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Behavioral and Substance Use Outcomes for Older Youth Living With a Parental Opioid Misuse: A Literature Review to Inform Child Welfare Practice and Policy

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ABSTRACT

The United States has seen a crisis in the use and abuse of opioids since 2000 that has had impacts for the health care, criminal justice, and child welfare systems. After more than a decade of declines in out-of-home care placements, the increases in the last half of this decade may be attributed to parental misuse of opioids. While much is known about infants who are born drug exposed and the ramifications for child welfare practice and policy, less is known about children who grow up in homes with parental misuse of opioids. This study is a descriptive literature review that aims to provide child welfare practitioners with information on the behavioral and substance abuse outcomes for older children and youth who live with parents who have an opioid use disorder. Implications of this body of research may aid in developing appropriate assessment and intervention tools for youth who present for services from opioid-involved homes.

ARTICLE HISTORY

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KEYWORDS

Opioids; child welfare; substance abuse

Introduction

Since 2000, the United States has experienced a dramatic increase in the use and abuse of opioids, a class of drugs that include both licit prescription analgesic medications (e.g., oxycodone, fentanyl, morphine, hydrocodone, methadone) and the illicit substance heroin (American Society of Addiction Medicine, 2016). The number of people reporting nonmedical use of opioids, initiation of heroin use, and opioid dependence have all been on the rise since the early 2000s (Center for Behavioral Health Statistics and Quality, 2015; Dart et al., 2015). As opioid use and dependence have increased, so have the drug-related harms associated with abuse of opioids. The rate of drug overdoses involving opioids has quadrupled since 1999. In 2014, drug overdose became the leading cause of accidental death in the United States, with 47,055 total drug overdose deaths, of which 29,467 were opioid overdoses (US Department of Health and Human Services, 2016; Kochanek, Murphy, Xu, & Tejada-Vera, 2016). The rapid increase of opioid dependence and poisoning carries a financial burden. Recent estimates place the annual financial sum related to the direct costs incurred in systems of health care and
criminal justice and the indirect costs of mortality and loss of productivity between $20.4–55.7 billion (Birnbaum et al., 2011; Inocencio, Carroll, & Holdford, 2013). Similar to the other major drug trends over the past 35 years, cocaine in the 1980s and methamphetamines in the late 1990s; the trends seen for opioid use and its related harms have had an impact on child welfare systems.

**Opioid epidemic and public child welfare**

Before 2013, the public child welfare system had experienced a decade of reductions in the number of children served in out-of-home care. In 2003, the number of children in foster care in the United States was 520,000, which decreased to a low of 397,000 in 2012, and has been on the rise ever since, with 428,000 children in foster care during 2015 (Children’s Bureau, 2016, 2006). While there are no definitive findings that connect the rise in children who experience out-of-home care to the opioid crisis, anecdotal evidence from state child welfare administrators suggest that opioid abuse is driving these numbers with an increase in termination of parental rights (Young, 2016). In 2015, among children who were removed from their home, 32% had drug abuse of a parent listed as one of the reasons for removal (Children’s Bureau, 2016).

For children who experience abuse or neglect, the likelihood of later life opioid dependence is increased, which in turn is associated with greater involvement with child welfare systems and increased chances of offspring having some form of drug dependence (Elhammady, Awara, Aty, Yousef, & Moselhy, 2014; Keller, Catalano, Haggerty, & Fleming, 2002; Sansone, Whitecar, & Wiederman, 2009; Taplin & Mattick, 2015). The ability of child welfare workers to competently intervene in this cycle is important as substance abuse prevention in this population carries important implications for the reduction of child abuse and neglect.

**Childhood experience of abuse or neglect and later life opioid use disorder**

Childhood trauma has been linked to adult substance use and the development of substance use disorders (SUDs) (Afifi, Henriksen, Asmundson, & Sareen, 2012; Dube et al., 2003; Triffleman, Marmar, Delucchi, & Ronfeldt, 1995). Among adults with an opioid use disorder (OUD), this relationship is evident, although studies have established a range of prevalence rates depending on the abuse type and their methodology (Conroy, Degenhardt, Mattick, & Nelson, 2009; Sansone et al., 2009). In a case-control study comparing child abuse and neglect histories of adults with and without an OUD, Conroy et al. (2009) found OUD cases to have a greater prevalence of childhood abuse and neglect compared with controls for specific types of child maltreatment and by gender: male cases (58%) were 1.6 times more likely to experience physical abuse than male controls (36%); female cases (61%) were 3.3 times more likely to experience multiple incidents of sexual
abuse than female controls (38%); and male cases (27%) were 1.9 times more likely to experience frequent emotional abuse compared to male controls (12%). In a study of child trauma prevalence among OUD treatment seekers, Sansone et al. (2009) found 80% of participants had experienced at least one form of child maltreatment, with most the most frequent types being emotional abuse (60%) and physical abuse (40%).

