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Comparison of Breastfeeding Attitudes and Practices: Low-Income Adolescents and Adult Women

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Breastfeeding attitudes and practices of two independent samples of low-income adolescents were compared to a third sample of low-income, adult women. Low-income status was based on subject eligibility for the Special Supplemental Food Program for Women, Infants, and Children (WIC). Breastfeeding attitudes were significantly related to setting, race, and age. Other factors, such as previous exposure to breastfeeding, also influenced breastfeeding attitudes. Breastfeeding rates were 16.7% and 32.4% for the two teen samples, and 35.4% for the sample of adult women. Choice of infant feeding method post delivery was significantly related to intention regarding feeding method during pregnancy. Implications of these findings for health care professionals are discussed.

Increasingly, more American mothers are choosing to breastfeed. In 1984, 62.5% of mothers breastfed their newborn babies in the hospital compared to 24.7% in 1971 (Martinez & Krieger, 1985). Breastfeeding incidence figures vary with demographic variables such as race, age, and income. For example, in a national survey by Martinez and Krieger, 65% of white mothers breastfed their infants compared to 33.5% of black mothers. Mothers under 20 years of age breastfed at a rate of 36.8% compared to 66.6% for mothers 25 to 29 years of age. Of mothers with a family income of less than $7,000, 36.6% breastfed their infants, compared to 71.8% of mothers

with a family income of at least $25,000. The impact of socioeconomic factors on breastfeeding practices was studied by Biegelson, Cowell, and Goldberg (1986), who found that 8.5% of a low-income population used a combination of breast and formula feeding; an additional 3.2% used breastfeeding only. Rassin et al. (1984) reported a breastfeeding rate of 27.2% for a low socioeconomic group of mothers; however, significant race relationships were also found. Breastfeeding also has been studied among adolescent mothers with incidence figures ranging from 11.8% (Piechnik & Corbett, 1985) to 34% (Yoos, 1985).

In an effort to account for these varying incidence figures, researchers have studied breastfeeding attitudes of pregnant individuals, and the relationship of these attitudes and subsequent feeding practices to various demographic variables. In two reports describing a sample of 254 predominantly black, disadvantaged pregnant adolescents (Joffe & Radius, 1987; Radius & Joffe, 1988), 56.2% of the sample thought they would be denied medical assistance for their infants if they breastfed; 78% indicated they would be embarrassed about breastfeeding; and 19.3% reported intentions to breastfeed. Further, intentions to feed the infant were highly related to the actual feeding method employed following delivery. Moreover, having previous contact with breastfeeding (e.g., teen knew someone who breastfed) was related to intent to breastfeed. Similar findings were reported in a recent study of low-income teens (Baisch, Fox, & Goldberg, 1989), where previous exposure to breastfeeding (e.g., teen was breastfed as a baby) was related to positive breastfeeding attitudes. Moreover, the teens' plans for infant feeding during pregnancy (bottle or breast) were significantly related to the feeding method used following delivery. Pascoe (1982) also found that intent to breastfeed among 571 adolescents from high school health classes was significantly related to positive breastfeeding attitudes.

Most studies on breastfeeding attitudes and practices have been descriptive in nature. Studies which controlled important demographic variables were not found. The present study controlled one variable known to influence breastfeeding practices, namely, socioeconomic status. The study's purpose was twofold: (1) to compare the breastfeeding attitudes of low-income pregnant teens and low-income adult women, and the relationships between these attitudes and subjects' demographic variables and previous exposure to breastfeeding; and (2) to determine the actual infant feeding method chosen following delivery, and how breastfeeding attitudes related to this decision.

Method

Settings

Three sites serving low-income pregnant individuals living in a large, urban, inner-city area were selected for this study. The agencies were selected

to represent different age groups being served (adults vs. adolescents) and varying levels of services provided (comprehensive vs. limited). One agency, the Teen Pregnancy Service (TPS), was a full-time nurse-managed, interdisciplinary health care program that provided comprehensive care for pregnant teens, adolescent mothers, and their children through 4 years of age. WIC services were available on site (e.g., monthly food vouchers, nutrition counseling). A second agency, Perinatal Intensive Care Program (PICP), offered a special teen prenatal clinic within a general OB/GYN practice, 2 half days each week. Teens were provided a WIC referral for services offered through city/neighborhood WIC sites. The sample of adult women was obtained from a WIC site. These women were referred to the WIC site from a variety of health care providers in the city.

