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Emotional and Behavioral Functioning of Offspring of African American Mothers with Depression

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Abstract

Extensive research demonstrates the negative impact of maternal depression on their offspring. Unfortunately, few studies have been explored in African American families. This study examined emotional and behavioral functioning among children of African American mothers with depression. African American mothers ($n = 63$), with a past year diagnosis of a depressive disorder, and one of their children (ages 7–14) completed behavioral rating scales in a cross-sectional design. Results showed that 6.5% and 15% scored within the clinical range for depression and anxiety symptoms, respectively. Approximately a third of the offspring reported suicidal ideation. Based on mothers' report, 25.4% and 20.6% of the offspring exhibited internalizing and externalizing symptoms in the clinical range, respectively. Offspring whose mothers were in treatment exhibited higher levels of self-reported anxiety symptoms. Offspring of African American mothers with depression were exhibiting socioemotional problems in ways that are similar to offspring of European American mothers with depression.

Keywords

Depression; Anxiety; Mothers; Offspring; African American

Introduction

The impact of maternal depression on offspring is well documented. Compared to offspring of non-depressed mothers, the offspring of mothers with depression have higher levels of psychiatric disorders (e.g., major depressive disorder [MDD], anxiety disorders, substance disorders), internalizing and externalizing behavior problems, socioemotional maladjustment and social difficulties [1–3]. In this at risk group, these disorders occur earlier and with higher rates of psychiatric co-morbidity than observed in youth of non-depressed parents [4, 5]. The impact of maternal depression has been shown across the offspring's lifespan into adulthood, as well as into the third generation [6–9]. Additionally, certain maternal psychiatric characteristics, such as co-morbid psychopathology and maternal depression severity, have been linked to an increased risk of maladjustment among offspring of depressed mothers [10, 11].

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Goodman and Gotlib [4] propose a comprehensive theoretical model of the transmission of depression from a mother to her offspring with four mechanisms of transmission. The first is a genetic predisposition towards depression. Offspring may inherit genes that predispose them to depression or lead to temperament and personality traits (e.g., inhibition, shyness) that increase vulnerability to depression. The second proposed mechanism is a dysfunctional neuroregulatory system resulting from an abnormal environment for fetal development due to the possible impact of maternal depression on the neuroendocrine system, blood flow, or prenatal care. The third mechanism is offspring's exposure to the depressed mother's negative cognitions, behaviors, and affect [12, 13], which interfere with the mother's ability to meet offspring's emotional and developmental needs [14, 15]. This parenting deficit may adversely affect the offspring's psychosocial and cognitive development [16, 17]. The fourth mechanism is an increase in offspring's exposure to negative life events and stressors that accompany parental depression [18, 19]. This increased daily stress may, in turn, increase offspring's risk for psychiatric distress [20, 21]. The occurrence of any of these mechanisms may increase the offspring's vulnerabilities in multiple domains of functioning, such as psychobiological, social, and behavioral. Offspring vulnerabilities have been linked to increased risk for internalizing and externalizing problems.

Offspring of mothers with depression have demonstrated numerous psychosocial difficulties. Compared to children of non-depressed mothers, these offspring demonstrate cognitive deficits, such as negative cognitions, decreased perceptions of self-worth, depressogenic attributional styles, and social information processing deficits [22–24]. They also exhibit greater levels of medical problems and mortality [9]. The deleterious effects of maternal depression also include delays in achieving developmental milestones [25, 26]. Parent-offspring interactions have shown to be impaired, such as less secure attachment and more negative interactional style [27, 28]. Offspring of depressed mothers tend to have more difficulty regulating their behavior and emotions, and interacting with peers compared to children of non-depressed mothers [29–33].

