

## Breastfeeding Promotion in an Ethnically Diverse Adolescent Sample

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### Abstract

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Breastfeeding beliefs and attitudes of adolescents have been measured; yet, few studies have included both male and female participants. Adolescents have exhibited lack of knowledge, negative attitudes, and misconceptions about breastfeeding. Breastfeeding rates among African Americans are the lowest in the United States. Breastfeeding beliefs and attitudes were examined in a diverse adolescent sample. The major purpose of the study was to determine effect of a breastfeeding promotion session on beliefs and attitudes toward breastfeeding. Participants completed a self-report questionnaire, either before (control group;  $n = 105$ ) or after (experimental group;  $n = 102$ ) a breastfeeding promotion session. The questionnaire addressed beliefs, attitudes, and breastfeeding exposure. Two hundred seven students (84 male, 123 female; 135 African American, 30 Caucasian, 28 Hispanic, 14 other) participated. Beliefs and attitudes scores were higher in the experimental group than the control group ( $P < 0.01$ ). Also, 74% ( $n = 75$ ) of the experimental group indicated they would like their infant to be breastfed longer than six months, compared to 47% ( $n = 49$ ) of the control group ( $P < 0.001$ ). The breastfeeding promotion session significantly affected breastfeeding beliefs and attitudes among this ethnically diverse group of high school students.

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**Key Words:** breastfeeding promotion, breastfeeding beliefs, breastfeeding attitudes, adolescents

### 1. Background

Breastfeeding rates have fluctuated considerably in the United States since the turn of the 20<sup>th</sup> century. From the 1930s to the early 1970s, breastfeeding incidence declined steadily, reaching an all-time low in 1971. At that time, only 24% of mothers initiated breastfeeding, meaning they breastfed at least once before hospital discharge (Wolf, 2003). However, in 1975 33% of mothers initiated breastfeeding and by 1984 breastfeeding initiation reached 61% (Martinez & Dodd, 1983; Martinez & Krieger, 1985). According to the National Immunization Survey (NIS), the breastfeeding initiation rate was 76.5% in 2010. Among children aged 6 months and 12 months, breastfeeding rates were 49% and 27% respectively (Centers for Disease Control and Prevention [CDC], 2013a).

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In the United States, the goals of *Healthy People 2010* were to increase the number of mothers who breastfeed their infants to 75% in the early postpartum period, to 50% at 6 months, and to 25% at 1 year (United States Department of Health and Human Services [USDHHS], 2000). Breastfeeding rates vary throughout the United States. According to the Centers for Disease Control and Prevention (CDC), breastfeeding rates in Alabama, Arkansas, Louisiana, Mississippi, Tennessee, and West Virginia are the lowest in the United States, while rates in the western, central, and some of the eastern states are the highest (CDC, 2013b). Reasons for these disparities are complex. Factors associated with breastfeeding rates include maternal age, educational attainment, socioeconomic background, ethnicity, and geographic location (CDC, 2013a).

Breastfeeding is an important measure for improving infant health (Rempel, 2004). Much emphasis has been placed on prenatal breastfeeding education as a way to improve attitudes toward breastfeeding (Humenick, 2003), but it seems that the prenatal period is much too late to influence infant feeding decisions (Goulet, Lampron, Marcil, & Ross, 2003). In fact, the decision regarding breastfeeding is frequently made long before pregnancy (Goulet et al.). It has been reported that 50% to 90% of pregnant women decide how they will feed their children either before becoming pregnant or very early in pregnancy (Bailey & Sherriff, 1992). The majority of female adolescents between ages 12 and 17 years already have an opinion regarding infant feeding in the future (Goulet et al., 2003).

Several researchers have measured breastfeeding knowledge and attitudes of female teenagers or pregnant women (Berger & Winter, 1980; Cusson, 1985; Friel, Hudson, Banoub, & Ross, 1989; Pascoe & Berger, 1985). Only a few studies included both male and female adolescents (Ellis, 1983; Forrester, Wheelock, & Warren, 1997). Adolescents exhibited lack of knowledge and negative breastfeeding attitudes (Martens, 2001). Studies originating from various countries have consistently shown that adolescents have misconceptions about breastfeeding (Goulet et al., 2003). Martens (2001) discovered that students with previous exposure to a breastfeeding mother, or who were breastfed themselves or had siblings who were breastfed, were more likely to plan to breastfeed their own children.