**Neonatal outcomes of opioid use during pregnancy**

Along with the more general national trends of opioid use and misuse, antenatal use increased by 373%, opioid-dependent infants increased by 400% from 2000 to 2009, and admissions to neonatal intensive care units for neonatal abstinence syndrome (NAS) increased from 7 cases per 1000 in 2004 to 27 per 1000 in 2013 (Franca, Mustafa, & McManus, 2016; Patrick et al., 2012; Tolia et al., 2015). Opioid use during pregnancy has been linked to infant mortality, small gestational size, low birth weight, cognitive deficits, NAS, and later behavioral problems (Forray & Foster, 2015). These effects have been seen regardless of the class of opioids used by the mother; heroin and prescription opioid use and misuse have been shown to have similar perinatal outcomes. NAS occurs in between 60%–80% of newborns exposed to opioids in utero and is characterized by withdrawal symptoms to include irritability, feeding problems, seizures, and difficulty breathing (Abdel-Latif, Oei, Craig, & Lui, 2013; Cleary et al., 2012; Doberczak, Kandall, & Wilets, 1991). Emerging evidence has begun to connect the rise in opioid use during pregnancy and infants born with NAS to increased involvement of public child welfare.

Infants who test positive for opioids at birth are regularly reported to child protective services (CPS) and are at high risk of entering foster care before the age of 1 year (Franca et al., 2016; Lean, Pritchard, & Woodward, 2013; Taplin & Mattick, 2015). In a longitudinal analysis of administrative hospital and child welfare data in Massachusetts, from 2010–2013 the number of infants supervised per month by local child welfare agencies increased by 31% from 273 to 357 with some offices dedicating an estimated 800 hours per month working with opioid-exposed infants (Franca et al., 2016).

**The current study**

The current study seeks to review the literature on the behavioral and substance use outcomes for children who live with parents who have an OUD. Child welfare practitioners are faced with responding to national trends that impact child rearing, and the opioid crisis is no exception. While there may be much known about younger children with opioid-dependent parents, less is known about the child welfare implications when older youth have grown up in homes where an OUD is present. Some of this difference can be attributed to
surveillance. Children born to mothers who misuse opioids are a visible group because of monitoring from the health care system, and a body of literature exists to guide the development of child welfare assessment and practice for drug-exposed infants (Franca et al., 2016; Lean et al., 2013; Taplin & Mattick, 2015; Twomey, Soave, Gil, & Lester, 2005). Similarly, because these children were identified at birth as opioid exposed, the outcomes for children born with NAS before age 5 years are well documented (Forray & Foster, 2015; Shankaran et al., 2004). What is less well known is whether extended exposure to parental opioid misuse impacts this group’s behavioral and substance use outcomes, which in turn may call for adjustments to child welfare service provision.

In 2015, more than 50% of the children who entered foster care were older than age 6 years (Children’s Bureau, 2016). While older children may come to the attention of child welfare agencies for different reasons than younger children, it is relevant to consider how family risk and protective factors have shaped child outcomes when they do present for services. In the midst of a nationwide opioid crisis, it is important to consider the impact of parental OUD on older children because they likely have been exposed to harmful behavior associated with substance misuse in a more substantial way than younger children (Kolar, Brown, Haertzen, & Michaelson, 1994). Understanding the common set of behavioral and substance use issues of this population of children will aid child welfare practitioners in the assessment of family risk factors and around developing intervention plans to support positive youth development.

**Methods**

The research articles selected for inclusion in this systematic review were selected through a keyword search of social science databases: PsycINFO, Social Services Abstracts, Social Work Abstracts, and Sociological Abstracts. The literature search was limited to English language publications and studies conducted in the United States from 2000 to 2016. Keyword searches were conducted in each of the above databases with the following Boolean combinations:

- (opiates OR opioids OR heroin OR methadone) AND children
- (opiates OR opioids OR heroin OR methadone) AND parents

From these results of 334 (children) and 276 (parents), abstracts, keywords, and reference lists were used to identify a set of articles that met the following inclusion criteria: 1) the dependent variable(s) in the study had to be child-related behavioral or substance use outcomes; 2) parental substance use had to be measured as opioid misuse, not in combination with other substances (i.e., illicit substances, narcotics); 3) the sample had to include children living for 50% or more of the time with
at least one parent who had an OUD (OUD). These inclusion criteria resulted in a set of 10 articles from four research studies. Two additional articles were then identified from pre-2000 that were connected to the first study and are included in the review.

Table 1 presents each of the articles included in the systematic review arranged chronologically according to the time frame of the data collection. Study 1 was completed in New York City, participants with children age 6 to 17 years were recruited from four methadone maintenance clinics to complete psychosocial interviews. The measurements completed with children included the Schedule for Affective Disorders and Schizophrenia for School-Age Children—Epidemiologic Version (K-SADS-E), Children’s Global Assessment Scale (C-GAS), and the School Adjustment Inventory for Children and Adolescents (SAICA) (Nunes et al., 1998). Six articles are included from this study.

Study 2 was a longitudinal design conducted in Seattle, WA, with parents recruited from two area methadone clinics. This overall purpose of this study was to test the Focus on Families (FOF) program, a parent-skills training and case management intervention designed to reduce parental relapse and risk for child substance abuse (Catalano, Haggerty, Gainey, & Hoppe, 1997). While the FOF program evaluation is outside the scope of this review, four articles are included investigating child outcomes. Study 2 collected data in two waves, from 1991 to 1995 and a 10-year follow-up from 2005 to 2006, this longitudinal design allowed researchers to estimate the effect of growing up in home of a parent with an OUD. Child-specific measures included the Adverse Childhood Experiences Index (ACE), Composite International Diagnostic Interview (CIDI), Child Behavior Checklist (CBCL), Substance Use, and Functional Resilience.