Unfortunately, few studies focus on offspring of African American mothers with depressive disorders. A recent study of predominantly African American and Latino low-income mothers with MDD showed that offspring of mothers with depression had lower adaptive behavior and greater behavioral problems than offspring of mothers without depression [34]. In a low-income, single-parent African American sample, mothers with depressive disorders provided less structure, guidance and rule enforcement when interacting with their offspring than both mothers with schizophrenia and those without a psychiatric disorder; however, maternal psychiatric diagnosis accounted for very little in child social behavior [35]. On the other hand, a few studies comprising of a majority of African American non-clinical women showed that depression was not associated with negative parenting outcomes [36–38]. These contradictory studies suggest that our understanding of the impact of maternal depression on offspring is limited in the context of African American families.

To address this gap in the literature, this study examined the emotional and behavioral functioning of offspring of African American mothers with a current or past year depressive disorder. The first aim was to describe both child- and/or parent-reported data on depression and anxiety symptoms, internalizing and externalizing behavior problems and social skills. The addition of child report helps offset the potential depression-distortion effect of a parent's perspective. Parents with depression are known to overgeneralize and overreport behavior problems in community and clinic-referred offspring [39–41]. Based on the research literature, it was hypothesized that these offspring will exhibit higher levels of depressive and anxious symptoms and internalizing and externalizing behavior problems but lower levels of social skills than normative samples. The second aim was to examine whether maternal psychiatric characteristics (depression severity, being in treatment, co-

morbid anxiety disorders, history of substance abuse) are associated with offspring's anxiety and depression symptoms.

Method

Participants

The participants consisted of 63 mother-offspring dyads. Mothers were eligible for the study if they: 1) were African American; 2) had a primary current or past-year psychiatric diagnoses of MDD, Dysthymic Disorder or Depressive Disorder, Not Otherwise Specified (NOS); and 3) were the primary caregiver of a school age child who resided at least part-time with them. Race/ethnicity was obtained by maternal self-report and participants were allowed to make more than one choice. Mothers could not have: 1) history of bipolar disorder or any psychotic disorder; 2) current or past year diagnosis of substance dependence; or 3) self report of diagnosis of mental retardation. Offspring were excluded from participation if there was maternal report of a diagnosis of mental retardation.

The mothers ranged in age from 23 to 63 years with a mean age of 39.2 (SD = 7.6) years. All mothers identified their race as African American with 7.9% (n = 5) also identifying with other races (i.e., White, Native Hawaiian/Pacific Islander, Asian, American Indian/Alaskan Native) and two percent (n = 1) identifying with Hispanic ethnicity. The majority of the mothers were never married (65%, n = 41) while 13% (n = 8) were married or living with a partner and 22% (n = 14) were separated, divorced or widowed. The majority of the mothers also received public assistance (61.9%, n = 39). Thirty eight percent (n = 24) of the mothers worked full or part-time while 23.8% (n = 15) of the sample were on disability. Three (4.8%) of the mothers were full or part-time students, two (3.2 %) were retired, ten (15.9%) were homemakers, while the remaining nine (14.2%) were unemployed. Approximately 68% (n = 43) of the mothers had either high school equivalency or higher—22% (n = 14) were high school graduates or obtained a GED, 27 % (n = 17) attended some college or vocational school, while 19% (n=12) graduated from vocational school, college or higher. Approximately a third (n = 21) of the mothers had their first child at the age of 18 or younger, while 41.3% (n = 26) had their first child at the age of 19 or younger.

The offspring ranged in age from 7 to 14 years with a mean age of 11.2 (SD = 2.1) years. Their grades ranged from second to tenth with a mean of grade 5.7 (SD = 2.2). Approximately 59% (n = 37) were female. Similarly, mothers identified all of their offspring as African American, however, 9.5% (n = 6) also identified with other races (i.e., White, Native Hawaiian/Pacific Islander, Asian, American Indian/Alaskan Native). Three offspring (4.8%) were also of Hispanic ethnicity.

