ISSN 2380-3940

WOMEN'S HEALTH
OpenJournal

Openventio
PUBLISHERS

Commentary

Early Intervention and Resources for Expectant Mothers with Substance Use Problems: Service Shortages in the Present Age

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Article Information
Received: September 21st, 2022; **Revised:** October 4th, 2022; **Accepted:** October 14th, 2022; **Published:** October 14th, 2022

Cite this article
Tiburcio NJ, Baker SL. Early intervention and resources for expectant mothers with substance use problems: Service shortages in the present age. *Women Health Open J*. 2022; 8(1): 19-22. doi: 10.17140/WHOJ-8-148

Substance use during pregnancy exposes prenatally unborn children to alcohol and other drugs. Such exposure may cause serious damage to the unborn child, including but not limited to fetal alcohol syndrome (FAS), neonatal abstinence syndrome (NAS), and is devastating in terms of human suffering, not to mention monumental healthcare costs. Expectant mothers should be shown compassion about their addiction and provided early access to resources to improve these outcomes. Punishing them will most likely push them away from the healthcare system and increases stigma.

According to data from the 2017 Healthcare Costs and Utilization Project (HCUP) the cost of a hospital stay for a newborn with NAS was $8,200 in 2017, compared with $1,000 for other newborn hospital stays—more than 8 times the increase in cost. Additionally, the average length of stay for a newborn with NAS was 11-days in 2017, compared with 2-days for other newborn hospital stays—a nearly 6-times increase in length of stay.[1] Sadly, the rate of prescription opioid overdose deaths in the United States increased 351 percent among women from 1999 to 2019.[2]

In addition, a study by the American Academy of Pediatrics (AAP) showed that use of alcohol, barbiturates, and benzodiazepines during pregnancy may inevitably result in infantile withdrawal symptoms at birth.[3] More recently, Gleason et al[4] noted that women with disabilities are more likely to live in poverty, which may make accessing healthcare in a timely manner difficult. Those with physical disabilities also may have difficulty accessing healthcare facilities. Other factors that may increase their health risks are higher rates of smoking, substance use and depression. The coronavirus disease-2019 (COVID-19) pandemic only made matters worse, exacerbating an already precarious situation.[5] These studies suggest that the interrelationship between poverty, substance use disorder and co-occurring disorders is significant enough that special treatment programs simultaneously addressing these issues are indeed warranted. This need is magnified during this age, when COVID has become more the norm than the exception.

Research has demonstrated that substance use disorder screening, early identification and subsequent intervention of substance use, providing access to treatment and resources, will greatly reduce the number of children exposed to in utero addiction and complications and is thus vital during these formation phases. The earlier a woman ceases using alcohol and other drugs during pregnancy the less likely her baby is to be affected by such use and usage should be discussed early in pregnancy; otherwise, mothers are left on their own with a topic that is difficult to talk about and subject to self-denial.[6] The earlier the intervention takes place; the less likely harm is to come upon the fetus (Table 1). It's important to remind women that the leading known cause of birth defects is drinking alcohol during pregnancy.[7]

Substance misuse has such a devastating impact because it is often not identified in its early stages.[8] Additionally, educating women of childbearing age on the dangers of specific drugs of abuse and usage patterns during pregnancy, will inevitably help reduce the numbers of infants exposed. Prenatal use of some drugs, including opioids, may cause a withdrawal syndrome, NAS. Babies with NAS are at greater risk of seizures, respiratory problems, feeding difficulties, low birth weight, and even death.

The State of the Science

Research from the National Institute on Drug Abuse (NIDA)[9] has established the value of evidence-based treatments for pregnant women (and their babies), including medications. For example, no medications have been Food and Drug Administration (FDA)-approved to treat opioid dependence in pregnant women. Metha-

Women Health Open J. 2022; 8(1): 19-22. doi: 10.17140/WHOJ-8-148

Table 1. *Timing and the Effects of Drugs During Pregnancy*

Time Frame	Possible Drug* Effects	Status of the Fetus
Within 20 days after fertilization	An all-or-nothing effect (death of the fetus or no effect at all)	The fetus is highly resistant to birth defects.
3-8 weeks after fertilization	• Possibly no effect • A miscarriage • An obvious birth defect • A permanent but subtle defect that is noticed only later in life • An increased risk of childhood cancer, as may result from giving the mother radioactive iodine (to treat thyroid cancer) or using a radioactive substance in an imaging test (such as radionuclide scanning)	The fetus's organs are developing, making the fetus particularly vulnerable to birth defects.
2nd and 3rd trimesters	• Changes in the growth and function of nor-mally formed organs and tissue • Unlikely to cause obvious birth defects • Unknown long-term effects	Organ development is complete.

** Only certain drugs are likely to have harmful effects.*
Source: Gunatilake et al[7]

done maintenance combined with prenatal care and comprehensive drug treatment programs can improve many of the deleterious outcomes associated with untreated heroin abuse.[9]

Citing National Survey of Drug Use and Health (NSDUH) studying pregnant and non-pregnant adolescent and adult females, Prince et al[10] found that not only is polysubstance use common in pregnancy and often found with psychiatric comorbidities, but their study results also showed that compared to pregnant abstainers, pregnant women engaging in alcohol and/or tobacco use were more likely to have experienced a major depressive episode in the last 12-months.