Study 3 was a cross-sectional survey with participants recruited from clinics providing OUD treatment in the following cities Burlington, VT; Houston, TX; Toronto, Canada; Camden, NJ; Philadelphia, PA; and New York City. The CBCL was used as the measurement tool for children and included the internalizing and externalizing subscales. One article is included from Study 3.

Study 4 was conducted in the Northeastern United States with parents recruited from the detoxification and inpatient treatment units of a hospital. Child outcome measurements included the Brief Impairment Scale (BIS) and the Short Inventory of Problems-Lifetime (SIPS-2L). One article is included from Study 4.

Each article chosen for review investigates outcomes for children who live with at least one parent with an OUD, and only one article makes comparisons between this group and children from households with no opioid misuse. In the results presented in following text, group comparisons are within group

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1We use the term opioid use disorder throughout the manuscript to reflect the American Psychiatric Association Diagnostic and Statistical Manual of Mental Disorders (DSM V) naming conventions. Many of the studies under review used the term opioid dependence as they were published prior to the DSM V.
Table 1. Literature included in the systematic review.

<table>
<thead>
<tr>
<th>List of Studies</th>
<th>Author (year)</th>
<th>Sample</th>
<th>Methodology</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Study 1 Setting:</strong> New York City</td>
<td><strong>Selection:</strong></td>
<td></td>
<td><strong>Design:</strong> Quantitative</td>
<td><strong>Behavioral Outcomes:</strong></td>
</tr>
<tr>
<td><strong>Time Frame:</strong> 1998</td>
<td>• Children of opioid use disorder (OUD) parents recruited from 4 methadone maintenance clinics</td>
<td>Comparison of scores between 4 child groups: (1) Parental OUD with major depressive disorder (MDD) (2) Parental OUD with no MDD (3) Parents with no drug use and MDD (4) Parents with no drug use and no MDD</td>
<td>Sons of OUD parents with a MDD</td>
<td>• Higher rates of disruptive disorders vs. sons of OUD parents with no history of MDD • More likely to meet global impairment criterion than any other group • Poorer social functioning scores vs. sons of opiate dependent parents with no MDD Daughters of OUD Parents with and without MDD</td>
</tr>
<tr>
<td></td>
<td>• Control selected from Yale Family Study</td>
<td></td>
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<td>Lower social functioning and WISC scores</td>
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<td></td>
<td><strong>Size:</strong></td>
<td></td>
<td><strong>Measures:</strong></td>
<td></td>
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<tr>
<td></td>
<td>• 114 children age 6–17 years of opiate-dependent parents</td>
<td>Schedule for Affective Disorders and Schizophrenia for School-Aged Children, Epidemiologic Version (K-SADS-E)</td>
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<td></td>
<td>• 22 children with parental depression and no substance use disorders (SUDs)</td>
<td>Children's Global Assessment Scale (C-GAS)</td>
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<tr>
<td></td>
<td>• 45 children age 6–17 years with no parental history of depression or SUDs</td>
<td>Social Adjustment Inventory for Children and Adolescents (SAICA)</td>
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<tr>
<td></td>
<td><strong>Characteristics:</strong></td>
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<td></td>
<td>• 100% Caucasian</td>
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<td>Control group more likely to be older, have older parents, higher parental educational attainment, more likely to live with mother and father</td>
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<tr>
<td><strong>Study 1 Setting:</strong> New York City</td>
<td><strong>Selection:</strong></td>
<td></td>
<td><strong>Design:</strong> Quantitative</td>
<td><strong>Behavioral Outcomes:</strong></td>
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<tr>
<td><strong>Time Frame:</strong> 1998</td>
<td></td>
<td></td>
<td>Measures:</td>
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<tr>
<td><strong>Article 2</strong></td>
<td>• Children of OUD parents recruited from 4 methadone maintenance clinics</td>
<td>K-SADS-E</td>
<td>• Any diagnosis 60%</td>
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<tr>
<td></td>
<td><strong>Size:</strong></td>
<td>SAICA</td>
<td>• Any affective/anxiety disorder 30%</td>
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<td></td>
<td>101 children age 7–17 years</td>
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<td>• Any disruptive disorder 33%</td>
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<td></td>
<td></td>
<td>• ADHD 13%</td>
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<td></td>
<td></td>
<td>• Child cognitive deficits increase risk of poor social functioning</td>
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<td></td>
<td>• Caucasian race increases risk of poor social functioning</td>
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<td></td>
<td><strong>Substance Use Outcomes:</strong></td>
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<tr>
<td></td>
<td></td>
<td>Any any substance dependence 5%</td>
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(Continued)
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<thead>
<tr>
<th>Study Setting</th>
<th>Author (year)</th>
<th>Sample</th>
<th>Methodology</th>
<th>Findings</th>
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<tbody>
<tr>
<td>New York City</td>
<td>Nunes et al. (2000)</td>
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<td>1998</td>
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</table>

**Selection:**
- Same as Article 2

**Size:**
- 283 children age 6–17 years

**Characteristics:**
- 40% Caucasian, 33% African American, 26% Hispanic/Latino
- Hispanic parents were younger, Caucasian parents more likely to be married, employed, and of middle to upper SES.
- Caucasian children were likely to live with both parents

**Design:**
- Quantitative
- Comparison of child scores among 3 racial/ethnic groups: Caucasian, African American, and Hispanic/Latino

