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Increased Breastfeeding Rates in Black Women After a Treatment Intervention

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Abstract

There has been a considerable increase in rates of breastfeeding in the United States. Despite these trends, black women continue to fall below medical recommendations. Impoverished and poorly educated women also have a comparatively lower rate of breastfeeding. Provider encouragement and supportive interventions increase breastfeeding initiation among women of all backgrounds. The data presented come from a three-site randomized controlled bilingual depression treatment trial from 2005 to 2011 that examined the comparative effectiveness of interpersonal psychotherapy and a parenting education program. Breastfeeding education and support were provided for the majority of participants in each intervention. Breastfeeding status was queried at postpartum week 4. We found higher rates of breastfeeding in black women compared with those reported in national surveys. The black breastfeeding rate did not significantly differ from that of white or Hispanic women. American-born black women were just as likely to breastfeed as American-born white women, both at significantly greater rates than American-born Hispanic women. We also found no differences in breastfeeding rate in poorly educated and impoverished women. These data must be seen against the backdrop of a significant intervention to treat depression. Because breastfeeding interventions have been shown to increase breastfeeding rates, the support provided in our study likely increased rates in groups that lag behind.

Introduction

An analysis was conducted for all pediatric diseases for which the Agency for Healthcare Research and Quality reported risk ratios that favored breastfeeding in multiple diseases.[1,2] Despite these data and the fact that breastmilk is the natural nutrition for all infants, the U.S. breastfeeding rates fall far below medical recommendations in pediatric health, particularly for black women.

Black women have the lowest breastfeeding rate in the United States.[3,4] For example, in a study of women from upstate New York, breastfeeding among black women was much less common (25%) than among Hispanic Puerto Rican (42%) and white women (66%); non-Hispanic black children are less likely than non-Hispanic white children to be breastfed.[5] Although the overall rate of breastfeeding has increased and the gap between black and white breastfeeding initiation has narrowed, black infants still have the lowest prevalence, highlighting the need for targeted interventions to promote and support breastfeeding.[6] The disparity in the rate of breastfeeding between black women and women of other races may suggest that black women may encounter unsupportive cultural norms or the indication that breastfeeding is less desirable than formula feeding.[4] Women who choose to breastfeed need support; therefore it is important to determine specific methods to increase breastfeeding rates.

Most studies also suggest that poor women, single mothers, and those with less education are less likely to breastfeed their infants in the United States and elsewhere.[7–9] Uneducated and low-income women are more likely to agree that infant formula is as good as breastfed milk.[10] Because breastfeeding has been shown to decrease childhood illness, children from disadvantaged families may run a higher risk of disease.

In evidence from a national survey,[11] findings suggest that provider encouragement significantly increases breastfeeding initiation among American women of all social and ethnic backgrounds. Specifically, women who are encouraged by their physicians or nurses to breastfeed are more than four times more likely to initiate breastfeeding than women who do not receive encouragement. And, although all women need support, specific interventions may be necessary for those who tend to formula feed. In this article we describe an intervention that was associated with increased breastfeeding rates in a sample of American black women. In addition, we investigated disparities between breastfeeding rates and income, education, and marital status.

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The data presented in this work come from a three-site randomized controlled parallel-designed bilingual (Spanish and English) treatment trial from 2005 to 2011 that examined the comparative effectiveness of interpersonal psychotherapy for antepartum depression (IPT-P) compared with a parent education program (PEP) control for women who met the criteria for the Diagnostic and Statistical Manual of Mental Disorders-IV (DSM-IV) diagnosis of major depression. IPT-P is a brief manualized psychotherapy found to be effective for the treatment of depression. The PEP is a didactic control condition of individual 45-minute weekly didactic lectures on pregnancy, postpartum, breastfeeding, and early infant development. Details of this clinical trial are described elsewhere.[12]

Because we wanted to determine the rates of breastfeeding in our multiracial sample of women, participants were asked to complete a delivery information form at 4 weeks postpartum that included information about breastfeeding status.