Recruitment

Mothers were recruited from multiple sources including clinical and community sites and newspaper advertisements. Table 1 shows the numbers and frequencies of the recruitment sources of the women who expressed interest in the study and who completed the study. Although recruitment from the newspaper advertisements yielded the most participants who expressed interest, recruitment from schools yielded the highest completion rates.

One hundred thirty two women indicated interest in the current study and of these, 118 (89%) were administered the telephone screening. Ninety mothers (76%) were eligible for the clinical interview with 73 (81%) mothers completing the interview, 10 withdrawing (11%), and 7 (8%) lost to contact. Reasons for withdrawal were extended sickness, schedule difficulties, no longer feeling depressed and no longer being interested in the study. There were 68 (93%) mothers who were eligible for the study after the clinical interview with 63 (93%) completing the study, 3 (4%) never completing the mother and child assessment, and

2 (3%) withdrawing. Reasons for withdrawal were that offspring did not want to participate and mother's concerns about agencies having access to her offspring's data.

Procedures

To enter the study, mothers first completed a telephone screening to assess their eligibility for the study. If appropriate, mothers then participated in a clinical interview (Structured Clinical Interview for DSM-IV-TR Axis I Disorders) [42] conducted by the primary author, a licensed clinical psychologist, to determine diagnostic eligibility. Finally, eligible mothers and one of their offspring completed a battery of assessment questionnaires read aloud by research staff. Both mother and child were paid \$20 for the assessment interview. Written consent was collected from the mother and assent was collected from the child. This study was approved by the Institutional Review Boards of the Children's Hospital of Philadelphia, the University of Pennsylvania, and the Philadelphia Department of Public Health. When suicidal ideation and/or behavior were reported on measures, research staff asked additional questions. If a participant endorsed intent, desire to die or plan, then the Principal Investigator (primary author) talked with the participant in person or by telephone to assess for imminent suicidal risk. Referrals were made if appropriate.

Measures

Child Emotional and Behavioral Functioning Measures—The Children Depression Inventory (CDI) [43] is a 27-item self-report scale of depressive symptoms suitable for use by youth ranging in age from 7 to 17 years. The CDI is the most widely used measure of child depression [44, 45]. It has demonstrated good validity with other measures of depression, cognitive distortions, and self-esteem [45]. The CDI has adequate internal consistency (0.82 to 0.87) for African American youth [46, 47]. The Cronbach alpha coefficient for the current sample is .83. The CDI total T-score based on child report was used to measure child depressive symptoms and a T-score of above 65 'much above average' was used as the clinical cut-off.

The Multidimensional Anxiety Scale for Children (MASC) [48] is a 39-item self-report instrument that measures a broad range of anxiety symptoms in youth. The MASC has strong test-retest reliability (.70 to .93 during a 3-month interval), internal consistency (interclass correlations from .60 to .90), and ample evidence of its validity with both clinic and community samples [48–50]. African American youth have similar mean total scores as white youth [50–52]. The Cronbach alpha coefficient for the current sample is .89. The total T-score based on child report was used to measure child anxiety and a T-score of above 65 'much above average' was used as the clinical cut-off.

The Child Behavioral Checklist (CBCL) [53] assesses children's behavioral problems and competencies as reported by their parents or guardians. The 113 problem items assess behavior across 9 syndromes on a 3-point response scale. Psychometrics and norms are well developed demonstrating its satisfactory reliability and validity. For example, the CBCL and the Strengths and Difficulties Questionnaire have an overall correlation coefficient of 0.87 [54]. It has been used cross-culturally, which includes samples with blacks and/or African Americans [55, 56]. The Cronbach alpha coefficients for the current sample are .90 (internalizing subscale) and .93 (externalizing). The internalizing and externalizing scales T-scores based on maternal report were used in the present study and a T-score of 70 or greater was used as the clinical cut-off.

