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Maternal drug abuse history, maltreatment, and functioning in a clinical sample of urban children[☆]

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ABSTRACT

Objective: This study examined the association between maternal drug abuse history, maltreatment exposure, and functioning, in a clinical sample of young children seeking therapy for maltreatment.

Methods: Data were collected on 91 children, mean age 5.3 years (*SD* 1.0). The Preschool and Early Childhood Functional Assessment Scales (PECFAS) was used to measure functional impairment. A child maltreatment exposure (CME) score was developed based on maltreatment history. Data on maternal risk factors including maternal drug abuse (MDA) were obtained. Data were analyzed using descriptive statistics and regression modeling.

Results: Approximately half (47.3%) of the children had a history of MDA. MDA history was associated with increased odds of neglect (*OR* = 5.6, 95% *CI* = 2.2–14.6) and abandonment (*OR* = 3.3, 95% *CI* = 1.3–8.3), and decreased odds of sexual abuse (*OR* = 0.35, 95% *CI* = 0.2–0.8). There were no statistically significant differences in CME scores for children with MDA history when compared to children without MDA history. Children with MDA history had an increased mean functional impairment score (mean 15 points; 95% *CI* = 1.3–29.2) compared to children without MDA history. Following adjustment for maltreatment, no difference in impairment score was found.

Conclusion: Although MDA history was associated with higher odds of neglect and abandonment, it was not associated with total CME or functional impairment. Adverse socio-environmental experiences associated with urban environments may confer a high risk of CME and functional impairment, irrespective of MDA history.

Practice implications: In addition to maternal drug abuse, clinicians working with children need to identify other factors which could place the child at added risk for maltreatment. Further research is needed to better understand the role of adverse socio-environmental experiences on maltreatment and functional impairment in children. This study highlights the need for a multi-disciplinary approach to prevention and intervention programs needed to diminish adverse socio-environmental conditions prevalent in urban environments.

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Introduction

Few studies relating maternal drug abuse to maltreatment in young children growing up in urban areas have been conducted. Yet, understanding the association between maternal drug abuse, child maltreatment and functioning is of significant

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clinical and public health importance. It is well documented that urban environments frequently have multiple adverse socio-environmental conditions such as concentrated poverty, unemployment, homelessness, drug use, and neighborhood crime (Berube, 2008). Child maltreatment rates are correlated with the decline of community and social organization found in urban environments such as the lack of infrastructure, poor housing, lack of societal support, and community violence (Coulton, Korbin, Su, & Chow, 1995; Hussey, Chang, & Kotch, 2006). Low-socioeconomic status (whether defined in terms of family income or receipt of financial aid) is strongly associated with child maltreatment (Dakil, Sakai, Lin, & Flores, 2011; Sedlak et al., 2010; Slack, Holl, McDaniel, Yoo, & Bolger, 2004). Children from lower socioeconomic households are 5 times more likely to experience maltreatment (Sedlak et al., 2010). In a study of 1,411 children in the Chicago Longitudinal Study, maternal age at the child's birth, receipt of public assistance, and being a single-parent family, were shown to be associated with maltreatment (Mersky, Berger, Reynolds, & Gromoske, 2009).

Children growing up in families living in lower socio-economic environments face multiple risks and stressors. One major stressor in urban environments is parental substance abuse. Approximately 10% of children aged 5 or younger live with a parent who has abused substances in the past year (Substance Abuse and Mental Health Services Administration & Office of Applied Studies, 2009). Families with parental substance abuse have higher rates of mental illnesses, unemployment, domestic violence, delinquency, and participation in the welfare system (Substance Abuse and Mental Health Services Administration, 2010; US Department of Health and Human Services, 1999). Drug abuse affects women in unique ways including physically, psychologically, and socially. Women with a history of drug abuse are more likely to be single, have less than a high school education, and have fewer sources of social support (Colliver, Caces, & Quinn, 1996; Substance Abuse and Mental Health Services Administration, 2004). Drug abuse affects maternal discipline and child-rearing styles by impairing judgment and priorities, with consequent negative effects on the consistency of care and supervision provided (Street, Whitlingum, Gibson, Cairns, & Ellis, 2008; US Department of Health and Human Services, 1999; Velez et al., 2004). These factors may adversely influence child development and functioning. Nevertheless, the relationship between maternal drug abuse, type of maltreatment and child functioning has remained understudied.