Subjects and Methods

More than 479 prospective research participants were referred to the Maternal Mental Health Program at the New York State Psychiatric Institute from the Obstetrics Departments of New York Presbyterian Hospital at Columbia, New York Presbyterian Hospital at Cornell, and St. Luke's Roosevelt Hospital in New York City. The three hospitals represent a broad cross section of women in the metropolitan area from various racial, ethnic, and socioeconomic backgrounds and together provided an equal proportion of white, black, and Hispanic study participants.[12]

One hundred forty-five women who met DSM-IV criteria for a major depressive episode using the Structured Clinical Interview for DSM-IV (SCID)[13] and a minimum score of 12 on the 17-item Hamilton Rating Scale for Depression (HAMD-17)[14] were invited into the treatment phase of the study. Randomization was done within racial/ethnic group. Intake was closely monitored so that equal numbers of each racial/ethnic group were randomized. The SCID IV determined if a patient met diagnostic criteria for major depression. Other assessments include the HAMD-17, a clinician-rated inventory that measures symptoms of depression, the Edinburgh Postnatal Depression Scale (EDPS),[15] a self-rated depression inventory, and the Postpartum Bonding Questionnaire (PBQ),[16] a 25-item self-report questionnaire to identify early mother–infant interaction disorders. At study entry, demographic information was collected along with medical and psychiatric history; a psychiatric assessment was performed. During the course of the 12-week treatment study (visits were weekly), the HAMD-17 and the EPDS were assessed at each visit by a clinician and every 4 weeks by an independent evaluator.

Because of the didactic nature of the PEP control condition, participants were advised of the benefits of breastfeeding and encouraged to do so. Although breastfeeding education was not mandatory in the IPT-P group, the developmental focus of the psychotherapy provided opportunities to focus on bonding and breastfeeding. A majority of IPT-P therapists reported that they provided breastfeeding education and encouragement. Overall, 83% of the IPT-P participants and 100% of the PEP participants received this breastfeeding intervention for an average of 92%.

After completing the active phase of the study, subjects entered the nontreatment phase of the study until 6 months postpartum to monitor postpartum mood. At 4 weeks postpartum (first follow-up after birth), the subjects completed the delivery information form, which posed questions about type of delivery, infant weight, length, Apgar score, and breastfeeding status. Specifically, mothers were asked if they were currently breastfeeding or formula feeding. Breastfeeding was not defined as exclusive. Subjects also completed the HAMD, the EPDS, and the PBQ at this time.

English- and Spanish-speaking women between 12 and 33 weeks of gestation and 18–45 years of age were included in the study. All women understood the study and gave written informed consent to participate. Consent forms were bilingual. The study was approved by the Institutional Review Boards of all three institutions. The racial diversity goal of our study was well met; ethnically, the sample was composed of 38.5% Hispanic, 24.0% black, and 37.6% white.

Patients were excluded if they had abused drugs or alcohol in the past 6 months, were acute risks for suicide, or had comorbid psychiatric or medical conditions likely to interfere with participation in the study. Patients currently on antidepressant medication were also excluded.

We examined the association between breastfeeding and race, ethnicity, income, education, type of delivery, mood, bonding, immigration status, and other measures of interest. We hypothesized that our breastfeeding rates would duplicate consistent findings in the literature: that white women were more likely to breastfeed than Hispanic women, that black women would have the lowest rates of breastfeeding, and that breastfeeding would be associated with higher income and education, immigration status, less depression, and improved bonding compared with formula feeding.

Data analysis was performed using PASW/SPSS version 19 software (SPSS, Inc., Chicago, IL). As stated earlier, this article examines the association between the mother's choice to breastfeed and demographic, clinical, and other variables of interest. Frequency distributions were examined for all variables. A preliminary examination of the treatment group variable in regard to breastfeeding revealed that 77.2% of IPT-P-treated versus 74.5% of the PEP-treated subjects were breastfeeding their infants ($\chi^2 = 0.11$, $df = 1$, $p = 0.746$) and revealed no significant difference. The same was true for all demographic and other measures of interest in relation to the treatment groups. Thus for the purposes of this analysis treatment group was ignored, and the choice to breastfeed served as the only grouping variable. As additional measures of depression we aggregated all HAMD and EPDS assessments during the treatment period into two separate global clinical depression scores.

Cross-tabulations of the breastfeeding variable (breastfeeding status) and the other measures of interest were assessed using Pearson's χ^2 or Fisher's exact test. Differences for continuous measures were examined using Student's t test, and all tests were two-tailed with the α level set at 0.05.

As an integrative analysis we used logistic regression models to examine the independent association between each of the variables of interest to the dependent outcome measure breastfeeding. We used a two-step model with education, household income, and race entered at the first step to control for socioeconomic status, followed by a backward stepping procedure of all other measures of interest.

Results

One hundred forty-five pregnant women were randomized to take part in this study; 104 of these remained involved with the Maternal Mental Health Program into the postpartum period and completed the delivery information form at 4 weeks postpartum. Seventy-nine (76.0%) women reported that they were breastfeeding, whereas 25 (24%) were not. Study demographic and clinical measures are presented on Table 1 across the breastfeeding parameter. The mean ages and the depression ratings (HAMD-17 and EPDS) during the treatment phase and nearest postpartum week 4 did not differ by breastfeeding status. Also, postpartum bonding did not differ. It should be noted that fewer subjects were assessed at postpartum as per participant choice.

