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Original Article

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OBJECTIVE:
To describe breastfeeding initiation among 210 urban African-American mothers with inadequate prenatal care.

METHODS:
This study is a case–control study of postpartum mothers recruited from four large urban hospitals.

RESULTS:
Mothers who chose to breastfeed were more educated, employed before birth, married, and using contraception postnatally. Regression model analysis controlling for demographic differences revealed that breastfeeding was significantly associated with a higher perception of severity of illness and higher confidence in the ability of health care to prevent illness. Breastfeeding mothers were less likely to reverse parent–child roles and had a lower perception of hassle from their infant's behavior. When comparing mothers who breastfed longer than 8 weeks to those who did not breastfeed, breastfeeding mothers had high scores related to empathy toward infants on the Adult–Adolescent Parenting Inventory as well as a low perception of hassle on the Parenting Daily Hassle. The perception of existing formal or informal social support did not influence breastfeeding behavior.

CONCLUSION:
Personal attributes of low-income urban mothers such as health beliefs and parental attitudes may play a role in the initiation and duration of breastfeeding. Low-income African-American mothers may be influenced in their choice to breastfeed by supportive messages from physicians and nurses delivering care to mothers and their newborns. Emphasis should be placed on the role breastfeeding can play in preventing childhood illnesses.

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INTRODUCTION

Breastfeeding has been recognized as the best infant feeding method for both its physiologic and psychological benefits for mothers and infants.[1–6] Since the mid-1970s there has been an upward trend in breastfeeding.[7] Nevertheless, improvement in breastfeeding rates is not uniform across ethnic and socio-economic status (SES) groups, with a persistent lag among low-income African-American women.[7] Data from Abbott Laboratories Mother's Survey shows that even though rates of breastfeeding immediately after delivery increased since 1990, African-American women remain the group least likely to breastfeed their infants. In 2000, only 50.8% of African-American women breastfed in the hospital compared to 70.8% of Hispanic women and 71.5% of white women.[8] This gap is of particular concern, since it parallels the higher infant mortality and morbidity found among lower-income African-American infants.[7]

A variety of suggestions have been offered to explain the persistently lower rates of breastfeeding among poor African-American women, including educational level, marital status, age, family size, and social support.[9] Religion and father's support have also been identified as important in the breastfeeding decision.[3,10] Other barriers may account for lower rates of initiation and maintenance of breastfeeding such as lack of accessibility to information on breastfeeding and cultural relevance and sensitivity of available information.[11,12] Such factors may also affect maintenance of breastfeeding over time.[13] Some programs have demonstrated racial disparities in prenatal advice given to women belonging to different ethnic backgrounds regarding breastfeeding.[14] Strategies for promoting breastfeeding initiation among low-income African-American women must consider the relevant cultural context, and often require a more directive as well as collaborative effort on the part of many disciplines including nursing, medical, social work, and nutrition.[15] In addition, women who demonstrate good prenatal habits have been shown to be more likely to breastfeed.[16]

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The purpose of this paper is to describe patterns of breastfeeding among 210 low-income African-American mothers in Washington, DC and to investigate factors influencing initiation and maintenance of breastfeeding in this population. The personal attributes of mothers who initiated breastfeeding were compared to those who did not breastfeed including their sociodemographic characteristics, health beliefs, parenting knowledge, and attitudes and perceptions of social support and stress. Beliefs, knowledge, and attitudes related to health and to parenting were analyzed for their influence on initiation and duration of breastfeeding among these women.

METHODS

Sample

The sample consisted of postpartum women from four large urban hospitals (Columbia Hospital for Women, George Washington University Hospital Medical Center, Howard University Hospital, and District of Columbia General Hospital) recruited by a social worker assigned to each of the project hospitals during the women's postpartum hospital stay. Women were eligible if they were 18 years of age and older, had no or inadequate prenatal care (PNC) (defined as less than 5 PNC visits or care initiated after 24 weeks gestation) and were Washington, DC residents. In addition, they had no history of psychiatric illness, had a live birth of an infant of 34 weeks or greater gestation with no congenital anomalies, and weighing 1500 g or more.