But it is imperative to realize that these maladies do not only occur *in vivo*. Prenatal exposure to alcohol and other drugs has also shown that the children of drug-dependent mothers repeatedly demonstrate delays in cognitive functioning during pre-school years. Research has shown that individual difficulties, as well as differences in developmental patterns over time, were found most clearly when facets of language development formed part of the assessments.[11,12] In 2007, Young et al[13] reviewed the dearth of research and lack of empirically sound or nationally representative data on the number of children in Child Welfare Services (CWS) and their parents affected by Substance Abuse Disorder (SUD). They highlighted the significant overlap among these two systems. Identifying long-term effects into adulthood of babies born to substance abusing mothers is also difficult to measure. Most drug abusing mothers often use multiple drugs, making specific reference to deleterious long-term outcomes to any single drug, exceedingly difficult.[14]

Two instruments developed and normed for alcohol use in obstetric settings are the T-ACE and the TWEAK.[15,16] Unfortunately, both were designed to assist in identifying only alcohol use and because they are both face-valid instruments (that is, posing direct questions about alcohol use) they are more likely to miss some patient's patterns of use, particularly of other substances.[17,18] A study on the T-ACE showed that it was not especially effective in identifying risk drinking by the women enrolled in the study and a study on the TWEAK in Denmark demonstrated it not to be an optimal screening tool to identify periconceptional risk drinkers, although it may be useful in identifying high-risk drinking during pregnancy.[19,20]

Toxicological screens have been shown to provide reliable indicators of drug use. However, because drugs differ in half-lives, as well as the short time span, they are detectable biologically, render toxicological screens unable in determining how long substance users may have been abstaining, or if they are doing so intentionally, to "pass" otherwise positive drug screens. Thus, these biological screening measures though useful, might not provide sufficient information on substance use disorders, onsets and persistence. Additionally, a negative toxicology screen does not rule out substance use, and research supports the notion that it is best to use these tools in tandem with other screening methods.[21,22] The Substance Abuse Subtle Screening Inventory (SASSI) was one of the best most cost-effective measures when attempting to identify substance use in pregnancy, because the screening tool addresses defensiveness and denial.[23,24] The SASSI questionnaire is an objective screening tool. As such, it cannot be claimed that it can be used as a standalone assessment instrument. In fact, literature, website and social blogs state this fact explicitly. Despite this, professionals worldwide have used SASSI tools as part of overall assessment packages for over three decades.[25] But this tool's utility cannot be negated. This special population of pregnant substance using disordered women must be treated, the stigma associated with such treatment addressed, and the outcomes prolonged such that their offspring can lead more healthy meaningful productive lives.

Pregnant women who are identified as having a substance use problem need to have access to interventions than can help increase awareness of the impact of substance use in their life and the life of their unborn child. Structured and intensive approaches should include promoting emotional awareness, coping skills, support network and appropriate medication assisted treatments. Over the years, more of these programmatic interventions have been implemented with various measures of success. Thus, it is imperative to closely monitor women who are trying to quit drug use during pregnancy and to provide treatment on an "as needed basis."[9] Despite these improvements however, newborns exposed to methadone during pregnancy will ultimately experience withdrawal themselves. Research studies have established the value of evidence-based treatments for pregnant women (and their babies), including medications. No medications have been FDA-approved to treat pregnant women suffering from opioid dependence. Combination therapies within comprehensive drug treatment programs have shown favorable outcomes.[9] In this fashion, newborns ex-

posed to methadone during pregnancy can receive the much-needed care for treatment of withdrawal symptoms. Recently, another medication option for opioid dependence, buprenorphine, has been shown to produce fewer NAS symptoms in babies than methadone, resulting in shorter infant hospital stays. In general, it is important to closely monitor women who are trying to quit drug use during pregnancy and to provide treatment as needed.[9]

Although slower than optimal, nonetheless, advances have been made. In the United States for example, the National Center on Substance Abuse and Child Welfare has put together a Five Points of Intervention set of guidelines to improve outcomes for infants with prenatal substance exposure which can be downloaded at: https://ncsacw.acf.hhs.gov/files/Substance-Exposed-Infants.pdf.[26] In summary, these guidelines highlight multiple intervention opportunities, cross-system collaboration, and a family-centered approach. There is still, however, a shortage of resources, coupled with ever-present stigmatization, that prevent women from seeking and obtaining needed help and services. A positive move in the right direction is the recent announcement of a $10 million grant program in the U.S. through the Substance Abuse and Mental Health Services Administration (SAMHSA) that will provide pregnant and postpartum women and their children with comprehensive substance use treatment and recovery support services across residential and outpatient settings. In addition, for the first-time ever, the program will extend services to fathers, partners and other family members.[27]

The SASSI Institute welcomes researchers to reach out to us about conducting studies using the SASSI tool in this population and/or collaborations to make resources more readily available and potentially creating more positive outcomes. We have reached a critical juncture where such studies and effective interventions are direly needed and long overdue. The SASSI Institute can be contacted at 201 Camelot Lane, Springville, IN 47462, USA, 800-726-0526 or research@sassi.com.

CONFLICTS OF INTEREST

Both authors are employed by The SASSI Institute.

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