

THE SILENT VICTIMS OF THE OPIOID EPIDEMIC

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Over two million people are afflicted with an opioid use disorder (OUD) resulting in the death of over 130 people per day (Health and Human Services, 2019). Most of our healthcare efforts have been focused on the opioid users but what about the children who are born with neonatal opioid withdrawal syndrome (NOWS) or the children who are being raised in homes where opioids are being abused? These are the silent victims of the opioid epidemic. Children exposed to opioid use experience cognitive, psychological, and behavioral issues.

Pulsifer, Butz, Foran and Belden (2008) conducted a longitudinal, cross sectional study looking at 233 infants born between 1994 and 1997. They looked at four different infant groups; those exposed to cocaine in utero, those exposed to opioids in utero, those exposed to both cocaine and opioids in utero and a control group of 50 unexposed infants. A cognitive test was administered to 144 of the 233 children once they reached the age of five years old. Six areas of cognitive function were assessed: intelligence, school readiness, language, visual motor, manual dexterity and attention. Pearson's Chi-square and one-way analysis of variance was employed for data analysis. Children that were exposed to both cocaine and opioids in utero comprised 40% of the sample, and they fell one standard deviation below the mean of the intelligence test which was an $IQ < 85$ (Pulsifer et al., 2008). Children with prenatal drug exposure scored lower on language, impulse control and visual attention span when compared to the control group, which was statistically significance. No statistical significance was found between the sample groups in terms of intelligence, visual motor manual, dexterity, and sustained attention (Pulsifer et al., 2008). According to Pulsifer et al., "Both exposed and control groups performed below the normative mean on standardized measures of intelligence, language, school readiness, and visual motor skills" (p. 5). This suggests that similar environment of drug exposure may lead to disadvantages and limited resources resulting in cognitive inequities. Unfortunately, 66% of the caregivers continued to abuse drugs 5 years after giving birth. This is an indication that treatment for both the parents and children is needed to create a healthy home atmosphere for cognitive development.

In another cognitive study, Fill et al. (2018) looked at Tennessee infants born with neonatal abstinence syndrome (NAS). With the use of Medicaid and birth certificate records, they compared the sample group of 1815 children, who were born with NAS 1:3 to 5441 children in the control group. When the children were between 3 and 8 years of age, the researchers looked at three aspects of special educational outcomes: children referred for an evaluation, children eligible for services, and children who received therapies or services. The data analysis used was Pearson Chi-square and multivariable regression and statistical significance was set at a p value of less than 0.05. The children born with NAS were more likely to be referred for a disability when compared to the control group 19.3% vs. 13.7% with a p value of less than 0.0001 (Fill et al., 2000). The children born with NAS were more likely to meet the criteria for services 15.6% versus 11.6% when compared to the control group, which was found to be statistically significant with a p value of less than 0.0001. The children born with NAS were more likely to receive classroom help 15.3% versus 11.4% when compared to the control group which was also found to be statistically significant with a p value of less than 0.0001. According to Fill et al., "Brain volumes of infants and school aged children with exposure to opioids might be smaller than expected, especially the basal ganglia, an area of the brain associated with voluntary movement,

procedural learning, cognition and emotion” (p. 5). Many studies point to the environment as the sole cause for development and cognition issue while other studies indicate that the environment may not be the only cause for cognitive challenges in a child born with NAS (Fill et al., 2018). Clearly, more studies need to perform in order to have a comprehensive understanding of how NAS affects children long term. Just as cognition is a major issue facing children exposed to opioids, mental health is also an issue for these children.

A qualitative study by Wilens et al. (2002) looked at how addicted parents affect the mental health of their children. The study included 16 families with a least one parent addicted to opioids, 14 families with at least one parent addicted to alcohol, and 66 families with no addiction as control subjects. Psychiatric interviews, cognitive assessments, and measures of social, academic and family functioning were used to assess mental health. Pearson Chi-squares and logistic regression models were used to analyze data and statistical significance was set at a p value of less than 0.05. Fifty-nine percent of children of an opioid addicted parent were diagnosed with at least one psychopathological condition compared to 41% of children of an alcohol dependent parent and 28% of the control subjects (Wilens et al., 2002). The p value was less than 0.01 demonstrating statistical significance. The average age of onset for psychopathology for children of substance use disorder (SUD) was 11.5 years. Wilens et al. found that a higher rate of psychopathology occurred in children with two SUD parents compared to one parent with SUD.

