Florida Maternal, Infant, & Early Childhood Home Visiting Program 2015 Maternal Depression Analysis Report

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Background

Depression is an illness that varies on levels of severity, but is reported to affect an estimated 6.7% of adults in the United States at least once in a time span of 12 months[i]. Adults do not collectively experience depression at the same rate, however, being that depression has a significantly higher prevalence rate in women (11.7%) versus men (5.6%).[i] Postpartum depression, a significantly common depression amongst women, is defined as "a major depressive episode occurring either during pregnancy or postpartum."[ii] Women are most commonly diagnosed with postpartum depression when their symptoms occur within three to six months after delivery and occasionally last up to the first year.[iii] Against popular belief, depression affects more than just the individual. As a steadily increasing public health issue, it is now understood that depression also has a negative impact on individuals in close proximity to the person suffering from the condition.

Because depression is significantly more prevalent in women, several studies have examined the relationship between maternal depression and impacts on the child. These impacts include, but are not limited to: behavioral problems, lack of sufficient mother-infant bonding, delayed developmental milestones, and consequently child and adolescent mental health problems.[iv][v][vi][vii][viii] The mother may also experience anxiety and lack of confidence in her ability to possess and carry out parenting skills, which also affects child outcomes.[ix]

The risk factors for maternal depression are wide and varied but may include several socio-demographic factors (unemployment, low educational attainment, low socioeconomic status), drug and alcohol abuse, family violence, or illnesses and stressors experienced prior to or during pregnancy.[x] Despite the exact cause of postpartum depression, many studies conclude that interaction between child and depressed mother is significantly different than that of women who don't suffer from depressive symptoms[xi] which can negatively impact family well-being, attachment, and child development.

Therefore, the purpose of this study was to describe possible risk factors for maternal depression among participants in Florida's MIECHV program and to contribute to the general body of information about maternal depression. The Florida MIECHV program (http://flmiechv.com/) is led by the Florida Associations of Healthy Start Coalitions, Inc. which focuses on the goal of

improving health and developmental outcomes for families in high-risk communities through evidence-based home visiting programs. By implementing MIECHV home visiting program, trained professionals work exclusively with parents towards the goal of promoting wellness within the home and preventing negative outcomes.

Methods

The data for this study came from the Florida Home Visiting Information System. The sample of the study consisted of mothers enrolled in Florida MIECHV anytime between April 1, 2013 and June 30, 2015 who were screened for depression using the Edinburgh Postnatal Depression Scale (EPDS) and Perceived Stress Scale (PSS) under the measures of socio-demographic variables (income, age, level of education, ethnicity) as well as psychosocial variables (history of substance abuse and child abuse). All measures are described in the Florida MIECHV Data Plan.[xii]

Statistical analyses were performed using IBM's Statistical Package for the Social Sciences (SPSS) version 22 and SAS 9.4. The depression variable was analyzed both as continuous as well as categorical. For creating the categorical depression variable, a participant having an EPDS score $\geq$ 10 was considered "depressed" and those < 10 as "not depressed." [xiii] Participant characteristics were described using means and standard deviations for continuous variables and frequencies and percentages for categorical variables. T-tests were conducted to determine the nature of the relationships between categorical risk factors and depression score and chi-square test for categorical risk factors and the categorical depression variable. Both linear and logistic regression analyses were performed using EPDS total scores and the categorical depression variable as dependent variables, respectively. The risk factors included were: age, race, ethnicity, education, employment, income, history of substance abuse, history of childhood abuse, and PSS. All tests were two-tailed, with P-values of less than 0.05 considered statistically significant.

Results

A total of 715 participants in this sample ranged between 14 and 55 years (Mean=27.2; SD=6.17). Most of the participants were White (60.2%), with Black participants being the second largest group represented (33.2%), and 21.9% were Hispanic. More than half of the participants (54.7%) were unemployed and 34.7% had less than high school education. Income level of participants was low, with approximately three-quarters of the sample earning less than $20,000 per year (73.2%). More than a third of participants reported a history of childhood abuse (33.5%) and current or past substance abuse (36.3%). About a quarter of respondents (24.6%) were classified as being depressed based on results of the Edinburg Depression scale (score $\geq$ 10) with a mean score of 6.3 (SD 5.5).

Participant characteristics that were found to be associated with depression in the crude analysis included race, ethnicity, employment status, income, childhood abuse, and stress. However, in the adjusted model, only perceived parental stress remained significantly associated with depression (OR 1.26; CI: 1.21-1.31). This implies that stress plays a strong role on the mental health status of

women in our sample. Interventions that address stress may lead to an improvement in rates of maternal depression.