Subjects

The criterion used for the selection of the pregnant subjects was low-income status. Low-income status was defined as eligibility for the Special Supplemental Food Program for Women, Infants, and Children (WIC), which is based on a maximum income of 185% of the poverty level. All eligible pregnant subjects served by one of the three agencies over a one year period (September 1, 1985 to September 1, 1986) were included in this study.

A total of 127 TPS teens participated in this study with an average age of 17.7 years (SD = 1.5; range = 13.2 to 20.7). The PICP teen sample included 60 pregnant adolescents who had an average age of 16.0 years (SD = 1.3; range = 12.8 to 19.0). The mean age of the adult women (n = 87) was 26.2 years (SD = 4.3; range = 17.9 to 41.1). An analysis of variance computed for subject age by site found a significant main effect [F (2, 269) = 343.1, $p < .001$]. With a significance level set at .05, Scheffe's post hoc procedure showed that all three sites differed significantly from each other in terms of subject age. The PICP sample was the youngest, followed by the TPS sample. The adult women sample was the oldest. There was one subject in the adult women sample whose age overlapped with the teen samples' ages (age = 17.9). Occasionally, services were provided for clients outside the typical age range served by an agency. TPS, for example, might serve an older teen (20 years old) if she had delivered previous children there. Gestational age was not included as this data was not available at the adult women WIC site. Additional demographic data regarding the three samples are included in Table 1. The racial composition was most balanced in the adult women sample; blacks represented the largest percentage of the two teen samples, 67.6% (TPS) and 93.4% (PICP). Most TPS and PICP teens were having their first child, 76% and 83.1%, respectively. For the adult women sample, 72.4% had at least one previous child (range was 1 to 8 previous children).

TABLE 1
DEMOGRAPHIC DATA FOR THREE STUDY GROUPS

	TPS[a] *Teens*		*Women*		*PICP*[b] *Teens*	
	n	%	*n*	%	*n*	%
Race						
Black	86	67.7	31	35.6	56	93.4
Hispanic	7	5.5	17	19.6	2	3.3
White	31	24.4	29	33.3	2	3.3
Other	3	2.4	10	11.5	—	—
Total	127	100.0	87	100.0	60	100.0
Number of Previous Children						
None	92	76.0	24	27.6	49	83.1
1	21	17.4	22	25.3	8	13.6
2–3	8	6.6	32	36.8	2	3.3
4 or more	—	—	9	10.3	—	—
Total	121	100.0	87	100.0	59	100.0

Note. Due to missing data, some *n*s will not equal total sample sizes for all variables.
[a]TPS = Teen Pregnancy Service. [b]PICP = Perinatal Intensive Care Program.

Procedures and Instruments

During the first prenatal appointment at each site, a designated clinician (registered dietitians at TPS and PICP, social worker at the adult women WIC site) collected subject demographic data and additional information regarding the subjects' previous experiences with breastfeeding, using an intake form that was developed for this study. All subjects also completed the Breastfeeding Attitude Questionnaire at this time. This questionnaire was adapted from an instrument developed by Berger and Winter (1980) which was found useful in assessing breastfeeding attitudes in high school girls 15 to 18 years of age. This original scale included 20 items, used a multiple-choice format, and included relatively complicated items ("Do you know the body changes in a woman leading to lactation?"). The present adaptation reduced the number of items to 18, revised the item format to allow the use of a Likert rating system, and simplified the vocabulary and sentence length to be easily understood by persons with limited reading skills. The 18 items were reviewed by a panel of nurse educators and a group of nonpregnant teens; appropriate modifications were made (e.g., minor wording changes).