Over half of the children in the child welfare system have parents with drug use problems (US Department of Health and Human Services, 1999; Young, Boles, & Otero, 2007). Children of parents with substance abuse tend to enter foster care at younger ages and are more likely to remain in foster care longer than maltreated children from families not affected by drug use (US Department of Health and Human Services, 1999). Walsh et al. found that children whose parents abuse substances were twice as likely to experience physical or sexual abuse, compared to children with non-substance-abusing parents (Walsh, MacMillan, & Jamieson, 2003). Conversely, Sowder and Burt found no differences in the incidence of overall abuse and neglect among children living with heroin-dependent parents compared to non-addicted parents (Sowder & Burt, 1980); while Mersky found no difference in physical abuse between children with and without maternal drug abuse (Mersky et al., 2009). In a national sample, "the perpetrator's alcohol and drug use were associated with demonstrable harm, each occurring in 11% of the children in the sample" (Sedlak et al., 2010).

The present study examined the association between child maltreatment exposure, child functioning, and maternal drug abuse history in an urban clinical sample of young children seeking mental health services. We hypothesize that: (1) maternal drug abuse history would be associated with increased child maltreatment exposure; and (2) maternal drug abuse history would be associated with increased functional impairment.

Methods

Participants

The study cohort consisted of 91 participants, aged 4–7 years (mean age = 5.3 years; *SD* 1.0), who received mental health services at an urban community-based mental health center where over 96% were Medicaid recipients (Table 1). Patient race/ethnicity variable was self-determined. The majority of children in the study sample (70.3%) were African-American, 23% were White, 2% were Hispanic, and 4.7% were multi-racial. Participants were predominantly of lower socio-economic status with approximately equal gender distribution (52% female). Approximately one third of the children (31%) were living with biological parents, 28% were living with relatives, 26% were in foster care, and 15% were in other placements, such as adoptive homes, family friend, and so on. Approximately half of the children (50.5%) had sexual abuse as part of their maltreatment history, which is likely due to the presence of 2 therapeutic programs for young children with sexual abuse in the mental health center. This study was approved by the University Institutional Review Board.

Procedures

Maternal risk factors, including maternal drug abuse (MDA) and child maltreatment exposure were documented upon entry and updated during treatment using SumOne for Kids, a statewide outcome management database for children's mental health services (Beck, Meadowcroft, Mason, & Kiely, 1998). Information included data on child abandonment and neglect; emotional, physical, and sexual abuse. Data on maternal risk factors included drug abuse, alcohol use problems, incarceration, and mental health problems. Information on in utero drug and alcohol exposure was obtained by caregiver self-report, case manager and/or medical record history. All clinical interviews and data collection were done by licensed clinical social workers and psychologists. Data on paternal factors were incomplete and not included in the analysis. For the

Table 1Child demographics, child maltreatment, and maternal factors ($N=91$).

| Participant characteristics | Frequency (n) | Percentage (%) | Mean (SD) |
|-----------------------------|-------------------|----------------|---------------|
| General demographics | | | |
| Age at entry | | | 5.3 (1.0) |
| Gender (female) | 44 | 52 | |
| Race (African-American) | 64 | 70.3 | |
| Child maltreatment type | | | |
| Abandonment | 30 | 33.0 | |
| Emotional abuse | 8 | 8.8 | |
| Neglect | 56 | 61.5 | |
| Physical abuse | 22 | 24.9 | |
| Sexual abuse | 46 | 50.5 | |
| Child maltreatment exposure | | | 1.8 (1.1) |
| Maternal risk factors | | | |
| Alcohol abuse | 12 | 13.2 | |
| Drug abuse | 43 | 47.3 | |
| Incarceration | 7 | 7.7 | |
| Mental health | 14 | 15.3 | |
| No maternal risk factor | 41 | 45.1 | |

purpose of this article, the term “maternal drug abuse” is used to indicate dependence on, or abuse of, substances apart from alcohol, in the participant’s biological mother.