The study by Nunes et al. (2000) wanted to determine if ethnicity had any effect on the prevalence of psychiatric disorders in children of opioid dependent parents. They looked at 283 children, 6–17 years old, of adults attending four different methadone clinics in New York. The study sample consisted of 114 Caucasian children, 94 African American children and 75 Hispanic-American children. Pearson Chi-square and ANOVA was use to analyze the data. This was a case control study and the subjects were assessed using K-SADS-E for interviews as well as the Global Assessment Scale and the DSM-III-R. When all ethnic groups were combined, 21% were diagnosed with a mood disorder, 24% were diagnosed with anxiety, 30% had a disruptive disorder, and 5% had attempted suicide. When separated by ethnicity, mood disorder in the Hispanic–American group was the only subset that showed statistical significance with 28% diagnosed with a mood disorder versus 18% for both African–Americans and Caucasians (Nunes et al., 2000). The p value was less than 0.03. Nunes et al. found that girls were more likely to be diagnosed with an affective disorder, while boys were more likely to be diagnosed with a disruptive disorder. In addition, “Caucasian children of female opioid addicts were at higher risk of a disruptive disorder than children of a male opioid addict” (Nunes et al., 2000, p. 237). As these studies have indicated, children exposed to opioid dependence by their parents are at higher risk for psychopathology; these children are also at risk for behavioral issues.

Wilens, Biederman, Kiely, Bredin and Spencer (1995) designed an analysis of variance study to measure the emotional and behavioral problems of children of opioid dependent parents. They looked at 27 families in a Boston methadone clinic, which included 15 girls and 29 boys, with the mean age being 10.4 years old. Using the Child Behavior Checklist (CBCL), they compared children of opioid dependent parents, children with ADHD and a comorbid psychiatric diagnosis, and a control group. “Continuous data were analyzed by analysis of variance followed by pairwise comparisons by Fisher’s Protected Least Significant Difference” (Wilens et al., 1995, p. 780). Pearson’s Chi-squared was employed to analyze categorical data. The results indicated that children of opioid dependent parents were more likely to demonstrate delinquent behavior compared to the control group with a p value of less than 0.01. There was not a statistical significance when comparing aggressive behavior between the children of opioid dependent parents and the control group. The comorbid ADHD children were more

likely to demonstrate aggressive and delinquent behavior when compared to children of opioid dependent parents. However, statistical significance was only found when comparing aggression between the two experimental groups with a p value of less than 0.01.

Additionally, Nurco, Blatchley, Hanlon and O'Grady (1999), designed a study focusing on early deviance, family structure, home atmosphere, alcohol and drug use, association with deviant peers, and psychological symptoms. The object of the study was to identify how drug-addicted parents influenced the behavior of a child. This was a descriptive study of self-reported behaviors including 285 males and females between the ages of 12 and 17 whose parents were participating in a methadone maintenance program. The three variables measured were early deviance, crime variety and crime severity. Sixty-four percent of the subjects reported engaging in at least one deviant act by age 11 compared to 16% of the control group (Nurco et al., 1999). The average age for first deviant act was 8.3 years old and the average number of deviant acts was 5.9. The frequency of committing deviant acts by age 11 are as follows: getting into a physical fight 45%, disobeying a direct parental order 24%, shoplifting 13%, trespassing on private property 12%, purposely damaging property 11%, purposely damaging or destroying parental property 11%, stealing a bicycle 7%, and carrying a deadly weapon 5% (Nurco et al., 1999). "There is considerable evidence in the literature that poor parental and family functioning are among the most powerful predictors of juvenile conduct problems and delinquency" (Nurco et al., 1999, p. 26). With this abundance of knowledge regarding the effects opioids has on the offspring of dependent parents the next step is to develop a comprehensive treatment plan focused on family wellness.

The evidence is clear that children exposed to opioids either in utero or in the home, are at higher risk for cognitive, psychological and behavioral issues. The cause of these issues is multifaceted; both nature and nurture. The effect of opioids in utero causes malformation of the basal ganglia as cited by Fill et al. (2018). The question is can new neural pathways be formed during the crucial years of brain development? In order for these pathways to develop, the child must be cognitively stimulated, and this stimulation will not happen if a parents' main concern is where they can get their next fix. Once the child reaches school age, they will begin to notice the drug use within the home. Children may develop psychological issues, such as anxiety or depression, associated with witnessing drug abuse by their parents and others who may be using in their home. As children get older, they may be seeking attention or asking for help when they act out by engaging in deviant or aggressive behavior. This is a complex issue without an easy answer.

