? Eunice Kennedy Shriver National Institute of Child Health and Human Development.

<https://www.nichd.nih.gov/health/topics/neuro/conditioninfo/parts#:~:text=The%20central%20nervous%20system%20is,all%20parts%20of%20the%20body>

Oneida, M., (2017, November 30). *Pregnancy Milestones by Trimester*. Revere Health.

<https://reverehealth.com/live-better/pregnancy-milestones-trimester/>

Rural Health Information Hub. Rural Health Disparities. (2019, April 22).

<https://www.ruralhealthinfo.org/topics/rural-health-disparities>

Sharp, A. (2021, March 16). Drug Withdrawal Symptoms, Timelines, and Treatment.

American Addiction Centers.

<https://americanaddictioncenters.org/withdrawal-timelines-treatments>

Story Map Series. United States Census Bureau.

<https://mtgis-portal.geo.census.gov/arcgis/apps/MapSeries/index.html?appid=49cd4bc9c8eb444ab51218c1d5001ef6>

The Children's Hospital of Philadelphia. (2014, August 24). Blood Circulation in the Fetus and Newborn. Children's Hospital of Philadelphia.

<https://www.chop.edu/conditions-diseases/blood-circulation-fetus-and-newborn#:~:text=Through%20the%20blood%20vessels%20in,mother's%20circulation%20to%20be%20eliminated>