Measures

Preschool and Early Childhood Functional Assessment Scales. The Preschool and Early Childhood Functional Assessment Scales (PECFAS) is a multi-dimensional measure that was used to assess the level of functional impairment in seven areas, including school/daycare role performance (school), home role performance, community role performance, behavior toward others, moods/emotions, self-harmful behavior, and thinking/communication (Hodges, 1994). A total PECFAS score was generated by adding the child’s functional impairment score for each domain. The range of possible total scores was 0–240, with higher scores indicating greater functional impairment. A score of 40 or higher is considered to indicate serious functional impairment, equivalent to a DSM-IV Global Assessment of Functioning (GAF) score of 60 or lower. A score of 80 or higher is often considered the criterion for eligibility for public mental health services and for the consideration of out-of-home placement (Hodges, Doucette-Gates, & Kim, 2000; Navon, Nelson, Pagano, & Murphy, 2001). The PECFAS has adequate psychometric properties, including inter-rater reliability and internal consistency (Hodges & Wong, 1996). The PECFAS has been used to identify children in need of mental health services, generate treatment plans, and track outcomes over time (Murphy et al., 1999). For the purpose of this study, the total PECFAS score was analyzed.

Clinicians used the PECFAS Self-Training Manual and group training sessions with a training coordinator to ensure reliability (Hodges, 2004). A trained clinician measured the child’s level of functioning by selecting items that describe the child from a list of behavioral descriptions. Clinicians were masked to the hypotheses of the study.

Statistical analysis

Data were analyzed using STATA Intercooled 10.0 (Stata Corporation, 2009). Patient demographics, child maltreatment exposure, and PECFAS scores were summarized using descriptive statistics. A child maltreatment exposure (CME) score, similar to the ACE score used in adult studies (Felitti et al., 1998), was calculated by adding the cumulative maltreatment exposures (e.g., abandonment, neglect, and emotional, physical, sexual abuse). CME scores ranged from 0 to 5, with higher scores indicating higher maltreatment exposure. T -tests and chi-square analyses were conducted to compare means and frequencies across MDA exposure groups. Logistic regression modeling was performed to estimate the odds of each child maltreatment type by MDA status, adjusted for age and gender. Multivariate linear regression models were developed to estimate the mean difference in PECFAS and CME score by MDA status, adjusted by demographic variables including age, gender, and placement setting. Due to the limited number of participants reporting intrauterine drug exposure, emotional abuse, and maternal alcohol abuse history, these variables were not analyzed in this study.

Results

Overall child maltreatment exposure and functional impairment

The mean CME score was 1.8 (SD 1.1). The mean functional impairment score for the cohort was 68.4 (SD 34.5). For each additional CME, the total PECFAS score increased (mean 7 points, $p=0.045$).

Table 2Maternal drug abuse history status and odds of child maltreatment type ($N=91$).

| Child maltreatment exposure | Maternal drug abuse | | | | | |
|-----------------------------|---------------------|------|------------|-----|-------|----------|
| | <i>n</i> | % | Odds ratio | SE | Z | 95% CI |
| Abandoned | 20 | 66.7 | 3.3* | 1.6 | 2.55 | 1.3–8.3 |
| Emotionally abused | 3 | 37.5 | 0.6 | 0.5 | −0.57 | 0.1–2.9 |
| Neglected | 35 | 62.5 | 5.6** | 2.8 | 3.54 | 2.2–14.6 |
| Physically abused | 11 | 50.0 | 1.2 | 0.6 | 0.30 | 0.4–3.0 |
| Sexually abused | 16 | 34.8 | 0.35* | 0.2 | −2.38 | 0.2–0.8 |