The purpose of this study was to determine beliefs and attitudes about breastfeeding among an ethnically diverse sample of male and female high school students. In addition, we attempted to determine effectiveness of a breastfeeding promotion session intended to improve beliefs and attitudes toward breastfeeding. High school students may be an important target group for breastfeeding promotion. Understanding attitudes of adolescents could provide insight into factors that influence their intentions regarding infant feeding.

## **2. Methods**

### **2.1 Sample Selection**

The sample consisted of high school students enrolled in family and consumer sciences classes in two high schools in the southern United States during spring, 2010. All students in 12 classes were invited to participate. Individual classes within each school were randomly assigned to the control group or experimental group.

### **2.2 Instrumentation**

The instrument used for this study was an anonymous, self-report questionnaire. The instrument was identical for control and experimental groups. The questionnaire was an adaptation of instruments published by Martens (2001); Goulet et al. (2003); and Forrester et al. (1997). The survey consisted of demographic items, six questions dealing with previous exposure to breastfeeding and prior education about breastfeeding, and 25 items to determine breastfeeding beliefs and attitudes. The breastfeeding beliefs and attitudes items were positive statements.

Students rated their agreement with each statement using a five-point Likert scale, with five being “strongly agree” and one being “strongly disagree”. Possible scores ranged from 25 to 125.

### 2.3 Protocol

This study was approved by the Institution’s Human Subjects Review Board. A letter of introduction, a parental consent form, and a student assent form were distributed to students by their teachers two days prior to data collection.

Each student in the control group who returned the consent and assent forms was provided with a questionnaire; brief instructions were read to the group. After completing the questionnaire, each student placed it in an envelope and returned the envelope to the researcher. After all questionnaires were collected, the breastfeeding promotion session was presented. Students in classes selected for the experimental group submitted consent and assent forms at the beginning of each class period, but did not receive the questionnaire. After collection of forms, the breastfeeding promotion session was conducted.

The breastfeeding promotion session consisted of the video “To Baby with Love: Overcoming Breastfeeding Barriers” (Texas Department of State Health Services, Nutrition Services Section, 2006), followed by a short visual presentation with an accompanying handout, a question-and-answer period, and a crossword puzzle activity. The entire session took approximately 40 minutes.

One week after the breastfeeding promotion session, the researcher returned to the class sections that comprised the experimental group and administered the questionnaire. Only students who had previously completed the required consent and assent forms and were present on the day of the breastfeeding promotion session completed the questionnaire.

### 2.4 Statistical Analysis

Data were analyzed using SPSS, version 17.0. Frequencies were tabulated for demographic and breastfeeding exposure items. Breastfeeding beliefs and attitudes (BBA) scores were calculated. Scores on BBA were categorized as follows: 100-125, 90-99, 75-89 and < 75. Chi-squared analyses were used to determine relations between demographic variables, breastfeeding exposure variables, and BBA score category. In addition, chi-squared analyses were used to determine relations between control and experimental group responses to individual items. The alpha level was set at  $P < 0.05$  to determine significance. Mean BBA scores for control and experimental groups were compared using the independent  $t$  test.

## 3. Results

All eligible participants returned consent and assent forms. Two hundred seven students participated in the study. Mean age for participants was 16.6 years. Seventy-five percent ( $n = 156$ ) of participants were in the 11<sup>th</sup> or 12<sup>th</sup> grade. Race/ethnicity was self-selected from a list; of total participants, approximately 65% ( $n = 135$ ) were African American, 14.5% ( $n = 30$ ) Caucasian, 13.5% ( $n = 28$ ) Hispanic, and the rest were Asian/Pacific Islander, Native American, or other. Fifty-nine percent ( $n = 123$ ) of participants were female.

The control and experimental groups consisted of 105 and 102 students, respectively. Demographic characteristics were similar between groups with the exception that the experimental group had more female participants.

Mean BBA score for the experimental group (94.6) was significantly higher than that of the control group (83.9) ( $P < 0.01$ ). Chi-squared analyses were used to detect relations between selected variables and BBA score category.