Items were both positive (e.g., "Breastfeeding is the healthiest feeding for the baby") and negative (e.g., "Breastfeeding is old fashioned"). Each item was rated by the subjects using a Likert Scale: 5 = Strongly Agree to 1 = Strongly Disagree. The internal consistency of these adapted attitude items was determined for the present subjects using coefficient alpha. A correlation of .73 was found indicating satisfactory internal consistency.

For this study, breastfeeding was defined by the subject's statement of having put the baby to the breast, regardless of the number of times or duration. Staff at TPS and PICP routinely recorded the mother's choice of infant feeding in the subject's chart at the hospital following delivery and/or during the 6-week postpartum visit. In the case of the adult women sample, the method of infant feeding was based on the subject's verbal report at her first visit to the WIC site following delivery.

Results

Previous Breastfeeding Experiences

A summary of the data collected regarding the subjects' previous experiences with breastfeeding are included in Table 2. As shown, the majority of subjects in all three groups were bottle fed as babies. A similar trend was reported for the babies' fathers except in the adult women sample, where breastfeeding was reported as slightly more common than bottle feeding. Similar percentages of individuals from all three groups reported hearing about breastfeeding from their doctor or other clinic staff. Families of the subjects were another common source of information. Relatively few teens from either site reported hearing about breastfeeding at school. When asked what their feeding plans were following delivery, the majority in each group favored bottle feeding (see Table 3). For subjects with previous children, 23% of the TPS teens reported having breastfed compared to 19% of the adult women and 17% of the PICP teen group.

Breastfeeding Attitudes

Subject ratings to the 18-item breastfeeding questionnaire were used to compute an overall attitude score. To obtain a total attitude score, the ratings for items written in a negative direction were reversed. The ratings for the reversed items were then summed with the ratings for the nonreversed items. Total attitude scores could range between 18 (very negative attitude towards breastfeeding) to 90 (very positive attitude).

TABLE 2
PREVIOUS EXPERIENCE WITH BREASTFEEDING FOR THREE STUDY GROUPS

	TPS[a] *Teens*		*Women*		*PICP*[b] *Teens*	
	n	%	*n*	%	*n*	%
How were you fed as a baby?						
Bottle	78	61.4	42	48.3	35	58.3
Breast	14	11.0	25	28.7	6	10.0
Bottle and Breast	13	10.3	4	4.6	11	18.3
Don't Know	22	17.3	16	18.4	8	13.4
Total	127	100.0	87	100.0	60	100.0
How was the baby's father fed as a baby?						
Bottle	44	34.6	23	26.5	16	26.7
Breast	18	14.2	27	31.0	1	1.7
Bottle and Breast	3	2.4	2	2.3	15	25.0
Don't Know	62	48.8	35	40.2	28	46.6
Total	127	100.0	87	100.0	60	100.0

[a]TPS = Teen Pregnancy Service. [b]PICP = Perinatal Intensive Care Program.

Group, Race, and Age Effects

Total attitude scores were analyzed using a 3 (TPS teens, PICP teens, adult women) × 3 (black, hispanic, white) analysis of variance (ANOVA). Individuals designated as "other" races were excluded from this analysis due to their small numbers ($n = 13$). Significant main effects were found for group [$F(2, 252) = 3.1$, $p < .05$] and race ($F(2, 252) = 4.1$, $p < .02$]. No interaction effects were found. Regarding the main effect for group, Scheffe's post hoc procedure ($p < .05$) showed that the PICP teen sample had significantly lower attitude scores ($M = 57.5$; $SD = 8.8$; range = 27 to 75) than the TPS teens ($M = 61.4$; $SD = 7.9$; range = 36 to 85) and the adult women ($M = 61.3$; $SD = 7.9$; range = 42 to 83); the latter two groups did not differ significantly from each other. Regarding the main effect for race, Scheffe's test ($p < .05$) indicated that white subjects had higher attitude scores ($M = 63.7$) than blacks ($M = 59.5$); hispanics did not differ significantly from either group ($M = 59.7$). Contributing to this latter find-