* $p < 0.05$.** $p < 0.001$.**Table 3**Regression analysis child maltreatment type and total PECFAS scores by MDA history status ($N=91$).

| Maternal drug abuse (present/absent) | <i>n</i> | Percentage of children with MDA history | Mean PECFAS score | SD | 95% confidence interval | <i>p</i> -Value |
|--------------------------------------|----------|---|-------------------|------|-------------------------|-----------------|
| Abandonment | 30 | | 76.3 | 37.1 | | |
| Present | 20 | 66.7 | 73.5 | 40.4 | 54.6–92.4 | |
| Absent | 10 | 33.3 | 82.0 | 30.5 | 60.2–103.8 | |
| | | | −8.5 ^a | | −38.3 to 21.3 | 0.5633 |
| Emotional abuse | 8 | | 78.8 | 38.3 | | |
| Present | 3 | 37.5 | 76.7 | 58.6 | −68.9 to 222.2 | |
| Absent | 5 | 62.5 | 80.0 | 29.2 | 43.8–116.2 | |
| | | | −3.3 ^a | | −77.3 to 70.6 | 0.9157 |
| Neglect | 56 | | 73.2 | 36.5 | | |
| Present | 35 | 62.5 | 76.6 | 38.2 | 63.5–89.7 | |
| Absent | 21 | 37.5 | 67.6 | 33.6 | 52.3–82.9 | |
| | | | 8.9 ^a | | −11.3 to 29.2 | 0.3789 |
| Physical abuse | 22 | | 77.7 | 40.9 | | |
| Present | 11 | 50 | 86.4 | 50.3 | 52.6–120.1 | |
| Absent | 11 | 50 | 69.1 | 28.8 | 49.7–88.4 | |
| | | | 17.2 ^a | | −19.2 to 53.7 | 0.3344 |
| Sexual abuse | 46 | | 67.2 | 33.6 | | |
| Present | 16 | 35 | 71.9 | 33.1 | 54.2–89.5 | |
| Absent | 30 | 65 | 64.7 | 34.2 | 51.9–77.4 | |
| | | | 7.2 ^a | | −13.9 to 28.3 | 0.4950 |

^a Mean difference in PECFAS scores by child maltreatment type and MDA status.

Maternal drug abuse history and child maltreatment exposure

MDA history was reported in almost half (47.3%) of the study sample (Table 1). In the mothers with drug abuse history, approximately one quarter (25.6%) had alcohol abuse history, one fifth (23.3%) had a history of mental health disorder, and one-tenth (9.3%) had a history of incarceration. In the children with MDA history, the majority (81%) experienced neglect. Children with MDA history had 5.6 times the odds of neglect exposure compared to children without MDA history (OR = 5.6, 95% CI = 2.2–14.7, $p = 0.000$) (Table 2). Almost half of the children (47%) with MDA history experienced abandonment. Children with MDA history had 3 times the odds of abandonment compared to children without MDA history (OR = 3.3, $p = 0.011$, 95% CI = 1.3–8.3). Thirty-seven percent of children with MDA history experienced sexual abuse. Children with MDA history had decreased odds of sexual abuse compared to children without MDA history (OR = 0.35, 95% CI = 0.2–0.8). There were no statistically significant differences in total CME score between children with MDA history and those without MDA history, adjusted for age and gender ($p = 0.09$). There were no statistically significant differences in the CME scores between children with and without MDA history, adjusted for caregiving setting (biological parent care, foster care, or relatives' care).