The Social Skills Rating System (SSRS) [57] assesses children's social skills (i.e., cooperation, assertion, responsibility, empathy, and self-control). SSRS has child-report and parent-report measures for developmental levels. Norms have been established for males

and females in grades 3–12. It demonstrates adequate reliability and validity [57]. The child report has good internal consistency ($\alpha = .83$) and adequate four-week test-retest reliability ($r = .68$). Parent report measures for children from kindergarten to 12th grade demonstrate adequate reliability and validity [57]. The Cronbach alpha coefficients for the current sample of offspring are .87 for elementary level and .91 for secondary level. Those for the parents are .74 for the elementary level and .71 for secondary level. Both parent and child reports were administered. A standard score of less than 85 was used to indicate fewer social skills.

Maternal Psychiatric Measures—The Structured Clinical Interview for DSM-IV-TR Axis I Disorders (SCID-I) [42] is a semi-structured interview for diagnosing the major DSM-IV Axis I disorders. The SCID determines whether an Axis I diagnosis has ever been present (lifetime prevalence) and whether or not there is a current episode. This instrument is widely used in adult psychopathology and treatment research. Eleven percent ($n = 7$) was rated by another clinician for reliability purposes and kappa coefficients ranged from .59 to 1.0 for mood disorders with a mean of .75.

The Beck Depression Inventory- II (BDI-II) [58] measures the severity of depressive symptoms in areas such as mood, pessimism, sense of failure, and somatic symptoms. There is evidence of the reliability, validity and utility of the instrument [59, 60]. It has excellent internal consistency ($\alpha = .90$) with African American samples [61, 62]. The Cronbach alpha coefficient for the current sample is .90. The BDI-II was used to measure maternal depression severity.

Maternal treatment status is defined by endorsement of either current therapy or medication for psychological distress during the telephone interview. Mothers responded either yes or no to two separate questions which were aggregated for endorsement.

Data Analysis

The goals of the analyses were to: 1) describe offspring emotional and behavioral functioning, such as depression and anxiety symptoms by offspring report, internalizing and externalizing symptoms by maternal report and social skills by maternal and offspring reports and 2) examine whether maternal psychiatric characteristics and demographic factors are associated with continuous offspring reports of depression and anxiety symptom scores. Preliminary analyses involving these continuous scores were based on estimating bivariate associations among study variables with Pearson correlations. Descriptive analyses included frequencies of maternal psychiatric diagnoses and clinical cut-offs of maternal and child reports of offspring outcome measures. In addition, the means and standard deviations of maternal depression and offspring depression, anxiety, internalizing and externalizing behavior problems and social skills were calculated.

To assess confounding of the psychological effects by demographics, a two-step sequence of multiple regression analyses were performed separately for the continuous CDI total score and the MASC total scores and Social Anxiety and Separation/Panic scales. In the first step, maternal psychiatric characteristics were entered first in a block: depression severity symptoms; mental treatment status (whether mother was currently utilizing mental health treatment); co-morbid anxiety disorder; and history of substance disorder. In the second step, offspring and family demographic variables were added in a second block of potential confounders: offspring age, offspring gender and family receipt of public assistance. Changes in the magnitude and significance of the effects of psychiatric variables on outcomes due to the addition of demographic variables significantly related to the outcomes were taken as indications of confounding by the demographic variables. Additionally, interactions between maternal psychiatric characteristics and demographic variables were also assessed and these analyses were post-hoc analyses. This two-step strategy is based on

the standard assessment of confounding of the covariate-outcome association by age that is well known in the epidemiological literature [63]. The following independent variables were coded into categorical variables: maternal treatment status (no = 0, yes = 1), offspring gender (female = 0, male = 1), and family receipt of public assistance (no = 0, yes = 1).