As mentioned in Subjects and Methods, the treatment groups (IPT-P vs. PEP) were also very similar for rates of breastfeeding (77.2% vs. 74.5%, respectively). Overall, the rates of breastfeeding at 4 weeks postpartum did not differ significantly for marital status, household income, current depression, bonding, or type of delivery. We also examined rates of breastfeeding and income by applying the U.S. Department of Health and Human Services Computations for the poverty guidelines for the 48 contiguous states (year 2009), incorporating household size.[17] For households (women) above and below the poverty level the breastfeeding rates

Table 1. Study Demographics and Other Measures of Interest in Relationship to a Mother's Choice to Breastfeed Her Infant

Demographic or clinical factor	*Not breastfeeding* (n = *25*)	*Breastfeeding* (n = *79*)	*Test statistic*
Age (years)	28.2 ± 7.8	29.7 ± 6.6	$t = 0.89$, $df = 102$, $p = 0.376$
Hamilton 17 (TX)	10.9 ± 3.6	9.7 ± 3.8	$t = 1.37$, $df = 102$, $p = 0.175$
Hamilton 17 (CX)[a]	6.3 ± 4.6	6.8 ± 4.3	$t = 0.41$, $df = 70$, $p = 0.680$
Edinburgh (TX)	13.3 ± 3.3	12.3 ± 3.9	$t = 1.22$, $df = 102$, $p = 0.226$
Edinburgh (CX)[b]	8.9 ± 7.1	8.1 ± 4.4	$t = 0.46$, $df = 1$,[c] $p = 0.650$
Bonding (CX)[d]	5.5 ± 0.36	5.5 ± 0.42	$t = 0.08$, $df = 64$, $p = 0.935$
Treatment group			
IPT-P	13 (22.8)	44 (77.2)	
PEP	12 (25.5)	35 (74.5)	$\chi^2 = 0.11$, $df = 1$, NS
Ethnicity			
Hispanic (38.5%)	15 (37.5)	25 (62.5)	
Black (24.0%)	6 (24.0)	19 (76.0)	
White (37.5%)	4 (10.3)	35 (89.7)	FET, $p = 0.017$[e]
White versus Hispanic			FET, $p = 0.008$[e]
Immigrant			
No	19 (27.5)	50 (72.5)	
Yes	6 (17.1)	29 (82.9)	FET, $p = 0.332$
Marital status			
Single/separated/divorced	15 (30.6)	34 (69.4)	
Married/single as married	10 (18.2)	45 (81.8)	FET, $p = 0.170$
Education			
HS/GED and less	13 (35.1)	24 (64.9)	
Some college and more	12 (17.9)	55 (82.1)	FET, $p = 0.058$
Household income			
Less than $25,000	11 (26.8)	30 (73.2)	
$25,000–59,999	5 (35.7)	9 (64.3)	
More than $60,000	5 (16.7)	25 (83.3)	FET, $p = 0.325$
Vaginal delivery			
No	8 (20.5)	31 (79.5)	
Yes	17 (26.2)	48 (73.8)	FET, $p = 0.637$
Previous depression			
No	22 (23.7)	71 (76.3)	
Yes	3 (27.3)	8 (72.7)	FET, $p = 0.723$
Number of pregnancies			
None	7 (22.5)	24 (77.4)	
1–3	10 (16.9)	49 (83.1)	
4 or more	8 (57.1)	6 (42.9)	FET, $p = 0.010$[e]

Data are mean ± SD values or number (%) as indicated.
[a]Not breastfeeding/breastfeeding $n = 15/57$.
[b]Not breastfeeding/breastfeeding $n = 15/58$.
[c]Separate variance.
[d]Not breastfeeding/breastfeeding $n = 13/53$.
[e]Indicates difference is significant.
CX, current; FET, Fisher's exact test; HS/GED, high school/General Educational Development; IPT-P, interpersonal psychotherapy for antepartum depression; NS, not significant; PEPE, parent education program; TX, treatment aggregate.

were 72.7% and 75.3%, respectively, and were not significantly different by Fisher's exact test ($p = 0.812$).

Ethnicity and race

The rates of breastfeeding did significantly differ by ethnicity: 89.7% of the white mothers reported breastfeeding compared with 76.0% of the black mothers and 62.5% of the Hispanic mothers ($p = 0.017$, Fisher's exact test). Pairwise Fisher's exact tests indicated that this significant distribution difference was predominantly due to breastfeeding rate differences between the Hispanic and white groups ($p = 0.008$, Fisher's exact test); the black rate of breastfeeding did not significantly differ from either.