**Measures:**
- K-SADS-E
- C-GAS

**Behavioral Outcomes:**
- Full Sample
  - Any mood disorder 21%
  - Any anxiety disorder 24%
  - Any disruptive disorder 30%
  - Suicide attempt 5%
  - C-GAS <61 25%
  - Any school problems 37%

- Hispanic Ethnicity
  - Higher prevalence of mood disorders

- Caucasian Mother
  - Child has increased risk of disruptive disorders and global impairment

- African American Parent with MDD
  - Child has increased risk of affective disorder

- Caucasian Parent with MDD
  - Child has increased risk of global impairment

- Parent Gender Female
  - Child has increased risk of anxiety disorders

- Child Gender Female
  - Higher risk of affective disorders
  - Lower risk of disruptive disorders and global impairment

**Substance Use Outcomes:**
- Parent with MDD
  - Increased risk of alcohol use

- African American
  - Lower rates of alcohol and tobacco use
  - Child Gender Female and African American or Hispanic
  - Lower risk of tobacco use
Table 1. (Continued).

<table>
<thead>
<tr>
<th>Study 1 Setting: New York City</th>
<th>Time Frame: 1998</th>
<th>Author (year)</th>
<th>Sample</th>
<th>Methodology</th>
<th>Findings</th>
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<tbody>
<tr>
<td></td>
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<td>Article 4</td>
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<td>Miller et al. (2001)</td>
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<td>Selection:</td>
<td>Same as Article 2</td>
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<td></td>
<td></td>
<td>Size:</td>
<td>279 children age 6–17 years</td>
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<td></td>
<td></td>
<td>Characteristics:</td>
<td>Same as Article 3</td>
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<td></td>
<td></td>
<td>Design:</td>
<td>Quantitative</td>
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<td></td>
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<td>Measures:</td>
<td>Same as Article 2</td>
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<td></td>
<td></td>
<td>Behavioral Outcomes:</td>
<td>Not assessed</td>
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<td></td>
<td>Substance Abuse Outcomes:</td>
<td>Tobacco Use</td>
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<td></td>
<td></td>
<td>Alcohol Use:</td>
<td>9.3% used at least 3 times in past year</td>
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<td>4.7% consumed at least 3 times in past year</td>
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<td>6.8% consumed at least 3 drinks in a single day</td>
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<td>Behavioral Outcomes:</td>
<td>Higher Risk of Disruptive Behavior</td>
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<td></td>
<td>Neurological deficits</td>
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<td>Child gender male</td>
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<td></td>
<td>Substance Abuse Outcomes:</td>
<td>Not assessed</td>
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<td>Study 1 Setting: New York City</td>
<td>Time Frame: 1998</td>
<td>Article 5</td>
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<td>Wilson et al. (2003)</td>
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<td>Selection:</td>
<td>Same as Article 2</td>
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<td></td>
<td></td>
<td>Size:</td>
<td>283 children age 6–17 years</td>
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<td></td>
<td></td>
<td>Characteristics:</td>
<td>Same as Article 3</td>
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<td></td>
<td></td>
<td>Design:</td>
<td>Quantitative</td>
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<td>Measures:</td>
<td>Same as Article 2</td>
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<td>Measures:</td>
<td>Peabody Picture Vocabulary Test (PPVT)</td>
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<td></td>
<td>Measures:</td>
<td>Neurological Examination for Children (NEAC)</td>
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<td></td>
<td>Behavioral Outcomes:</td>
<td>Full Sample</td>
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<td></td>
<td>30% of sample had one disruptive behavior disorder (DBD)</td>
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<td></td>
<td>Externalizing disorders predicted linguistic deficits</td>
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<td></td>
<td></td>
<td>Behavioral Outcomes:</td>
<td>Caucasian children with a DBD</td>
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<td>Higher rates of linguistic deficits</td>
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<tr>
<td>List of Studies</td>
<td>Author (year)</td>
<td>Sample</td>
<td>Methodology</td>
<td>Findings</td>
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</tbody>
</table>
| **Study 2 Setting:** Seattle, WA  
**Time Frame:** 1991–1995 | **Article 7**  
Keller et al. (2002) | Selection: Recruited from 2 methadone clinics  
Size: 67 children age 9–17 years at baseline and 11–17 years at follow-up  
Characteristics:  
● Significant differences in youth drug use between experimental and control groups, condition assignment entered as control  
● 70% experienced at least one parent figure transition | Design: Quantitative, experimental  
Measures:  
● Parent figure transitions (number of times primary caregiver changed)  
● Youth delinquent behavior  
● Youth drug use  
● Family conflict  
● Parental depressive symptoms  
● Parental criminal history | Behavioral Outcomes:  
60% engaged in at least one delinquent behavior  
Higher Risk of Delinquent Behavior  
● Parent figure transitions  
● Parental criminal history  
**Substance Use Outcomes:**  
51% reported some type of drug usage  
Higher Risk of Drug Use  
● Parent figure transitions  
● Parental depressive symptom symptoms  
● Older children  
● Female children with higher number of parental transitions |
| **Study 2 Setting:** Seattle, WA  
**Time Frame:** 1991–1995  
2005–2006 | **Article 8**  
Skinner et al. (2009) | Selection: Same as Article 7  
Size: 125 children, baseline mean = 9.23 years, follow-up mean = 23.15 years  
Characteristics:  
● 50% Female  
● 59% White | Design: Quantitative, experimental design with 10 year follow-up  
Measures:  
● Functional Resilience (employed or enrolled in an educational program, no lifetime substance abuse/dependence, no adult criminal charges in last 5 years)  
● Adverse Childhood Experiences Index (ACE)  
● Parental Recovery (parents reporting no drug problems or incarceration in past 10 years)  
● Parent/Child Bonding Scale  
● Family Management Scale  
● Child Behavior Checklist (CBCL)  
● School Engagement | Behavioral Outcomes:  
24% met all three criteria  
Female youth more likely to be resilient, 32% vs. 13%  
Higher internalizing and externalizing behavior problems on the CBCL predicted lower functional resilience |
<table>
<thead>
<tr>
<th>List of Studies</th>
<th>Author (year)</th>
<th>Sample</th>
<th>Methodology</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Study 2 Setting:</strong> Seattle, WA</td>
<td><strong>Selection:</strong> Same as Article 7</td>
<td><strong>Size:</strong> 151 children, baseline mean = 8.21 years, follow-up mean = 22.02 years</td>
<td><strong>Design:</strong> Quantitative, experimental design with 10 year follow-up</td>
<td><strong>Behavioral Outcomes:</strong> Higher Sex Risk Behaviors</td>
</tr>
<tr>
<td><strong>Time Frame:</strong> 1991–1995</td>
<td><strong>Characteristics:</strong></td>
<td><strong>Measures:</strong></td>
<td></td>
<td>● SUD</td>
</tr>
<tr>
<td></td>
<td>47% Female</td>
<td>● Sex risk behavior</td>
<td></td>
<td>Lower Sex Risk Behavior</td>
</tr>
<tr>
<td></td>
<td>53% Caucasian</td>
<td>● Parental substance use</td>
<td></td>
<td>● Having a spouse or partner</td>
</tr>
<tr>
<td></td>
<td>17% African American</td>
<td>● Family conflict scale</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>30% bi-racial</td>
<td>● Family bonding scale</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>● CBCL</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>● ACE</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Substance use disorder</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Relationship status</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Parenthood</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Educational attainment</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Behavioral Outcomes:**