Results

Description of Maternal Psychiatric Characteristics

The majority of the mothers had current MDD (63.6%; $n = 40$), while 14.3% ($n = 9$) met criteria for a major depressive episode within the past year. Other depressive disorders included: Dysthymic Disorder (22.2%, $n = 14$) and Depressive Disorder NOS (19.5%, $n = 10$). Co-morbid anxiety disorders were common in 69.8% ($n = 44$) of the women. Eleven women had a past history of a substance disorder (17.5%). The mothers had a mean score of 26.13 ($SD = 11.50$) on the BDI-II indicating a moderate level of depressive symptomatology. Fifty one percent ($n = 32$) of the mothers were in mental health treatment. Of these mothers, 23 (71.9%) were receiving both therapy and medication, 8 (25.0%) were receiving therapy only, and one (3.1%) was receiving medication only. Mothers in treatment were more likely to have co-morbid anxiety disorders ($X^2(1) = 5.72$, $p < .05$) compared to mothers who were not in treatment, but the subgroups were similar in regards to current depressive severity and history of substance disorder.

Description of Offspring Emotional and Behavioral Functioning

Table 2 displays the means, SDs, and percentage scoring above the clinical range of the offspring emotional and behavior functioning measures. Offspring self report of anxiety and depression symptoms were within the normative range, however, 15% of the offspring scored in the clinical range on the MASC while 6.3% scored in the clinical range on the CDI. On the CDI, suicidal ideation was defined by endorsement of either "I think about killing myself but I would not do it" or "I want to kill myself" and 36.5% of the offspring endorsed suicidal ideation. Only one youth endorsed the item of wanting to kill himself/herself. Maternal report on the CBCL indicated that 25.4 % and 20.6% of offspring were exhibiting clinical levels of internalizing and externalizing symptoms respectively. Although the means of both maternal and offspring reports of offspring social skills were within the average range, mothers reported lower social skills of the child than the offspring themselves ($t = -4.54$, $p < .01$).

Correlations of Main Study Variables

Table 3 displays Pearson correlations of the main study variables. Maternal depression severity was positively correlated with maternal report of offspring internalizing ($r = .38$, $p < .01$) and externalizing symptoms ($r = .26$, $p < .05$). Maternal report of offspring social skills was negatively correlated with child self report of depressive symptoms ($r = -.25$, $p < .05$), and maternal report of internalizing ($r = -.26$, $p < .05$) and externalizing symptoms ($r = -.50$, $p < .01$), while offspring report of social skills was also negatively associated with self report of depression symptoms ($r = -.31$, $p < .05$).

Regression Analyses of Child Depression and Anxiety

Table 4 presents the results of the final multiple regression model of the two step sequence of multiple regressions for each outcome. In the first stage regression models without adjusting for demographic variables, none of the maternal psychiatric characteristics were associated with offspring report of depression. However, among the maternal psychiatric characteristics, maternal treatment status was significantly associated with offspring report of total anxiety ($t = -2.77$, $p = .008$), social anxiety ($t = -3.22$, $p = .002$) and separation

anxiety/panic ($t = -2.76$, $p = .008$) symptoms on the MASC. Specifically, if mothers were in mental health treatment, their offspring reported increased levels of total anxiety, social anxiety and separation anxiety/panic symptoms. Maternal co-morbid anxiety was not associated with either anxiety or depression based on offspring report.

In the second stage regression models that included demographic variables as covariates (Table 4), offspring's age was the only demographic variable that had a significant association with offspring report of total anxiety ($t = -2.98$, $p = .004$) and separation anxiety/panic ($t = -2.00$, $p = .05$) symptoms. Thus, these post-hoc analyses revealed that the younger offspring reported more symptoms of overall anxiety and separation anxiety/panic symptom. The association between maternal treatment status and offspring report of total anxiety symptoms, as well as the association between maternal treatment status and offspring report of separation anxiety/panic symptoms remained significant adjusting for age and the other demographic covariates (i.e., gender, welfare receipt). Even though age was associated with these outcomes, it did not confound these associations.