Recruitment

Women were approached during the postpartum hospitalization period for recruitment. The details of the study-related data collection were described and all participants provided written informed consent (the study protocol was approved by the intramural review boards of all participating sites). A total of 426 eligible women were approached for the study between April 1995 and September 1997. Among those approached, 286 were enrolled and a total of 210 (73%) women remained in the study at 4 months postpartum and completed the breastfeeding information.

Setting

In all recruitment hospitals nurses and lactation consultants were available to provide individual teaching and support during the postpartum hospitalization. At discharge, women were provided with printed materials and phone numbers to reach lactation consultants as needed.

Data Collection Tools

Demographic data were collected during the postpartum hospitalization. Documentation of breastfeeding was collected at the 4-month follow-up interview. Data from the Maternal Health Beliefs Questionnaire, the Adult–Adolescent Parenting Inventory (AAPI) and the Carolina Parent Support Scale (CPSS) were also collected during the postpartum hospitalization period. The Parenting Daily Hassles (PDH) was completed at 1 month postpartum either in person or by telephone interview.

Health beliefs data were collected using the Maternal Health Beliefs Questionnaire (MHBQ). The MHBQ is a questionnaire pertaining to four areas of maternal health beliefs: perceived childhood susceptibility to illnesses, perceived severity of these illnesses, perceived ability of medical care to prevent illness and perceived barriers, and benefits of health care. The MHBQ has been shown to be reliable and valid with high-risk, low-income, African-American women.[17]

The AAPI was designed to assess the parenting knowledge and child-rearing practices of adolescents and adults. In this study, the AAPI was used to assess the strengths and weaknesses of parenting attitudes related to appropriateness of developmental outcomes; empathy toward child's need; beliefs in the use of corporal punishment and reversing parent-child roles. The questionnaire is designed for adolescents ages 12 to 19 years, and adults 20 years and older, and has established construct validity, internal consistency, and reliability on large samples of adults and adolescents.[18]

The CPSS measures the number and perceived helpfulness of various sources of formal and informal social support. The instrument was modified with the author's permission to remove items related to support for families of infants with disabilities and to add community resources of specific interest to this study. The adapted version of the CPSS had eight questions on formal sources of support and seven questions on informal sources of support. The perceived helpfulness of each item was rated on a 5-point scale. The CPSS has demonstrated good internal consistency, reliability and construct validity.[19,20]

The PDH was created to measure the frequency and intensity of minor daily stresses parents experience in routine interactions with their children. The PDH is composed of 20 items with each item rated according to the frequency with which the event occurs and the parent's perceived intensity of the event. This scale has achieved high internal consistency and reliability.[21]

Data Management and Analysis

Completed data forms were batched in the field offices and sent to the data coordinating center for final editing and processing. Descriptive statistics were used to examine the demographic characteristics of women completing the study. Logistic regression analysis was used to identify simultaneous impact of demographic, health beliefs, parenting attitudes, social support, and parenting hassle on breastfeeding practices. Comparisons were made between the never breastfeeding group (NBF) and the breastfeeding group (BF), and women who continued to breastfed more than 8 weeks (BF8) on the MHBQ, AAPI, PDH, and the CPSS using *t*-tests.