Maternal drug abuse history and child functional impairment

There was a statistically significant increase in the total PECFAS scores for children with MDA history compared to children without MDA history, adjusted for age and gender (15; 95% CI = −0.5 to 28.7; $p = 0.043$). Following adjustment for total CME or for each type of CME, no statistically significant differences in the total PECFAS score was noted by MDA status (Table 3). There was also no difference in the mean total PECFAS score between children with and without MDA history, adjusted for caregiving setting (biological parent care, foster care, or relatives' care).

Discussion

This study examined the association between MDA history, CME, and child functioning. Overall, children in this cohort had significant functional impairment, which increased with each additional child maltreatment exposure. MDA history

was associated with increased risk of neglect and abandonment, which is consistent with previous findings in the literature (Sedlak et al., 2010; US Department of Health and Human Services, 1999). Importantly, the current study found no differences in cumulative maltreatment exposure in children with MDA history compared to their peers without MDA history. For children with MDA history, an increase in the child's functional impairment was noted; however, this increase was no longer statistically significant once child maltreatment exposures were considered. These findings suggest that environmental risk factors other than MDA may increase the odds of child maltreatment and functional impairment. Thus, for children living in urban areas, the effects of child maltreatment often attributed to MDA may be associated with inner-city environmental risk factors within which the maternal drug abuse lifestyle subsists. In a study of 6-year-old inner-city children attending an urban pediatric clinic, more than half had witnessed some form of violence. Witnessing violence was associated with more behavioral problems and higher stress scores. However, the children of substance-abusing mothers did not witness more violence than the control children in that study (Schuler & Nair, 2001).

Urban environments have psychosocial risk factors for child maltreatment and functional impairment (Wandersman & Nation, 1998). The current sample of children was drawn from an inner-city population that has encountered urban decline and housing abandonment. Although disproportionately more inner-city children are poor, poverty is not their only burden. They are also likely to attend schools with others who, like themselves, are poor and minority-group members as well. Related to the problem of financial instability, neighborhood factors have also been shown to be important. Families in neighborhoods with higher rates of mobility also have higher levels of maltreatment (DePanfilis & Zuravin, 1999). On the other hand, positive neighborhood factors such as social cohesion and informal social control (collective efficacy) have a moderating influence on later aggressive behavior in children who have suffered neglect (Yonas et al., 2010). Thus, neighborhood-level factors such as collective efficacy should be considered as protective factors against future negative outcomes in youth who have experienced maltreatment (Yonas et al., 2010).

Surprisingly, the present study found that the odds of having sexual abuse history were less for children with maternal drug abuse history. Interpreting this finding is complex. Parental substance abuse frequently sets the stage for parental inattentiveness and lack of protection, which consequently makes the child more vulnerable to being sexually victimized by adults or older children in their environment. Parental impairments, particularly maternal illness, maternal alcoholism, parental substance abuse, serious marital conflicts, extended maternal absences, and social isolation, have all been associated with increased risk of sexual abuse in some studies (Putnam, 2003). However, in sexual abuse cases, non-offending parents are more likely to take their children to treatment. Importantly, our study focused on mothers, whereas fathers, rather than mothers, make up the majority of the perpetrators of sexual abuse (Sedlak et al., 2010). Thus, studies on paternal drug abuse as it relates to child sexual abuse and maltreatment may yield different results. Cultural factors related to this study population may have contributed to this unexpected finding. In a study of predominantly African-American women with cocaine dependence and child sexual abuse histories, only a third reported having a mother with drug abuse history, compared to two-thirds with paternal drug abuse history (Boyd, 1993). Additionally, the literature shows that although low socioeconomic status is a risk factor for physical abuse and neglect, it is less likely to be associated with sexual abuse (Putnam, 2003).

As in previous studies, our current study findings support the fact that sexual abuse has different associative pathways, compared to other kinds of abuse. To date, we are not aware of any study that demonstrated decreased odds of sexual abuse in children with MDA history in urban clinical samples such as ours. However, we caution that the negative association of sexual abuse with MDA history may be partially attributable to the overrepresentation of children with sexual abuse in our study population. Nevertheless, further studies are needed to better understand the relationship between MDA history and sexual abuse in young children.