To examine whether offspring's age moderated the association between maternal treatment status and the offspring report of anxiety symptoms (i.e., total, separation anxiety/panic), interaction analyses were performed as post-hoc analyses. None of the interactions were significant, thus indicating that offspring's age neither moderated the association between maternal treatment status and offspring self report of anxiety symptoms ($p = .69$) nor maternal treatment status and separation anxiety/panic symptoms ($p = .22$) associations.

Discussion

The major study aim was to describe the emotional and behavioral symptoms of offspring of African American mothers with depressive disorders. To interpret our findings, we will compare them to other studies of offspring of parents with depression, which are comprised of predominantly European Americans. In regards to depression, our findings showed a slightly lower rate (6.3%) of a clinical level of depressive symptoms compared to a descriptive study of offspring (ages 7 to 17 years) of mothers treated for MDD which found that 10% of offspring had current depressive disorders [11]. Similarly, we found a lower rate of a clinical level of depressive symptoms than a study of 6th to 7th grade offspring (11.5% on the CDI) of mothers with a history of depression [64]. Our sample appears to have less depression than samples of mostly European American offspring of mothers with depression.

On the other hand, our rate (20.6%) of a clinical level of externalizing symptoms was similar to the psychiatric rate of 22% of disruptive disorder among offspring of mothers treated for MDD [11]. We found higher clinical rates of maternal report of offspring externalizing behavior symptoms on the CBCL than a study of mothers with high levels of depressive symptoms with 8- and 9- year-old offspring who reported 11% of externalizing symptoms above the clinical cut-off [65]. Consistent with the research literature of offspring of parents with depression, some of the offspring were exhibiting behavioral difficulties.

Similar to behavioral problems, our findings showed evidence of high anxiety symptoms within the sample. Compared to a descriptive study of offspring of mothers treated for MDD with 16% of offspring having current psychiatric diagnoses of anxiety disorders [11], our rate (15%) of clinical levels of anxiety symptoms was similar. Our mean score on the MASC was more than one SD above the mean (36.5) of a sample of 9- to 14- year-old females with mothers with recurrent depression [66]. Our sample reported a higher rate of anxiety symptoms within the clinical range than the 4.8% 3-month prevalence rate of anxiety disorders found within a community sample of African American youth [67]. We

found that age demonstrated a significant association with anxiety despite the use of standardized T-scores that were normed based on age and gender. Younger age was associated with greater anxiety symptoms suggesting that the impact of maternal depression on younger offspring may be particularly salient. Based on the age of 7 – 14 years selected in this study, our sample population may more likely to be exhibiting anxiety than depressive disorders. In a longitudinal study of depressed parents in treatment and their offspring (ages 6 – 23), the peak age range for anxiety disorders was 5 – 10 years and declined after 12 years [5].

Although the offspring did not endorse high levels of depressive symptoms, suicidal ideation was present in approximately a third of the sample. Our rate of suicidal ideation was similar to the 38% frequency of suicidal ideation, plans and attempts that occurred by early adolescence in offspring of predominantly European American parents with depression [68]. A few studies have shown that offspring of depressed parents are more likely to have suicide ideation and attempts [6, 69] than offspring of non-depressed parents. Youth suicidal ideation is associated with psychopathology and future suicide attempts and completion [70, 71], thus this finding requires particular clinical attention and follow up with longitudinal studies.

Surprisingly, whether a mother was in treatment was associated with child anxiety symptoms, but maternal depression severity and substance abuse history were not. Mothers in treatment may exhibit more severe psychopathology, thereby putting their offspring at greater risk for anxiety. Another explanation might be that mothers in treatment may have a stronger genetic predisposition to depression thereby increasing their offspring risk for psychopathology. Nonetheless, treatment status seems to encompass a complex presentation of disorder that includes co-morbidity. For example, our findings showed that mothers in treatment had more co-morbid anxiety disorders. Pilowsky and colleagues [11] demonstrated that panic disorder with agoraphobia was associated with increased offspring anxiety and depressive disorders. Parental anxiety disorders have been associated with psychiatric maladjustment, such as anxiety disorders, in offspring [72–74]. Future research should examine the impact of co-morbid anxiety disorder and their possible differential impact on child psychiatric trajectories.