- Higher Sex Risk Behaviors
  - SUD

- Lower Sex Risk Behavior
  - Having a spouse or partner

**Sex Risk Behavior by Gender**

<table>
<thead>
<tr>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>79%</td>
<td>83%</td>
</tr>
<tr>
<td>26%</td>
<td>10%</td>
</tr>
<tr>
<td>34%</td>
<td>&gt;2 Partners 24% past year 13%</td>
</tr>
<tr>
<td>24%</td>
<td>Casual sex 17%</td>
</tr>
<tr>
<td>3%</td>
<td>High-risk Sex 13%</td>
</tr>
<tr>
<td>5%</td>
<td>1%</td>
</tr>
<tr>
<td>1%</td>
<td>Prostitutable infection</td>
</tr>
<tr>
<td></td>
<td>Sex with intravenous (IV) drug user</td>
</tr>
</tbody>
</table>

**Sex Risk Behavior by Age (years)**

<table>
<thead>
<tr>
<th>&lt;18</th>
<th>18–24</th>
<th>&gt;24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexually active</td>
<td>47%</td>
<td>86%</td>
</tr>
<tr>
<td>&gt;2 Partners past year</td>
<td>17%</td>
<td>19%</td>
</tr>
<tr>
<td>Casual sex</td>
<td>20%</td>
<td>30%</td>
</tr>
<tr>
<td>High-risk sex</td>
<td>10%</td>
<td>22%</td>
</tr>
<tr>
<td>Prostitution</td>
<td>3%</td>
<td>2%</td>
</tr>
<tr>
<td>STI</td>
<td>3%</td>
<td>9%</td>
</tr>
<tr>
<td>Sex with IV drug user</td>
<td>7%</td>
<td>0%</td>
</tr>
</tbody>
</table>

**Substance Use Outcomes:**

- Not assessed

(Continued)
Table 1. (Continued).

<table>
<thead>
<tr>
<th>Study Setting/Time Frame</th>
<th>Article</th>
<th>Author (year)</th>
<th>Sample</th>
<th>Methodology</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study 3 Setting: Burlington, VT; Houston, TX; Toronto, Canada; Camden, NJ; Philadelphia, PA; New York City Time Frame: 1992–2000</td>
<td>Article 11</td>
<td>Stanger et al. (2002)</td>
<td>Selection: Patients in treatment for OUD screened at participating clinics Size: 211 parent and 211 child (aged 4–18) participants Characteristics: ● 59% male ● 67% Caucasian ● 21% African American ● 6% Hispanic</td>
<td>Design: Quantitative cross-sectional Measures: Addiction Severity Index (ASI) Family Assessment Device-General Functioning Subscale (FAD/GF) CBCL</td>
<td>Behavioral Outcomes: Externalizing Behavior ● Older children more likely to exhibit delinquent behavior ● Older girls more likely than younger girls, older boys, and younger boys to exhibit delinquent behavior Internalizing Behavior ● Higher family problems related to increased internalizing behaviors Substance Use Outcomes: Not assessed</td>
</tr>
<tr>
<td>Study 4 Setting: Northeastern United States Time Frame: 2008</td>
<td>Article 12</td>
<td>Ashrafjou et al. (2011)</td>
<td>Selection: Participants recruited from detoxification and inpatient rehabilitation units of a hospital Size: 14 parents and 24 children age 4–17 years Characteristics: Child mean age = 10.7 (4.2) years 62.5% male</td>
<td>Design: Quantitative cross-sectional Measures: Brief Impairment Scale (BIS) Short Inventory of Problems-Lifetime (SIPS-2L)</td>
<td>Behavioral Outcomes: Increased Global Impairment ● Parental educational attainment (no college and less than college education) ● Parent arrest history ● Parent current court involvement ● Parent diversion (purchase and sale) of opioids ● Parent intravenous drug use ● Substance use outcomes: 47.4% of children reported by parents to use drugs</td>
</tr>
</tbody>
</table>
differences unless noted otherwise. The results will describe the major behavioral and substance use themes identified in the review of literature.