RESULTS

The sample was primarily low-income African-American women (>98%) with poor or no prenatal care. Women who declined enrollment were significantly different from participants. They were older, were less likely to be enrolled in Medicaid, or any other medical insurance, had more pregnancies, had more living children, were more likely to have had no PNC and of those who had PNC, had fewer PNC visits. They were also more likely to use tobacco, alcohol, and illicit drugs.[22] Compared to mothers completing the study, mothers terminating after enrollment were older (26.0±6.6 versus 23.60±4.5 years, $p<0.02$) and had slightly more years of education (11.7±1.9 versus 11.2±1.0 years, $p<0.05$).[22]

Among the 210 women included in this, study 27% ($n=56$) chose to breastfeed. For the BF group the mean breastfeeding length was 11.6±12.5 weeks, and among women who breastfed more than 8 weeks the mean was 21.6±12 weeks. The BF and NBF groups were similar in terms of racial/ethnic background, age, household income, and type of medical insurance. However, there were significant differences between the two groups in marital status, employment during pregnancy, education, number of living children, and postpartum use of contraception (Table 1). Women most likely to have ever breastfed were those that were having their first (31.58%) or second child (32.3%). Mothers with three to four living children breastfed in 25.3% of the cases, and those with five or more children breastfed in 12.5% of the cases. This was a statistically significant trend ($p=0.04$).

Comparisons were made between BF, NBF, and BF8 groups (Table 2). Perceptions of social support were not significantly different between the three groups regarding perceptions of informal or formal social support (Table 2). The MHBQ showed a trend towards borderline significance on the Severity of Illness subscales between NBF and women BF8 groups ($p=0.06$, Table 2). Mean scores on the AAPI subscales were significantly better on Empathy towards child's needs and significantly better for the BF8 group on Reversing parent–child roles ($p<0.01$, Table 2) compared to the NBF group. When comparing the groups on the PDH the BF8 group had a significantly lower perception of infants' challenging behavior ($p=0.05$, Table 2).

When comparing BF to NBF mothers, the authors controlled for factors that have been shown to influence breastfeeding behaviors, including education, employment before birth of the infant, number of living children, and maternal age. In the regression model (Table 3), the items that were significantly different in the BF mothers were a higher perception of the severity of illness (OR = 0.95, CI = 0.913, 0.988, $p<0.005$) and a greater belief in the ability of medical care to prevent illness (OR = 1.058, CI = 1.012,1.107, $p<0.03$) (from the MHBQ); a lower tendency to reverse parent–child roles (OR = 1.168, CI = 1.078,1.266, $p<0.001$) (from the AAPI); and a lower perception of infant challenging behavior (OR = 0.806, CI = 0.667,0.972, $p<0.02$) (from the PDH).

Table 1 Comparison of Mothers Reported Breastfeeding Based on Selected Demographic Variables

Demographic variables	Never breastfed (n=154)	Breastfed (n=56)	Breastfed >8 weeks
Marital status (%)			
Married	1.95 (3)	12.50 (7)*	20.00 (4)**
Divorced	2.60 (4)	1.79 (l)	5.00 (1)
Separated	1.30 (2)	0.00 (0)	0.00 (0)
Never married	94.16 (1 4 5)	83.93 (47)	75.00 (15)
Employment (%)			
Employed during pregnancy	37.01 (57)	53.57 (30)*	60.00 (12)
Not employed	62.99 (97)	46.43 (26)	40.00 (8)
Use of contraception (%)			
Yes	16.88 (26)	35.71 (20)***	25.00 (5)
No	83.12 (1 2 8)	64.29 (36)	75.00 (15)
Education (Mean/SD)			
Years of school completed	11.32±1.49	12.16±2.09***	12.40±2.06*
No. of living children (mean/SD)	2.97±1.56	2.54±1.32*	2.65±1.35

Comparisons were made between mothers who breastfed and those that did not. Comparisons were also made between mothers who breastfed for more than 8 weeks and those who did not.
*$p \leq 0.05$.
**$p \leq 0.02$.
***$p \leq 0.005$.