Previous exposure to breastfeeding (being breastfed as an infant, having siblings breastfed, having observed breastfeeding) was not related to BBA score category. Gender was unrelated to BBA score category.

Responses of control and experimental participants differed on a number of specific items. More students in the experimental group than the control group indicated beliefs that breastfeeding would make mother and baby develop a close feeling, would save time, and would not cost very much money. Also, students in the experimental group were more likely to agree that breastfeeding would help a mother regain her figure, would allow a mother to get more sleep, and would allow a mother to go places and do things outside the home. Members of the experimental group reported more positive attitudes than those in the control group regarding breastfeeding in public places and breastfeeding in the presence of other women and men other than the baby's father. Individual items are displayed in Table 1.

There was no significant difference between control and experimental groups regarding feeding choice for their baby in the future; however, 53% ( $n = 110$ ) of all participants chose breastfeeding. Only 18% ( $n = 37$ ) chose bottle-feeding and 29% ( $n = 60$ ) chose "don't know". For the statement regarding duration of breastfeeding, responses of control and experimental groups were significantly different ( $P < 0.001$ ). Seventy-four percent ( $n = 75$ ) of experimental group participants indicated they would like their infant to be breastfed more than 6 months compared to 48% ( $n = 50$ ) of control group participants. In addition, 23.5% ( $n = 24$ ) of experimental group participants agreed they would like their infant to be breastfed after 12 months compared to 12.4% ( $n = 13$ ) of control group participants.

**Table 1: Breastfeeding Beliefs and Attitudes of High School Students**

Statements	Control (n = 105)		Experimental (n = 102)	
	Number	who marked “Strongly Agree”	Number	who marked “Strongly Agree”
Breastfeeding would make mother and baby develop a close feeling.	53	(50.5) <sup>a</sup>	71	(69.6) <sup>a</sup>
Breastfeeding is the most natural way to feed a baby.	67	(63.8)	69	(67.6)
Breastfeeding would be convenient.	23	(21.9)	36	(35.3)
Breastfeeding would provide the best food for the baby.	46	(43.8)	61	(59.8)
Breastfeeding would save time.	19	(18.1) <sup>d</sup>	46	(45.1) <sup>d</sup>
Breastfeeding would make parents feel good about themselves.	21	(20.0)	33	(32.4)
Breastfeeding will help a mother regain her figure.	17	(16.2) <sup>d</sup>	21	(20.6) <sup>d</sup>
Breastfed babies are healthier than bottle-fed babies.	53	(50.5)	56	(54.9)
Breastfeeding allows a mother to go places and do things outside the home easily.	10	(9.5) <sup>d</sup>	32	(31.4) <sup>d</sup>
Breastfeeding would not cost very much money.	58	(55.2) <sup>c</sup>	80	(78.4) <sup>c</sup>
Breastfeeding allows a mother to get more sleep.	11	(10.5) <sup>d</sup>	27	(26.5) <sup>d</sup>
Babies enjoy breastfeeding.	34	(32.4)	43	(42.2)
Breastfeeding is a good thing for mothers.	34	(32.4)	43	(42.2)
Breastfeeding is a good thing for babies.	62	(59.0)	66	(64.7)
Breastfeeding the baby is a good thing for the mother’s partner.	13	(12.4)	16	(15.7)
It’s okay for women to breastfeed if there are other women in the room.	29	(27.6) <sup>a</sup>	42	(41.2) <sup>a</sup>
It’s okay for women to breastfeed if the baby’s father is in the room.	49	(46.7)	60	(58.8)
It’s okay for women to breastfeed if there are other men in the room.	10	(9.5) <sup>d</sup>	16	(15.7) <sup>d</sup>
It’s okay for women to breastfeed in public places.	9	(8.6) <sup>d</sup>	25	(24.5) <sup>d</sup>
Women should be encouraged to breastfeed their babies.	43	(41.0)	54	(52.9)
I would encourage my friends to breastfeed their babies.	32	(30.5)	39	(38.2)
I would be comfortable (not embarrassed) if I saw a woman breastfeeding her baby.	29	(27.6)	32	(31.4)
Our school should encourage teen mothers to breastfeed.	29	(27.6)	33	(32.4)
Breastfeeding is fashionable.	6	(5.7)	12	(11.8)
Breastfeeding information should be included in the school curriculum.	16	(15.2)	22	(21.6)

<sup>a</sup> $P \leq .05$ <sup>b</sup> $P \leq .01$ <sup>c</sup> $P \leq .005$ <sup>d</sup> $P < .001$
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## 5. Discussion

This study indicated a breastfeeding promotion session had a significant impact on breastfeeding beliefs and attitudes among high school students. The experimental group reported more positive beliefs and attitudes than the control group. Promoting breastfeeding to high school students will likely increase breastfeeding initiation and continuation, and will increase overall breastfeeding rates.