TABLE 3
SOURCE OF BREASTFEEDING INFORMATION AND FUTURE BREASTFEEDING PLANS FOR THREE STUDY GROUPS

		TPS[a] *Teens*		*Women*		*PICP*[b] *Teens*	
		n	%	*n*	%	*n*	%
Where did you hear about breast-feeding?							
School/Work	Yes	26	20.5	8	9.2	13	21.7
	No	101	79.5	79	90.8	47	78.3
	Total	127	100.0	87	100.0	60	100.0
Doctor/Clinic	Yes	81	63.8	58	66.7	36	60.0
	No	46	36.2	29	33.3	24	40.0
	Total	127	100.0	87	100.0	60	100.0
Friends	Yes	41	32.3	41	47.1	11	18.3
	No	86	67.7	46	52.9	49	81.7
	Total	127	100.0	87	100.0	60	100.0
Family	Yes	69	54.3	51	58.6	34	56.7
	No	58	45.7	36	41.4	26	43.3
	Total	127	100.0	87	100.0	60	100.0
Breastfeeding plans							
Bottle		74	58.3	45	51.7	46	76.7
Breast		31	24.4	31	35.6	6	10.0
Undecided		22	17.3	11	12.7	8	13.3
Total		127	100.0	87	100.0	60	100.0

[a]TPS = Teen Pregnancy Service. [b]PICP = Perinatal Intensive Care Program.

ing was the relatively small number of hispanic subjects ($n = 26$) and the restricted range of their attitude scores (42 to 69) when compared with the black subjects (27 to 85).

In order to further analyze the significant race finding, a second ANOVA was conducted. However, this time only the races initially differing significantly on attitude scores were compared (blacks and whites). Also, given the small number of whites ($n = 2$) in the PICP teen sample, this group was removed from the second analysis. As expected, a significant main effect again was found for race [$F(1, 173) = 5.4, p < .02$]. However, a significant interaction effect also was found [$F(1, 173) = 5.7, p < .02$]. Contributing

to this latter finding were the higher attitude scores for white adult women ($M = 65.4$) compared to the black adult women ($M = 58.7$); attitude scores between TPS white teens ($M = 61.9$) and black teens ($M = 61.4$) were similar.

Subject age was found not to be significantly correlated with breastfeeding attitudes ($p > .05$).

Prior Exposure to Breastfeeding

Subjects who were breastfed as babies scored higher on the attitude scale ($M = 62.3$) than bottlefed individuals [$M = 59.9$; $F(1, 222) = 5.2$, $p < .03$]. Similar results were found for subjects who reported that the infants' fathers were breastfed ($M = 61.9$) compared to bottle fed fathers [$M = 59.4$; $F(1, 143) = 4.0$; $p < .05$]. Subjects who reported hearing about breastfeeding from their families had higher attitude scores ($M = 61.8$) than those who did not [$M = 58.8$, $F(1, 268) = 10.2$, $p < .002$]. Subjects with previous children did not differ in their breastfeeding attitudes from those who had no previous children ($p > .05$). However, subjects who had breastfed previous infants had significantly higher attitude scores ($M = 66.4$) than those who had bottle fed [$M = 58.4$; $F(1, 109) = 17.8$, $p < .001$].

Infant Feeding Method

A significant difference in attitude scores [$F(2, 265) = 38.3$, $p < .001$] was found between subjects who planned to breastfeed their infants ($M = 67.0$) compared to those who planned to bottle feed ($M = 57.6$), and those who were unsure of which feeding method they would employ ($M = 61.1$). Scheffe's post hoc test indicated that all three groups differed significantly from each other ($p < .05$). Using a chi-square test, a significant relationship was found between how subjects planned to feed their infant and how they subsequently fed their baby [χ^2 (2, $N = 244$) = 90.0, $p < .001$]. Eighty-eight percent of subjects who planned to bottle feed did so, and 77% who planned to breastfeed did so. Of subjects who were uncertain about which feeding method they would use, 22% chose to breastfeed.