The immigration status within the ethnic groups was examined (data not shown), and the distribution was significantly different, with 60% of the Hispanics having immigrated compared with 12.0% of the blacks and 20.5% of the white women ($\chi^2 = 20.70$, $df = 2$, $p < 0.001$). Within each ethnic group we examined the breastfeeding rates for immigrant and nonimmigrant subjects (data not shown). The nonimmigrant black (72.7%) and white (87.1%) subgroups had significantly higher rates of breastfeeding than nonimmigrant Hispanics (43.8%) ($p = 0.010$, Fisher's exact test).

Education

Level of education revealed a marginal increase in the rate of breastfeeding associated with higher education ($p = 0.058$, Fisher's exact test).

Parity

We categorized the previous number of pregnancies as follows: 0, 1–3, and ≥4. The rate of breastfeeding was similar for the 0 and 1–3 pregnancies groups: 77.4% and 83.1%, respectively. This decreased to 42.9% for the ≥4 pregnancies group ($p = 0.010$, Fisher's exact test).

Bonding

We examined postpartum bonding and the total number of study visits or contacts in relation to breastfeeding and treatment group randomization. The PBQ was administered at 4 weeks postpartum to 13 nonbreastfeeding and 53 breastfeeding mothers, and their levels of bonding did not differ (5.52 ± 0.36 vs. 5.51 ± 0.42, $t = 0.08$, $df = 64$, $p = 0.935$). As per the treatment groups, the PEP group exhibited a marginally higher PBQ bonding total compared with the IPT-P group (5.62 ± 0.29 vs. 5.44 ± 0.46, $t = 1.94$, $df = 63$, $p = 0.057$).

Using logistic regression with breastfeeding status as the dependent outcome, we examined many of the measures simultaneously, controlling for measures defining social economic status. The results of the bivariate cross-tabulations were corroborated; ethnicity/race, immigration status, and parity were all significant independent predictors of breastfeeding status.

Discussion

Because social and cultural norms guide women's decisions on breastfeeding, it is important to address these norms in order to determine what factors can promote and support breastfeeding. Such factors include counseling and encouragement by healthcare providers.[5,18]

In our study of pregnant depressed women who were administered IPT-P or the PEP, 76% of the women were breastfeeding at the fourth postpartum week. Although all had received some intervention for their depression, there were no required motivators for breastfeeding. Nevertheless, 92% were educated about breastfeeding and encouraged to do so.

In general, reports from our study yielded some different findings in the rates of breastfeeding compared with those reported in the breastfeeding literature on race and income.[3,6,19,20] There were no significant distribution differences for marital status, household income, bonding, depression, or type of delivery and breastfeeding at 4 weeks postpartum. Significant distribution differences were found between race/ethnicity and parity. When immigrant and nonimmigrant rates were determined, white mothers were more likely to breastfeed than the minority women (Hispanic and black). The significance was predominantly due to differences between Hispanic and white women. Black women were more likely to breastfeed than Hispanic women, although this finding was not significant. However, when nonimmigrant rates were determined, the American-born black women were just as likely to breastfeed as American-born white women, both at significantly greater rates than American-born Hispanic women. The fact that black women had elevated breastfeeding rates demands some attention.

Data from the 2007 National Immunization Survey reported 75% of child-bearing women initiated breastfeeding, while 43.8% breastfed at 6 months and 22.7% at 1 year of age.[5,21] In an effort to expand the health benefits of breastfeeding, targets have been set in Healthy People 2010 at postpartum initiation to 75%, at 6 months to 50%, and at 1 year to 25%.[5,22] Breastfeeding targets have been retained for Healthy People 2020.[23] Although our general breastfeeding rate at 4 weeks (76%) met these criteria, the white and black subjects met the criteria for Healthy People 2010 at 90% and 76%, respectively, whereas Hispanic mothers (63%) did not.