Mothers who experienced more depressive symptoms reported more offspring internalizing and externalizing behavior symptoms. This is in line with other studies that have shown that mothers with depression overreport their offspring's behavior problems [39, 41, 75]. Although there is behavioral impairment for offspring of mothers with depression, the depression may be negatively clouding the mothers' perception of their offspring's behavior. Interventions aimed at this population might focus on helping mothers form realistic expectations and interpretations of their children's behavior. Another explanation for this finding is that the severity of maternal depression has been associated with child maladjustment [10, 76]. As a result, the severity of maternal depressive symptoms can lead to more current stressors and/or parenting difficulties thereby impacting the offspring's internalizing and externalizing behavior problems.

If future research is to occur with this population, particular attention must be given to recruitment and retention. Barriers include: 1) symptoms of a depressive disorder (e.g., fatigue, anhedonia, concentration problems), 2) hectic parenting schedules as a result of being primary caregiver of children and other family members, 3) silence or stigma regarding psychiatric problems among African Americans [77] and 4) mistrust of research based on past injustices within the African American community [78]. In a primary care sample of low-income ethnicity minority women, Miranda and colleagues [79] noted needing four phone calls before completion of diagnostic interviews and with 34% of the

women being unreachable. We encountered similar challenges and thus we implemented persistent telephone calls and letters over three months for each mother which resulted in telephone screening with 89% of those interested and in person clinical interviews with 81% of those eligible. In addition, we strived to make a personal connection with each mother by the principal investigator conducting the diagnostic interviews and research staff collecting all self-report measure data as interviews. In addition to addressing logistical barriers, such as providing bus tokens and parking reimbursement, we were flexible in scheduling appointments and conducted some of the interviews in the home or mental health agencies. A critical aspect of recruitment was the provision of childcare, which was fun for the children and eased the childcare burden of the mother. We also assisted mothers with other resources and referrals to treatment if desired. Our intensive and personal engagement strategies for recruitment proved fairly successful in getting these African American mothers with depressive disorders and their offspring to participate in the research study.

There are several limitations to this study. First, the sample size is relatively small, although we were able to achieve statistically significant main effects in our regression and correlational models. However, the sample size may limit the power to detect significant associations in the multiple regression analyses thereby increasing the likelihood of Type II error. Second, without a non-clinical control group, we cannot compare offspring with and without exposure to maternal depression. Nevertheless, the sample is unique and one of the few to examine this population, being that there is a dearth of research on offspring of clinically depressed African American mothers. Third, we had only one reporter (the mother) on child behavior problems. This is a weakness as empirical evidence has demonstrated that depression symptoms negatively impact a mother's perception of her offspring's behavior [39–41]. Additional reporters (e.g., teachers) and the use of a clinical interview would have strengthened our understanding of psychiatric status in this sample.

There are research and clinical implications of the findings from this preliminary study. These offspring are at risk for psychiatric maladjustment similar to the general population of offspring of clinically depressed parents; unfortunately African American parents with depression and their offspring are not adequately represented in the research samples. The particular barriers to engaging African American mothers with depression and their offspring into research and clinical treatment need to be aggressively addressed so that we can advance our understanding of this understudied and underserved population, as well as provide appropriate and culturally sensitive services. In particular, mothers in treatment offer a missed opportunity to implement clinical interventions aimed at the offspring. For example, psychiatric treatment for mothers with depression might offer clinical interventions focusing on parenting, educating parents on the impact of depression on children and/or including the offspring in treatment [80]. There are several intervention models for parents with depression and their offspring that may be utilized in clinical settings and adapted for African American families.