Data regarding infant feeding method showed that 32.4% of the TPS teens breastfed their baby compared to 35.4% of the adult women and 16.7% of the PICP teen group. A chi square test showed that there was a significant relationship between group membership (TPS teens, PICP teens, adult women) and feeding method (bottle versus breast) [χ^2 (2, $N = 244$) = 6.5, $p < .04$]. Those who chose breastfeeding had significantly higher attitude scores ($M = 65.0$) than those who bottle fed [$M = 58.5$; $F(1, 238) = 30.7$, $p < .001$].

The feeding method used with a previous baby also was significantly related to present infant feeding method [χ^2 (1, N = 102) = 20.9, $p < .001$]. This relationship is accounted for by 80% of previously bottlefeeding mothers also bottle feeding their present baby; 75% of previously breastfeeding mothers also were breastfeeding the present baby. Conversely, 20% switched from bottle to breastfeeding, and 25% switched from breast to bottlefeeding.

Discussion

Breastfeeding rates found in the present study were 16.7% for the PICP teens, 32.4% for the TPS teens, and 35.4% for the adult women sample. Although these rates fall far below the national average of 62.5%, the TPS teen and adult women samples' breastfeeding rates were comparable to segments of the American population with similar age, race, and economic backgrounds (Martinez & Krieger, 1985). Choice of infant feeding method following delivery was found to be significantly related to one's plans regarding infant feeding during pregnancy, which is consistent with other research (Jones, 1986; Pascoe, 1982). Those subjects intending to breastfeed had higher breastfeeding attitude scores that those intending to bottle feed. Higher attitude scores also were found for: subjects who had been breastfed as babies; subjects whose male partners had been breastfed as babies; subjects who had breastfed previous children; and for subjects who had been previously exposed to breastfeeding at home. These findings are consistent with other research (Joffe & Radius, 1987).

All subjects in the present study were low-income. Significant differences were found for breastfeeding attitudes between groups and races. The PICP sample had the lowest attitude scores, the youngest subjects, the highest percentage of blacks, and the lowest percentage of breastfeeding mothers. Given that age alone was not related to attitude scores, breastfeeding attitude differences between the PICP and TPS teens may be partly explained by the more comprehensive care afforded teens through TPS (e.g., full-time, nurse-managed care; WIC services offered on-site; well baby clinic services). Of interest, no differences in attitude scores or subsequent choice of infant feeding method were found between TPS teens and the adult women. These data suggest that a breastfeeding rate in the low- to mid-thirty percentage range may be a reasonable expectation for low-income pregnant populations.

Subsequent analyses suggested that the relationship between breastfeeding attitudes, infant feeding method, and various demographic variables is more complicated than previously thought. For example, considering the race variable, TPS black teens did not differ significantly from TPS white teens on their attitude scores. However, when the adult women sample was studied, blacks scored significantly lower than whites. Perhaps for teens, race

and age are less important factors than the level of prenatal care. Clearly more studies are warranted to clarify the relationships between major variables (age, race, income level, quality of health care) and breastfeeding attitudes and practices. The present results suggest that consideration of the level of prenatal care (frequency of prenatal visits, prenatal contacts with nurses and other health care professionals, attendance at prenatal classes) is warranted in future breastfeeding research.

Implications for Nursing Practice

Currently, efforts to assess pregnant individuals' attitudes towards breastfeeding must proceed on a case-by-case basis without bias towards race, age, or economic level. A thorough evaluation of a pregnant person's breastfeeding attitudes and previous experience/exposure to breastfeeding is important, as both variables are significantly related to subsequent feeding practices. Early prenatal care should be encouraged to provide nurses time to discuss the advantages of breastfeeding for the mother and her child. For mothers who lack knowledge and experience about breastfeeding or who are undecided about infant feeding methods, systematic educational efforts may influence important breastfeeding attitudes and subsequent feeding practices, especially among teens. Saunders and Carroll (1988) also recommended significant postpartum breastfeeding support to resolve difficult breastfeeding problems (e.g., engorgement, soreness, infant not sucking) and to encourage continued breastfeeding after leaving the hospital.

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