Table 1. Crude and adjusted odds ratios for depression with socio-demographic variables

Characteristic	Total N (%)	COR	95%CI	AOR	95%CI
Depression					
Score <10	539 (75.4)	-	-	-	-
Score ≥10	176 (24.6)				
Race					
White	236 (33.2)	ref		ref	
Black	428 (60.2)	0.96	0.66 – 1.39	1.19	0.66 – 2.16
Others	46 (6.5)	0.95	0.46 – 1.93	1.94	0.74 – 5.09
Ethnicity					
Non-Hispanic	556 (78.1)	ref		ref	
Hispanic	156 (21.9)	**0.61**	**0.39-0.96**	1.33	0.68-2.62
Employment					
Unemployed	387 (54.7)	ref		ref	
Employed	320 (45.3)	**0.53**	**0.37-0.76**	0.62	0.36-1.06
Education					
Less than high school	247 (34.7)	ref		ref	
High School/more	464 (65.3)	1.00	0.70-1.44	1.11	0.66-1.88
Household Annual Income					
Less than $20,000	517 (73.2)	ref		ref	
$20,000/more	189 (26.8)	**0.54**	**0.36-0.83**	0.88	0.47-1.63
Increased Maternal Age (Mean, SD)	27.2 (6.2)				
		0.98	0.96-1.01	0.99	0.95-1.04
Mother Experienced Physical or Sexual Childhood Abuse					
No	453 (66.5)	ref		ref	
Yes	258 (36.3)	**1.77**	**1.25-2.51**	1.07	0.62-1.87
Current/Past Maternal Substance Abuse					
No	473 (66.5)	ref		ref	
Yes	238 (33.5)	1.39	0.97-1.98	1.16	0.63-2.11
Perceived Stress* (Mean, SD)	13.7 (7.6)				
No		ref			
Yes		**1.27**	**1.22-1.32**	**1.26**	**1.21-1.31**

Note: Odds ratios in bold typeface were statistically significant
*Statistically significant controlling for other factors.

Education status did not appear to be associated with higher or lower levels of depression; however in the crude model, women who were employed experienced lower likelihood of depression (COR 0.53; CI 0.37-0.76) as did those with household annual incomes of more than $20,000 (COR 0.54;

0.36-0.83). Among MIECHV participants, women who identified as White race were not significantly more or less likely to be depressed as Black women (COR 0.96; CI: 0.66-1.39) or those who identified their race as "Other" (COR 0.95; CI: 0.46-1.93). In terms of ethnicity, in the crude analysis Hispanic women were less likely to report depression (COR 0.61; CI: 0.39-0.96). Study participants who reported current or past use of substances were found to be more likely to be depressed than women who did not use (OR 1.16; CI: 0.63-2.11) and those who reported experiencing childhood abuse were also more likely to report depression (COR 1.77; CI 1.25-2.51). Women with higher perceived stress scores were more likely to experience higher rates of depression (COR 1.27; CI: 1.22-1.32).

> *In this sample, stress was the highest risk factor for depression, regardless of the mother's socio-demographic factors, experience of childhood abuse or current/past substance abuse.*

However, with the exception of stress, none of these factors were significantly related to higher rates of depression when controlling for other factors in the adjusted model. When controlling for all other factors (maternal race, ethnicity, education and employment status, age, abuse history or substance abuse) only perceived stress remained a significant factor in higher depression scores (AOR 1.26; CI 1.21-1.31).

Summary and Implications

The results showed that among MIECVH participants, perceived stress was one of the highest risk factors for depression, regardless of the individual's sociodemographic factors, drug and alcohol abuse, domestic partner violence, or the mother's history of childhood abuse. The strong positive relationship between stress and depression in the analyses conducted suggests that the more stress a person feels in their life increases their chances of developing depressive symptoms. Additionally, previous studies emphasized that women with a history of substance abuse and childhood abuse were more likely to be stressed, depressed, challenged in coping with the stressors of daily life, and in turn may demonstrate difficulty in attending to their child.[xiv][xv][xvi]

At the state level, in 2010 the Pregnancy Risk Assessment Monitoring System (PRAMS) found that 58.8% of mothers experienced postpartum depression symptoms after giving birth.[xvii] This rate is much higher than the 24.6% found among MIECHV participants in this study. Our findings of lower prevalence than in PRAMS may indicate that women participating in MIECHV have lower than average levels of depression, or that depression was underreported. Nonetheless, risk factors found in this study were similar to those found among PRAMS respondents. In PRAMS, the prevalence of postpartum depression was found to be associated with mothers who were younger than 19 years old, receiving Medicaid, earning less than $15,000 per year, and of non-

Hispanic Black race. In 2012, PRAMS also measured the level of maternal stress which was defined as having at least one stressor during the 12 months before giving birth. Of the women surveyed, 76% reported having at least one stressor.[xviii] This variable was similarly higher among women who were non-Hispanic Black race, earned less than $15,000 per year, and who received Medicaid as their primary form of insurance. Depressive symptoms have additionally been linked to adverse childhood experiences (ACES) in low-income women. In a 2008 peer-reviewed study it was found that among nearly 1500 expecting mothers the majority (70%) had experienced at least one ACE.[xix] Furthermore, the researchers observed a dose-response relationship between the number of ACES experienced and the level of depressive symptoms in that an increased number of ACES simultaneously increased the symptomology of depression.