DISCUSSION

Compared to earlier reports the results of this study indicate a surprisingly higher percentage of high-risk mothers choosing to breastfeed.[23,24] The demographic characteristics associated with breastfeeding are similar to other studies' findings. While married women with higher education are more likely to breastfeed,[3,9] marital status of mothers in our study was not associated with an increased perception of informal social support. In this high-risk population, the maternal self-motivation to breastfeed appears to supercede the perception of existing informal or formal support systems. In fact, women who breastfed longer had the lowest scores for social support (the CPSS, Table 2). This finding is contrary to other studies that have suggested that family and partner support are associated with higher breastfeeding rates.[9,13] Since the population recruited to this study was by definition at the higher end of the risk spectrum, the limited perception of efficacy of partner support may be attributed to other conflicting priorities in a household setting with narrow social reserve. Other researchers 25comparing psychological and cognitive factors of black and white low-income women report the decision to breastfeed in both groups to be independent of social support or depression.

Table 2 Comparison of Maternal Health Beliefs, Adult Parenting Inventory, and Parenting Daily Hassles Among Never Breastfed and Breastfeeding Women

Title of the Scale	Possible range	Ever breastfed (mean ± SD)	Ever Breastfed (mean ± SD)	Breastfed >8 weeks (mean ± SD)
Maternal health beliefs questionnaire				
Childhood susceptibility to illness	(12, 48)	27.7 ± 5.8	27.2 ± 5.7	28.6 ± 7.2
Severity of illness	(60, 90)	80.8 ± 10.2	79.2 ± 10.2	84.4 ± 7.3
Ability of medical care to prevent illness	(12, 48)	26.2 ± 7.8	28.0 ± 9.5	29.4 ± 9.7
Barriers to health care	(2, 10)	4.0 ± 1.3	4.1 ± 1.6	4.2 ± 1.7
Facilitators to health care	(2, 10)	7.9 ± 1.3	7.7 ± 1.5	7.5 ± 1.5
Health motivator	(8, 40)	31.4 ± 2.9	29.3 ± 3.2	32.0 ± 4.6
Adult-adolescent parenting inventory				
Appropriateness of developmental expectations	(6,30)	23.5 ± 3.1	24.1 ± 2.7	24.4 ± 2.7
Empathy towards child's needs	(8, 40)	28.0 ± 5.4	29.5 ± 5.1	30.7 ± 4.8
Belief in use of corporal punishment	(10, 50)	36.1 ± 5.2	36.4 ± 4.8	35.2 ± 6.1
Reversing parent-child roles	(8, 40)	25.4 ± 6.2	28.7 ± 5.3***	28.8 ± 5.5**
Parenting daily hassles				
Frequency with which event occurs	(0, 80)	25.0 ± 14.3	26.6 ± 15.1	23.3 ± 12.2
Intensity or degree of 'Hassle'	(20, 100)	35.7 ± 14.3	36.6 ± 14.8	31.5 ± 11.0
Challenging behavior factor	(7, 35)	13.2 ± 6.0	12.8 ± 5.8	10.7 ± 5.0*
Parenting tasks factor	(8, 40)	14.0 ± 6.0	14.4 ± 6.3	12.7 ± 5.1
Carolina parent support scale				
Informal support	(0, 32)	18.5 ± 5.0	17.5 ± 6.8	15.9 ± 3.7
Formal support	(0, 28)	11.1 ± 4.8	10.8 ± 5.2	9.3 ± 5.1
Total Number of Mothers		154	56	20

Comparisons were made between mothers who breastfed and those that did not. Comparisons were also made between mothers who breastfed for more than 8 weeks and those who did not.
*$p \leq 0.05$.
**$p \leq 0.02$.
***$p \leq 0.005$.