Results

The literature reviewed reveals that youth residing in homes with parental OUD are at risk of exhibiting elevated levels of externalizing (i.e., aggression, delinquency, or hyperactivity) and internalizing (i.e., inward distress, anxiety, depression) behaviors; risky sexual practices; impaired social functioning; and substance misuse. Table 1 presents the major findings for youth living with at least one parent exhibiting an OUD.

Behavioral outcomes of children living with parents exhibiting an opioid use disorder

Externalizing behaviors

Children living in a home with parental OUD had elevated rates of externalizing behaviors characterized by either the CBCL externalizing behavior subscale, K-SADS-E, or direct questions about participation in delinquent behavior (e.g., fighting, stealing, graffiti) (Keller et al., 2002; Nunes et al., 2000; Stanger et al., 2002; Weissman et al., 1999; Wilson et al., 2003). Between 30% to 33% of youth in these studies met the diagnostic criteria for a disruptive disorder (Nunes et al., 2000; Weissman et al., 1999; Wilson, Nunes, Greenwald, & Weissman, 2004), and 60% engaged in at least one delinquent behavior (Keller et al., 2002). Male youth and older children in these samples tended to have the highest risk of externalizing behavior problems (Nunes et al., 2000; Wilson et al., 2003), although one study found older female youth had the highest risk of delinquent behaviors (Stanger et al., 2002). Children of Caucasian mothers in one study carried a higher risk of disruptive behaviors (Nunes et al., 2000). Male youth who had an OUD parent with a major depressive disorder (MDD) had higher rates of disruptive disorders compared with those without parental mental illness (Nunes et al., 1998). Children who experienced multiple parental transitions (i.e., changes in the primary caregiver) and those who had parents with a criminal history were more likely to exhibit delinquent behavior than those without these family risk factors (Keller et al., 2002).

Internalizing behaviors

The articles reviewed here find that youth with an OUD parent exhibited specific behaviors that could be characterized as internalizing behaviors including mood and anxiety disorders. These studies found that between 21% to 30% of youth were characterized as having anxiety and/or mood disorders (Nunes et al., 2000; Weissman et al., 1999). One study found a greater likelihood for developing a mood disorder for female children, Hispanic children, and African American
children if one parent also had an existing MDD (Nunes et al., 2000). Additionally, living in a household characterized by a high degree of family problems increased chances of the youth having any mood disorder (Stanger et al., 2002).

**Sex risk behaviors**

Skinner, Fleming, Haggerty, and Catalano (2014) assessed the sex risk behaviors of youth, which identified risky behavior through questions on sexual behavior including being sexually active, having more than two partners in the past year, engaging in casual sex, engaging in high-risk sex (i.e., no condom usage), engaging in prostitution/solicitation, and having sex with an intravenous (IV) drug user. Youth who met criteria for a SUD had a higher likelihood of engaging in risky sex behaviors, whereas those in committed relationships had lower risk. Comparisons by gender revealed that male youth (26%) were more likely than female youth (10%) to have greater than two sexual partners over the past year (Skinner et al., 2014). The percentage of youth engaging in some form of risky behavior increased with age, with the exceptions of exchanging sex for money or drugs and sex with an IV drug user, which were highest in the age group younger than 18 years (Skinner et al., 2014).

**Other behavioral outcomes**

Two of the studies investigated behaviors more generally in terms of global impairment (Ashrafioun et al., 2011; Nunes et al., 1998) and social functioning (2000; Nunes et al., 1998; Weissman et al., 1999). Global and social impairment were conceptualized similarly across the studies, characterized by problems in social, academic, leisure, and home settings (Ashrafioun, Dambra, & Blondell, 2011; Weissman et al., 1999). Children of OUD parents had a greater likelihood of global impairment if their parents had lower educational attainment, arrest history, current criminal court involvement, were IV drug users, or were involved in the purchase and sale of prescription opioids illicitly (Ashrafioun et al., 2011). Children who were white or of any race with a cognitive deficit had increased likelihood of reduced social functioning (Nunes et al., 2000). In families where at least one parent had a MDD, male youth were more likely to meet the global impairment criterion and had poorer social functioning than male youth in families with no MDD, whereas female youth had lower social functioning than any other group regardless of whether parental MDD was present (Nunes et al., 1998).