Summary

The current study described the emotional and behavioral functioning of offspring of African American mothers with depressive disorders, an understudied population. Sixty three mother-child dyads completed the cross-sectional study. The offspring were between the ages of 7–14 years with 6.5% and 15% scoring within the clinical range for depression and anxiety symptoms, respectively, and a third reporting suicidal ideation. Compared to other samples of offspring of mothers with depression, our sample's depressive symptoms were low, however anxiety symptoms and suicidal ideation were similar. Maternal psychiatric characteristic of treatment status was positively associated with offspring anxiety symptoms indicating greater anxiety symptoms among offspring whose mothers were currently in treatment. Offspring of African American mothers with depression appear to

exhibit similar difficulties as observed of children from European American families with maternal depression. Nonetheless, there are barriers to recruitment and inclusion of African American families in maternal depression research.

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Table 1

Recruitment of Participants

Recruitment Source	Number Enrolled	Completion Rate
Ads	51 (39%)	19 (37%)
Research studies	28 (21%)	23 (82%)
Community mental health agencies	12 (9%)	8 (67%)
Health fairs	11 (8%)	0 (0%)
Psychiatry clinics	10 (8%)	3 (30%)
Other mental health facilities	9 (7%)	3 (33%)
Shelters	6 (4%)	5 (83%)
Schools	2 (2%)	2 (100%)
Others	3 (2%)	0 (0%)

Table 2

Descriptions of Child Behavioral Outcomes

Variable	Mean (SD)	Percentage in Clinical Range
CDI T score	49.08 (9.76)	6.3% (n = 4)
-Endorsed Suicidal Ideation		36.5% (n = 23)
MASC T score	53.62 (11.57)	15% (n = 9)
CBCL Internalizing T score	59.43 (11.63)	25.4% (n = 16)
CBCL Externalizing T score	60.44 (11.29)	20.6% (n = 13)
SSRS Parent standard score	89.05 (15.90)	34.9% (n = 22)
SSRS Child standard score	101.80 (19.70)	21.7% (n = 13)

Note: CDI = Children Depression Inventory; Multidimensional Anxiety Scale for Children = MASC; CBCL = Child Behavioral Checklist; SSRS = Social Skills Rating System

Table 3

Pearson Correlations Among Variables

	1	2	3	4	5	6	7
1. Parent Depression	---	-.17	.10	.38**	.26*	-.09	.02
2. Child Depression		---	.32*	.10	-.02	-.29*	-.31*
3. Child Anxiety			---	.22	.12	-.08	.22
4. Child internalizing behavior (parent report)				---	.63**	-.26*	-.00
5. Child externalizing behavior (parent report)					---	-.50**	-.04
6. Child social skills (parent report)						---	.11
7. Child social skills (child report)							---

Note.

*
 $p < .05$,**
 $p < .01$

Table 4

Multiple Regressions of Offspring Depression and Anxiety Symptoms

	Depression		Total Anxiety		Social Anxiety		Separation Anxiety/Panic	
	B	t-test	B	t-test	B	t-test	B	t-test
Maternal Psychiatric Characteristics								
Depression Severity	-.15	-1.21	.07	.56	.01	.08	-.00	-.01
Treatment Status	-1.63	-.59	-7.85	-2.77**	-8.88	-3.22**	-8.47	-2.76**
Co-morbid Anxiety Disorder	-1.60	-.52	-.70	-.22	-2.14	-.69	.25	.07
Substance Disorder History	1.28	.35	-.66	-.18	-2.12	-.59	.31	.08
Demographics								
Child Age	-.31	-.47	-2.04	-2.98**	-.93	-1.40	-1.53	-2.00*
Child Gender	1.73	.61	-5.09	-1.75	1.56	.55	-5.24	-1.61
Family Welfare Receipt	-1.19	-.38	-4.45	-1.40	.94	.30	-.26	-.07

Note.

*
 $p = .05$,**
 $p < .01$