Cultural influences on breastfeeding vary widely by specific group.[24] In agreement with the general literature, we found that immigration status predicts breastfeeding.[24,25] Contrary to our findings, most data report higher breastfeeding rates in Hispanic women.[26] However, Hispanic people comprise a widely heterogeneous population. Most of the Hispanics in the United States are Mexican,[27] and most published data are gleaned from numbers of Mexican Hispanics who are likely to be new immigrants. Puerto Rican women have lower breastfeeding rates compared with women of Mexican heritage.[24] Our sample of Hispanic women was primarily from the Dominican Republic, an ethnic group that has not been discussed in the breastfeeding literature. In addition, the Dominican population in our catchment area at Columbia is often first generation or has lived in the United States most of their lives and are more likely acculturated. Acculturation seems to have a negative effect on breastfeeding women.[3,28]

Contrary to most findings,[7] there were no significant differences in breastfeeding rate as per annual household income or based upon being above or below the poverty level. Forste and Hoffman[5] reported that in the National Immunization Survey the odds of any breastfeeding are lower among mothers who have less than a college education and single marital status. In our study, level of education revealed a marginal increase in the rate of breastfeeding for women with

higher education. Marital status was not associated with breastfeeding rates in our study.

We found no relationship between breastfeeding and antepartum depression and no relationship with postpartum depression when mood symptoms were assessed in the fourth postpartum week. Although there are conflicting data on the association of depressed mood with decisions to breastfeed, our data support a recent prospective study by Bogen et al.[29] that determined that neither major depression nor depressive symptom severity in pregnancy was related to breastfeeding intention, initiation, or duration between 2 and 12 weeks postpartum.

Breastfeeding is believed to foster a "bond" between the mother and infant in early infancy.[30] It is surprising that the bonding of breastfeeding mothers did not differ from that of nonbreastfeeding mothers. Although counterintuitive, there are no data to suggest that bonding is superior in breastfeeding mothers.

Factors of interest in our study and contrary to most breastfeeding data include a higher than usual rate of breastfeeding in American-born black women and that women with less income and single marital status were just as likely to breastfeed as those who are married or those with a higher socioeconomic status. In addition, breastfeeding was not associated with better bonding or worsened depression compared with formula-feeding mothers.

Our study must be seen against the backdrop of a significant healthcare intervention. Each of our subjects received approximately 12 weeks of an intervention by a healthcare provider. One was an active psychotherapy, whereas the control group had active parent education that included information on pregnancy, delivery, and early infant care. Therapists reported that breastfeeding education and encouragement were provided to 92% of our sample. This encouragement seemed to be the only variable of importance associated with breastfeeding and the only difference in this group compared with the general population. It is possible that this encouragement was responsible for the increased rates of breastfeeding in American black, single, and impoverished women. In addition, the relationship developed over the duration of the study likely increased the participant's trust in the clinician's opinion.

Prenatal care is important in supporting breastfeeding, as the support of clinicians has been found to influence women's decisions to breastfeed or continue to breastfeed.[31] Women who report receiving breastfeeding counseling from healthcare providers report more positive experiences with breastfeeding compared with women receiving only routine care.[32]

There are many influences on a woman's decision to breastfeed, including social, cultural, economic, and psychological factors. Increasing breastfeeding initiation and continuation rates are a key challenge for health educators. The perceived influence of other people's views, including views of the women's healthcare professional, is an important predictor of infant feeding behavior.[33] The views of nurses and midwives are rated as very important by breastfeeding women, which underlies the importance of healthcare professionals supporting women to initiate and continue breastfeeding. Physicians, nurses, and midwives have a crucial role in communicating a positive view on breastfeeding to new mothers.

A limitation of our study is that we did not define breastfeeding as exclusive. Therefore any breastfeeding at all would place a woman in our breastfeeding category even if she was supplementing with formula. In addition, the sample was small, and counseling was less than 100%. Because this was a depression intervention study, the desire for treatment may have biased the outcomes; however, the women had completed the active phase of the study. They had no reason to continue in the study at 4 weeks postpartum except to be evaluated for postpartum depression. Both groups had improved significantly, and mean depressive scores had improved. A benefit of our study is that data on breastfeeding were prospective and not subject to recall bias.

Conclusions

Our study identified certain variables associated with breastfeeding and agreed with other studies on such variables as immigration and parity. The most outstanding differences from both national and international studies were race, family income, and marital status. There is general agreement in the breastfeeding literature that black women and those with low socioeconomic status are least likely to breastfeed. We found that our participants breastfed even when their income was below the poverty level. We found that Hispanic women primarily from the Dominican Republic were the ethnic group least likely to breastfeed and that American-born black women were equally likely to breastfeed as white women and more likely to breastfeed than Hispanic women.

The most important variable in our study was the fact that each woman met with a therapist (psychiatrist or social worker), a majority of whom discussed the benefits of breastfeeding. These findings do suggest that the use of motivators may be a variable that could alter statistics in impoverished and minority women. Further research should include the use of healthcare providers to discuss and identify the benefits of breastfeeding to meet the Healthy People 2010 targets for breastfeeding.

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