Our data support previous findings that high school students possess some negative breastfeeding attitudes and believe that breastfeeding in public is embarrassing. Less than 10% of participants in the control group agreed “it is okay to breastfeed in public” or “if there are men other than the baby’s father in the room”. However, both attitudes were significantly different in the experimental group after the breastfeeding promotion session. Still, even after the promotion session, only 25% of participants agreed it is “okay for a woman to breastfeed her baby in public places”. Less than a third of students in the experimental group agreed they would “be comfortable (not embarrassed)” if they saw a woman breastfeeding her baby. These results are similar to those of Kavanagh, Lou, Nicklas, Habibi, and Murphy (2012) in a study of college students in the southeastern United States. Only 35% of their sample agreed “breastfeeding in public is acceptable” and 65% that “breastfeeding in public is embarrassing”. The investigators proposed it is difficult to increase breastfeeding rates if society looks upon breastfeeding as unacceptable and embarrassing. If breastfeeding in public is accompanied by social sanctions, it may limit mothers’ comfort in moving about the community and, thus, interfere with the goals of exclusive breastfeeding in the early months, as well as optimum duration of breastfeeding.

Ease of breastfeeding stands out as an important topic to address in breastfeeding promotion programs, as only 22% of control group participants and 35% of experimental group participants identified breastfeeding as the more convenient infant feeding practice. Similarly, a third of the university students in the study by Kavanagh et al. (2012) agreed breastfeeding is more convenient than formula feeding.

Importantly, 29% of control group participants were not sure about their feeding choice and 18% chose bottle-feeding as their preferred choice; this represents a challenge and an opportunity to influence future behavior. The possibility of reaching women before they internalize misconceptions regarding breastfeeding suggests high school students may be particularly appropriate for breastfeeding education.

Culturally appropriate programs are needed to assist secondary school teachers in their approach to the sensitive topic of breastfeeding. The topic must be presented in a way that is both interesting and challenging. In this study, students were asked whether breastfeeding information should be included in the school curriculum. No significant difference was detected in responses between groups. Only 18% of the total sample strongly agreed with the statement. In other words, the majority of students did not have a strong opinion regarding the issue of breastfeeding education. In contrast, Pascoe and Berger (1985) reported 62% of an adolescent sample in the United States indicated they wanted more breastfeeding information to be incorporated into the school curriculum. The desire for more information 25 years ago versus today may be attributed to the abundance of breastfeeding materials available, partially resulting from the *Healthy People 2020* goals and accompanying strategies. Nonetheless, it would have been encouraging if students who received the breastfeeding promotion session would have strongly embraced the importance of including breastfeeding information in the school curriculum. Results of the breastfeeding promotion session in this study showed significant improvement in attitudes and beliefs of teenagers toward breastfeeding; thus, promotion of breastfeeding to high school students should be an important strategy in reaching breastfeeding goals.

In public schools in the United States, the nutrition curriculum in family and consumer sciences classes provides information about breastfeeding; however, not all students enroll in family and consumer sciences courses. Public school health education classes, as well as biology courses, could be appropriate settings for breastfeeding education and promotion. School-based interventions are ideal because the target audience is captive and both sexes receive breastfeeding information.

Current breastfeeding interventions are targeted almost exclusively at women; however, the exposure of young males to breastfeeding promotion is important. Several researchers have reported the influence of the male partner on the choice of infant feeding (Arora, McJunkin, Wehrer, & Kuhn, 2000; Sullivan, Leathers, & Kelley, 2004). In a study of 7<sup>th</sup> and 8<sup>th</sup> grade adolescents (Martens, 2001), female students showed a more positive response to breastfeeding education than did male students. After an education session, males showed no improvement in breastfeeding beliefs and changes in breastfeeding attitudes were inconsistent. Martens suggested that male students were less mature than the females and also might have been hesitant to show interest in a traditionally female topic in the presence of their male peers. In the present study, no differences were found between males and females in overall response to the breastfeeding promotion session. Participants in this study were older. Thus, males may have been more mature, more future oriented, and more likely to have been contemplating the implications of parenthood than the male sample in the study by Martens. Results of the present study suggest that males in their late teens are receptive and interested in infant feeding information and should not be neglected as a target audience for breastfeeding promotion.