There have been a few studies attempting to examine the relation between health beliefs and a mother's decision to breastfeed. The basic premise underlying the Health Belief Model is that an individual will engage in behaviors to prevent, control, or treat a health problem if they believe they are susceptible to it, if they believe the problem to be severe, and if they believe an action they may take will benefit them or achieve a desirable outcome related to their health. The Health Belief Model also considers the motivation for health by an individual, access to health care, and the ability of medical care to promote health and reduce the burden of disease. The assumption is that a mother who perceives breastfeeding to be beneficial to her baby's health and her own is more likely to initiate breastfeeding.[26,27] One study described the significant role of ego maturity in breastfeeding among low-income African-American women.[25] Other studies have identified the importance of maternal health beliefs and confidence among African-American women who chose to breastfeed.[28,29] In a study of 103 WIC participants in New York, women who breastfed their infants chose to do so because of their beliefs about the benefit to the baby's health and nutrition and the closeness between the infant and mother.[30] By using a more comprehensive and validated instrument mothers choosing to breastfeed showed a heightened perception of severity of childhood illness and a greater confidence in the ability of medical care to prevent such illnesses. This emphasizes the significant role health-care providers can play in influencing these mothers' choice to breastfeed. This is supported by evidence in the recent literature where collaborative support from nurse midwives and nutritionists or community health nurse/peer counselors have been shown to increase initiation and duration of breastfeeding among low-income African-American women.[31,32] The current literature confirms that the level of education in African-American women does not correlate with improved reproductive outcomes.[33] The lack of correlation between education and the choice to breastfeed in our study population may have been influenced by late entry into prenatal care as a superceding risk factor. Lack of entry into prenatal care may be an expression of conflicting priorities in these mothers' lives, regardless of their educational level.

Parenting attitudes and perceptions seem to play an important role in the choice to initiate and maintain breastfeeding in our study population. The significant differences in responses on the AAPI and PDH indicate a more empathic attitude of breastfeeding mothers toward their infants and a significantly lower likelihood of relying on the infant as a source of solace or support (reversing

Table 3 Logistic Regression Analysis Comparing Those who Breastfed to those who Never Breastfed

Variable	Odds ratio	95% Confidence interval
Employed Before Birth	1.590	(0.771, 3.276)
Number of Living Children	0.749	(0.545, 1.028)
Education (years)		
<12	0.769	(0.233, 2.657)
12	1.338	(0.418, 4.284)
13+	1.000	—
Age (years)		
18–19	0.349	(0.084, 1.450)
20–24	0.685	(0.199, 2.352)
25–29	0.674	(0.172, 2.638)
30–34	0.320	(0.058, 1.754)
35+	1.000	—
Maternal Health Belief Questionnaire		
Severity of illness	0.950*	(0.913, 0.988)
Ability of medical care to prevent illness	1.058*	(1.012, 1.107)
Barriers to health care	0.898	(0.688, 1.173)
Adult–Adolescent parenting inventory		
Belief in use of corporal punishment	0.942	(0.869, 1.022)
Reversing parent–child roles	1.168**	(1.078, 1.266)
Parenting daily hassles		
Intensity of degree of 'hassle'	1.111	(0.982, 1.257)
Challenging behavior factor	0.806*	(0.667, 0.972)
Parenting tasks factor	0.925	(0.769, 1.112)

R^2=0.782.
*$p \leq 0.05$.
**$p \leq 0.001$.

parent–child roles). The breastfeeding mothers had a higher threshold for being hassled by the daily stressors of parenting, but most importantly were less likely to interpret these daily hassles as infant-challenging behaviors. This finding is particularly significant since it establishes the interesting link between the choice to breastfeed with the parent's attitudes and behaviors. Such an association could potentially influence breastfeeding promotion programs.

CONCLUSIONS

Although, social support has been suggested as an important influence on breastfeeding choices in previous studies, this does not seem to apply to mothers at the lowest end of the SES spectrum. Internal influences related to mother–infant relationships seem to play a more significant role. Mothers within the group that chose to breastfeed, and especially those that maintained breastfeeding longer are the ones with higher ego maturity and stronger belief in the efficacy of disease prevention and health promotion. Mothers who chose to breastfeed felt more strongly about the ability of medical care to prevent childhood illnesses. Physicians and nurses caring for these high-risk women should take a more directive approach, and should share culturally relevant information supporting mothers' decision to breastfeed their infants.

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