Limitations

Several limitations should be taken into account when considering the findings of this study. This is a study of a high-risk clinical sample, the findings of which may not be applicable to the general public. Other factors include the limited sample size, demographic variability, and the small number of participants reporting emotional abuse which may limit generalizability. We caution that the negative association of sexual abuse with MDA history may be partially attributable to the overrepresentation of children with sexual abuse in our study population. Data on maternal drug abuse history included self-reports and are therefore subject to recall bias.

Measuring child maltreatment remains a challenge. The CME score, though a useful construct, has drawbacks. While statistically, it is a number count (i.e., the number of types of maltreatment experienced), the word "exposure" contains pertinent clinical undertones that are reflective of the complexity of maltreatment, where even one incidental exposure, can be life-altering, and even fatal in some cases. A persistent problem in the study of traumatic stress across the life span is the conceptual and methodological difficulty of measuring chronic and repeated traumatic exposure. The CME score does not take into consideration factors such as severity, reoccurrence, timing, and duration of maltreatment, or the relationship of the perpetrator to the child. This measurement challenge applies to studies of young children raised in violent environments, who are routinely exposed to multiple and overlapping sources of violence and accidental injury resulting from severe neglect (Finkelhor, 2007). As such, child maltreatment is often a condition and not a discrete event.

Strengths

While many studies report on the developmental and behavioral outcomes of children with intrauterine drug exposure and maternal substance abuse, few studies measure child functional and maltreatment outcomes in young children with maternal drug abuse history. Child behavior is not always synonymous with child functioning. The current study provides an informative novel perspective by evaluating child functioning as a primary outcome of maltreatment exposure and maternal drug use. Frequently, researchers examine diagnoses and behavioral symptoms which may not clinically inform the practitioner's understanding of the impact of maltreatment on the child's daily functioning. The functioning of the child is an important clinical objective that is often obscured by their history of maltreatment or MDA status. Taking a functional outcomes approach requires that the systems involved in the child's life make the necessary changes needed to ensure the child reaches their optimal potential, irrespective of their history of maltreatment or MDA status. Importantly, the current study also enhances our understanding of the functional impact on children growing up in impoverished, stressful urban areas.

Conclusion

Children with MDA history have significantly higher rates of neglect and abandonment but do not have increased child maltreatment exposure overall. This partially supports our first hypothesis. This pattern of maltreatment indicates that MDA confers a risk for maltreatment of omission (neglect and abandonment) rather than maltreatment acts of commission (emotional abuse, physical abuse, sexual abuse). This is in keeping with the current DSM-IV criteria for substance use disorders, which includes "failure to fulfill major role obligations, *neglect of children or household*" (American Psychiatric Association, 2000). It is important to emphasize that maternal acts of omission, such as neglect and abandonment, may result in more dangerous consequences than acts of commission. Neglect and abandonment may result in long-term physical and psychological damage to the child, which extend into adulthood.

Children with MDA history have more dysfunction than children without MDA history; but when the contribution of maltreatment exposure or type is examined this effect is no longer present. This partially supports this study's second hypothesis. The lack of differences in CME and child functioning between children with and without maternal drug abuse history in this urban population suggests that factors outside of maternal drug abuse have a direct impact on child maltreatment and functioning. These outcomes may reflect other psychosocial factors prevalent in urban environments.

Practice implications

This study underscores the effects of adverse socio-environmental conditions on the mental health of young children. It is important for providers to recognize the interplay between people, poverty, and place, as it affects child maltreatment exposure and functioning. Clinicians working with children who have mothers with drug abuse should see beyond the children's MDA status in order to identify potentially modifiable factors in the family and environment that place the child at risk for maltreatment and adverse socio-environmental experiences. On the public health level, this study highlights the vital need for a coordinated multi-disciplinary community-based approach to the prevention, intervention, and amelioration of adverse socio-environmental conditions prevalent in urban environments.

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