As health care providers, we need create a safety net to provide support for infants born with Neonatal Opioid Withdrawal Syndrome, children living in homes with addicted parents and the parents afflicted with opioid use disorder. One of the main issues in dealing with the opioid crisis is that primary care physicians and pediatricians are treating a large number of children raised in homes of opioid addicted parents. However, many of these providers have not received the training to address the multifaceted challenges (Stulac et al., 2019).

In July of 2017, Boston Medical Center created a comprehensive program that addresses the needs of infants, children, and parents called "Supporting our Patients through Addiction and Recovery" (SOFAR). The goal of this program is to "attend to the needs of parents and children as a unit, with frequent communication between providers." (Stulac et al., 2019, p. 9). The team consists of two primary care pediatricians, a developmental and behavioral pediatrician, social workers, a patient navigator, and a program coordinator. The creators of SOFAR recognized that the first year after delivery is when infant and parent is at highest risk for the effects of opioid addiction (Stulac et al., 2019). For example, when an infant is born at Boston Medical Center with NOWS, a team member from

SOFAR meets with the family while they are still in the hospital to provide them an opportunity to enroll in the SOFAR program. Infants enrolled in the program receive weekly appointments for the first month and monthly appointments for the first year. If an infant is born with NOWS, they will be seen by an ophthalmologist, the mother will be screened for depression, and a developmental, feeding and growth assessment will take place at four months; an additional developmental screening will take place at two years. If exposed to hepatitis C, the parent and child will visit with the infectious disease clinic, and all NOWS infants will qualify for early intervention services (Stulac et al., 2019). SOFAR defines recovery as, “a process of change through which individuals improve their health and wellness, live self-directed lives, and strive to reach their full potential.”

We still have much to learn about how to best support children and families of opioid addiction in order to promote healthy outcomes. The literature is consistent in linking cognitive, psychological and behavioral challenges to the children of opioid addicted parents. We are heading in the right direction if we provide comprehensive programs, similar to the SOFAR program that supports the family as a unit, allows for frequent checkups and encourages communication between multiple specialties focusing on the cognitive, psychological and behavioral challenges our children are facing. As health care providers, we need to be the voice for the silent victims of the opioid crisis.

References

- Fill, M. A., Miller, A. M., Wilkinson, R. H., Warren, M. D., Dunn, J. D., Schaffner, W., and Jones, T. F. (2018). Educational disabilities among children born with neonatal abstinence syndrome. *Pediatrics*, *142*, 1–8
- Nunes, E. V., Weissman, M. M., Goldstein, R., McAvay, G., Beckford, C., Seracini, A.,... Wickramaratne, P. (2000) Psychiatric disorders and impairment in the children of opiate addicts: Prevalances and distribution by ethnicity. *The American Journal on Addiction*, *9*, 232–241.
- Nurco, D. N., Blatchley, R. J., Hanlon, T. E., & O’Grady, K. E. (1999). Early deviance and related risk factors in the children of narcotic addicts. *American Journal of Drug and Alcohol Abuse*, *25*(1), 25–45.
- Pulsifer, M. B., Butz, A. M., Foran, M., Belcher, H. M. (2008) Prenatal drug exposure: Effects on cognitive functioning at 5 years of age. *Clinical Pediatrics*, *47*(1), 58–65.
- Stulac, S., Bair-Merritt, M., Wachman, E., M. Augustyn, M., Howard, C., Madoor, N., & Costello, E. (2019). Children and families of the opioid epidemic: Under the radar. *Current Problems in Pediatric and Adolescent Health Care*, *49*, 1–27.
- Health and Human Services. (2019, October). The opioid epidemic by the numbers. <http://www.hhs.gov/opioids>.
- Wilens, T., E., Biederman, J., Bredin, E., Hahesy, B., A., Abrantes, B., A., Neft, D., ... Spenser, T., J. (2002). A family study of the high-risk children of opioid and alcohol dependent parents. *The American Journal of Addiction*, *11*, 41–51.
- Wilens, T., E., Biederman, J., Kiely, K., Bredin, E., Spenser, T. (1995). Pilot study of behavioral and emotional disturbances in the high-risk children of parents with opioid dependence. *Journal of American Academy of Child and Adolescent Psychiatry*, *34* (6), 779–785.

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