This analysis highlights the prevalence of self-reported depression among one in every four Florida MIECHV participants, as well as a history of childhood abuse and current or past substance abuse among one-third of participants. In light of this study's findings, awareness of the risk factors of maternal depression may help the MIECHV home visiting program develop training for staff related to depression, stress, substance abuse, and trauma-informed care, as well as to develop programs for MIECHV participants focused on stress management, while continuing to work improving socioeconomic conditions that contribute to stress. Prevention, early identification and treatment of depression will improve both maternal and child outcomes.

> *MIECHV home visiting programs should consider the relatively high prevalence of* **adverse childhood experiences, substance abuse history, and depression** *in their clients. To prevent depression, MIECHV may consider developing and implementing stress management programs in addition to working towards improving socioeconomic conditions.*

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References

i Burke, L. The impact of maternal depression on familial relationship. *Int Rev Psychiatr.*15(3): 243-255

ii Gaynes, B. , Gavin, N. al e. Perinatal depression: prevalence, screening accuracy and screening outcomes. *Evid Rep Technol Assess (Summer).* 2005; 119: 1-8

iii Meltzer-Brody S, Boschloo L, Jones I, Sullivan P, Penninx B. The EPDS-lifetime: assessment of lifetime prevalence and riskfactors for perinatal depression in a large cohort of depressed women. *Arch Womens Ment Health.* 2013; 16:465-473

iv Ohoka H, Koide T, Goto S, al e. The effects of maternal depressive symptomatology during pregnancy and the postpartum period on infant-mother attachment. Psychiatry Clin Neurosci. 2014;68:631-639.

v Moehler E, Brunner R, Wiebel A, Reck C, Resch F. Maternal depressive symptoms in the postnatal period are associated with long-term impairment of mother-child bonding. Arch Womens Ment Health. 2006;9:273-278.

vi Deave T, Heron J, Evans J, Emond A. The impact of maternal depression in pregnancy on early child development. BJOG. 2008(115):1043-1051

vii Hammen C, Brennan P. Severity, chronicity, and timing of maternal depression and risk for adolescent offspring diagnoses in a community sample. Arch Gen Psyciat. 2003;60:253-258.

viii Gao W, Paterson J, Abbott M, Carter S, Iusitini L. Maternal mental health and child behavior problems at 2 years: Findings from the Pacific Islands Families Study. Aust NZ J Psychiatry. 2007;41:885-895.

ix Weinberg M, Tronick E, Beeghly M, Olson K, Kernan H, Riley J. Subsyndromal depressive symptoms and major depression in postpartum women. *The Am J Orthopsychiatr.* 2001;71:87-97.

x Katon W, Russo J, Gavin A. Predictors of Postpartum Depression. *J Womens Health.* 2014;23(9):753-759.

xi van Doesum K, Hosman C, Riksen-Walraven J, Hoefnagels C. A randomized controlled trial of a home-visiting intervention aimed at preventin relationship problems in depressed mothers and their infants. *Child Dev.* 2008;79(3):547-561

xii Florida MIECHV Data Plan. Available at http://flmiechv.com/wp-content/uploads/Florida-MIECHV-Data-Plan-FINAL-STATE-072914.pdf

xiii Earls MF, Committee on Psychosocial Aspects of Child and Family Health American Academy of Pediatrics. Incorporating recognition and management of perinatal and postpartum depression into pediatric practice. Pediatrics. 2010 Nov;126(5):1032-9.

xiv Webster-Stratton C, Hammond M. Maternal depression and its relationship to life stress, perceptions of child behavior problems, parenting behaviors, and child conduct problems J Abnorm Child Psychol. 1988;16(3):299-315.

xv Ethier L, Lacharite C, Couture G. Childhood adversity, parental stress and depression of negligent mothers. Child Abuse Neglect. 1995;19(5):619-632.

xvi Kendler K, Kuhn J, Prescott C. Childhood sexual abuse, stressful life events and risk for major depression in women. *Psych Med*. 2004;(8):1475-1482.

xvii Postpartum depression. Florida Pregnancy Risk Assessment Monitoring System (PRAMS) web site. http://www.floridahealth.gov/statistics-and-data/survey-data/pregnancy-risk-assessment-monitoring-system/. Published 2010. Accessed Dec 1, 2015.

xviii Cohen A, Yu B, Cui D. 2012 Surveillance data book. Florida Pregnancy Risk Assessment Monitoring System (PRAMS) web site. http://www.floridahealth.gov/statistics-and-data/survey-data/pregnancy-risk-assessment-monitoring-system/. Published 2015. Accessed Dec 1, 2015.

xix Felitti VJ, Anda RF, Nordenberg D, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. *Am J Prev Med*. 1998; 14(4): 245-258.