**Functional resilience**

Skinner, Haggerty, Fleming, and Catalano (2009) measured functional resilience as youth who exhibited all of the following characteristics: employed or enrolled in an educational program, no lifetime substance abuse or dependence, and no adult criminal charges in the past 5 years. For youths who are a stay-at-home
parent and not working or in school, they were considered resilient if they met all the other criteria. For this measure, 24% of youth met the criteria to be considered functionally resilient, and female youth (32%) were more likely than male youth (13%) to be resilient (Skinner et al., 2009). Youth who scored high on the internalizing or externalizing behavior subscales of the CBCL were less resilient (Skinner et al., 2009).

**Substance use outcomes of children living with parental opioid use disorder**

*Illicit drug use*
Rates of substance use and dependence varied for the studies under review, with between 47% to 59% of youth exhibiting substance misuse behaviors (Ashrafioun et al., 2011; Haggerty, Skinner, Fleming, Gainey, & Catalano, 2008; Keller et al., 2002). A 12-month follow-up was completed by Keller et al. (2002) for child participants of the FOF program with ages ranging from 11 to 17 years. Among this group, 51% reported some type of drug usage in the past year, and an increased risk of usage was connected to parental figure transitions (especially for female youth), parental depressive symptoms, and older age (Keller et al., 2002). Haggerty et al. (2008) conducted a second follow-up of FOF participants 10 years after the completion of the program and found 59% of the sample met criteria for a SUD. While male youth were more likely overall to develop a SUD versus female youth, male youth were most likely to develop a SUD for alcohol or marijuana.

*Alcohol and tobacco use*
One study reported rates of alcohol and tobacco use, finding 4.7% of youth had consumed alcohol at least three times in the past year, 6.8% had at least three drinks in one setting over the past year, and 9.3% used tobacco at least three times in the past year (Miller, Weissman, Gur, & Adams, 2001). In cases for which parents had a MDD, rates of alcohol use were higher, and, when comparing patterns of usage by race and ethnicity, African American children had the lowest rates of alcohol and tobacco use, compared with white and Hispanic youth (Nunes et al., 2000).

**Discussion**
This study suggests that children who grow up in homes with an OUD parent are at risk for adverse behavioral and substance use outcomes. The reviewed literature indicated that between 30% to 33% of children with an OUD parent met diagnostic criteria for disruptive disorder, 21% to 30% met criteria for an anxiety or mood disorder, and 47% to 59% exhibited substance misuse behaviors. These findings mirror much of what is already known about both the...
children of parents with a SUD and children exposed to traumatic events in the home (Peleg-Oren & Teichman, 2006; Perry, 2002; Su, Hoffman, Gerstein, & Johnson, 1997). However, the ability to competently identify and intervene with children of OUD parents remains a crucial task because it has important implications for practice, policy, and funding to meet the needs presented by the current opioid epidemic.

Because of the documented rise in opioid dependence among adults in the United States, there is a concomitant population of children living with OUD parents. While children born opioid exposed or with neonatal abstinence syndrome are a high visibility group, older youth in homes with OUD parents are less visible, and child welfare agencies may need to modify practices and identify effective innovations. The articles reviewed support a need for enhanced efforts to identify this population of children when they present for child welfare services and to explore effective interventions for them in child welfare settings. These findings support the value of considering implementation of effective practice in child welfare settings, including a focus on frameworks for development of best practices (Children’s Bureau, 2014). This analysis synthesizes some of the known behavioral and substance use outcomes among children growing up in households with OUD parents, which contributes to identification of the characteristics of this population of children. Additionally, these results suggest a need for increased exploration of effective interventions, ideally focusing on various drivers of change that can support successful implementation of innovations in child welfare agencies (Fixsen, Blase, Metz, & VanDyke, 2013).

This review of the literature provides a unique perspective, in that it provides a context to consider this evolving focus for child welfare practice. As child welfare agencies are increasingly called to intervene with families with an OUD parent, workers and administrators may benefit from an understanding of the specific behavioral and substance use issues identified in this population. For example, the reviewed literature points to compounded parental risk being associated with poorer child outcomes. Youth who had OUD parents with a mental illness or criminal justice system involvement had higher rates of internalizing and externalizing behavior problems and substance use compared with youth whose parents had an OUD alone. This knowledge can inform risk identification and assessment, as multiple parental risk factors impinged the most on positive youth development, not opioid misuse alone. Additionally, youth who had multiple parental transitions by which their living arrangement and primary caretaker were changed had high rates of delinquent behavior and substance abuse compared with those from a stable living environment. The understanding that these disruptions do not start with an out-of-home placement is important to recognize as older youth from opioid-exposed homes who present for child welfare services may have similar needs to older youth who have extended out-of-home care stays in the child welfare system.
This review of the literature not only identifies some of behavioral and substance abuse outcomes for this group of children, but also provides a context to explore efforts to effectively support this population of young people and their families. Additionally, the ability to assess family risk related to OUD, provide access to family-focused treatment approaches, and collaborate across systems of care will enhance child welfare practice and policy in this population. The areas of support that these youth need are in mental health treatment and substance abuse prevention, so there may be existing innovations with potential for effective intervention. The ability of child welfare agencies to collaborate across systems of care and develop theories of change based on best practices from systems substance abuse and mental health will impact success with this population of children. As these issues are perennial risk factors for child welfare involvement, early intervention with this vulnerable population may aid in preventing future child abuse and neglect.