In this study, 65% of participants were African American. Other studies on breastfeeding promotion with adolescents either did not collect information on ethnicity or included very few African Americans. The present study indicated that African American adolescents are responsive to breastfeeding promotional efforts.

More than half of students in the experimental group strongly agreed breastfeeding develops a close feeling between mother and infant, is the most natural way to feed a baby, provides the best food for the baby, is good for the infant's health, is economical, and women should be encouraged to breastfeed their babies. However, when asked if they would encourage their friends to breastfeed, less than 40% strongly agreed. Reasons for encouraging "women" to breastfeed, but not their own "friends" may be revealed by examining statements with which there was little agreement by students in either the experimental or control group. The majority of participants in both groups failed to agree breastfeeding is convenient, allows mother to "go places and do things outside the home," allows mother to get more sleep, would make parents feel good about themselves, would be a good thing for mother's partner, and would help mother "regain her figure." Also, students did not agree breastfeeding should occur in public places or if men are in the room (other than the baby's father). More than 70% of the total sample indicated they would be embarrassed if they saw a woman breastfeeding her baby. This group of high school students agreed breastfeeding was advantageous for the baby, i.e. the natural thing to do, the best thing for the baby's health; however, they felt breastfeeding would contribute to the mother's fatigue, limit her freedom, and subject others to discomfort/embarrassment. Thus, they may be understandably reluctant to encourage their friends to breastfeed. Identifying barriers to breastfeeding in this population should help in developing promotional materials for African American teens.

The convenience sample was drawn from a single urban school district in the southern United States. Thus, results should be generalized with caution. In addition, the study relied on data collected by a self-administered questionnaire. There may have been individual differences in interpretation of questions, differences in reading skills, and the potential for social desirability response bias.

## 6. Conclusions

A unique strength of the study was the ethnic diversity of the sample. The school district selected for the study contained a myriad of ethnic groups with the number of African American students significantly higher than Caucasian. Socioeconomic status in the school district varied from low to upper-middle class. Studying a largely African American sample is appropriate because African Americans have the lowest rate of breastfeeding of all ethnic groups in the United States (CDC, 2013a).

There was no significant difference between control and experimental group participants regarding feeding choice for their baby in the future; however, more than half of all participants chose breastfeeding. As to duration of breastfeeding, responses were significantly different, with about three-fourths of the experimental group participants indicating they would like their infant to be breastfed more than six months compared to less than half of control group participants. Almost one-fourth of experimental group participants agreed they would like their infant to be breastfed longer than 12 months, approximately twice the number of control group participants. The percentage of students in the experimental group who would choose to initiate breastfeeding, to continue breastfeeding more than six months, and to continue breastfeeding after one year closely parallels the *Healthy People 2020* (USDHHS, 2013) targets.

In the United States, the goals of *Healthy People 2020* include increasing the proportion of mothers who breastfeed their infants. Based on the established targets, 81.9% of all mothers should be breastfeeding their babies during the early postpartum period, and 60.6% and 34.1% of mothers should be breastfeeding at 6 and 12 months, respectively (USDHHS, 2013).

Finally, the lower socioeconomic groups in the United States are the most likely to choose infant formula. Targeting the public schools for breastfeeding education means that individuals of all socioeconomic levels will be reached. Our findings, like those of Wambach et al. (2011), demonstrate the effectiveness of developmentally sensitive, age-appropriate, teen-friendly breastfeeding promotion efforts. In addition, our results indicate both adolescent males and females from diverse ethnic backgrounds and socioeconomic levels are likely to respond positively to such interventions. If lessons about breastfeeding are designed in a progressive, culturally sensitive fashion, substantial gains in breastfeeding rates across the United States may be made, and *Healthy People 2020* goals may be reached.

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