**Study limitations**

One of the potential limitations of this literature review may be selection bias related to search terms and elimination criteria. While the intention was to capture the most relevant literature to inform this review, there may be research that was not captured in that process. While the limited number of articles identified on this topic reflects previous literature reviews on emerging substance misuse epidemics (Sheridan, 2014), the focus of this study led to elimination of several relevant research threads in terms of family outcomes and studies in which substance misuse was measured as a combination of substance types (i.e., narcotics or illicit substances). Additionally, with the exception of one of the reviewed articles, these studies did not directly compare youth living with OUD parents to those who do not have an OUD. The ability to compare those two groups matched on socioeconomic and demographic backgrounds would strengthen the findings seen here.

**Gaps in research**

Several gaps were noted in the research on child outcomes in homes with parental OUD. First, the studies included limited information on service receipt for the children and it is unknown if children in the samples had child welfare involvement during the studies’ time frames. Future work could investigate the role that child welfare services play in moderating the relationship between parental OUD and negative behavioral and substance use outcomes. Additionally, longitudinal designs that track behavioral and substance abuse outcomes over time would aid in determining the developmental trajectory of behaviors and the unique impact that parental misuse of opioids plays independently of other risk factors. Given that the current opioid epidemic is an...
emerging drug trend and there is a limited amount of work in this area, qualitative investigations could lend insight into building theory around the social processes within homes where an OUD parent resides and how they impact child outcomes.

**Implications for policy and practice**

Child welfare agencies will increasingly be called to implement and develop specific best practice approaches related to providing services to children living with an OUD parent. Child welfare administrators will need to identify needs related to working with these families as well as understand these and other behavioral health outcomes for children in these households (Children’s Bureau, 2014). An initial step could be to develop refined assessment tools when youth present to child welfare agencies from an opioid involved household. Such an assessment tool could include some of the behavioral and substance use factors identified in this review of the literature. A second direction could be to more deliberately work to collect indicators related to behavioral and substance use outcomes for parents and youth. This review of the literature suggests that collecting administrative data on this specific group of child welfare clients may inform the knowledge base regarding needs of this population of families. Understanding these data would be important and could require a review or modification of automated state systems for child welfare information to collect more specific information related to substance use patterns in families. For example, rather than flagging parental drug abuse alone, the ability to provide child welfare administrators, practitioners, and researchers more information on the specific substance of abuse would better inform the assessment of risk and associated intervention strategies.

These results also suggest implications for child welfare administrators working to identify practice models or theories of change that may affect child welfare practice with children living with an OUD parent. Knowledge of the possible behavioral and substance use outcomes can inform policy and practice, by establishing benchmarks and possibilities for intervention. Ideally, identification of youth living with an OUD parent would be coupled with implementation of best practice models and deliberate selection of interventions. Child welfare practitioners should consider ways to assess evidence-informed models of practice and to maximize drivers of organizational change to support well-being among this vulnerable population of youth. These drivers could include implementation components such as targeted selection of staff with substance abuse training, specific training modules for workers, as well as collaboration and consultation with other agencies serving this population (Fixsen, Naoom, Blase, Friedman, Wallace, 2005). These efforts may create opportunities to engage in conversations that link best practice and policy directives (Fixsen, Blase, Metz, &
Van Dyke, 2013) to best serve children and families for whom parental opioid misuse impacts behavioral and substance use outcomes.

Compared with younger children involved with child welfare services, older children come to the attention of child welfare agencies through a wider range of referral sources: child protective service reports, juvenile justice system referrals, truancy complaints from schools, and referrals for behavioral and substance abuse treatment services. Coordinating care at the assessment and intervention level becomes important for this population, as systems are not always in place to share data. The Children’s Bureau has stressed the importance of a national move towards coordinating across systems of care, and these cross-systems collaborations are key in meeting child and family needs when there is substance abuse treatment and child welfare involvement (Mitchell et al., 2012). The mutual responsibility for family well-being across these systems of substance abuse and child welfare services aids family preservation through ensuring practitioners are cross-trained in issues of substance abuse and child welfare and providing timely access to family-focused substance abuse treatment (Dennis et al., 2015; Young, 2016). As this model becomes more common, sharing assessment items across systems of care is key to seeing children and families matched with the level of service that will be most beneficial. In terms of parental OUD, assessments should include specific questions around the type and degree of substance misuse to which the children were exposed.

From a practice perspective, cross-systems collaboration that integrate family-focused treatment have been shown to improve outcomes for families involved with substance abuse and child welfare systems (Dennis et al., 2015; Ryan, Marsh, Testa, & Louderman, 2006). Promising strategies include the use of intensive case management and recovery coaches (Ryan et al., 2006); family drug courts (Choi, 2012); and family-centered treatment (Werner, Young, Dennis, & Amatetti, 2007). This review of literature focused on older children, where the opportunity to safely intervene with the family kept intact should be recognized as a key priority. With adequate community support, available and accessible treatment, and family-focused treatment approaches, this group of children may avoid the trauma of family separation.

Child welfare agencies rely on research literature to inform practice and policy. As those agencies increasingly interact with families struggling with opioid misuse, there will be a need for consistent review of the evidence regarding impact on youth of all ages. To enhance effective child welfare practice and sustain those efforts, child welfare researchers can continue to generate applied research, ideally in ways that foster partnerships between academic institutions and child welfare agencies. Knowing that children living in a home with parental OUD may have associated behavioral and substance use outcomes is an essential first step toward implementing sustainable best practices in child welfare as agencies respond to the increase in opioid misuse and its impact on children and families.
Acknowledgments

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Notes on contributors

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References


