Maternal-Fetal Attachment in African-American and Hispanic-American Women

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Abstract

This pilot study used Cranley's Maternal-Fetal Attachment Scale (MFAS) to explore the feasibility of comparing maternal-fetal attachment behaviors of African-American and Hispanic-American gravidas. Data analysis revealed no significant differences between the two groups' MFAS total scale score means; however, the Hispanic-American gravidas displayed significantly higher scores in two of the subscales. While study limitations were apparent, the results lend support to health care professionals' responsibilities to be cognizant of potential similarities and differences in the cultural care needs of pregnant women.

Journal of Perinatal Education, 12(4), 27–35; maternal-fetal attachment, maternal-fetal attachment scale, cultural health needs.

The United States is making a transition from a predominantly white culture to one that is increasingly culturally diverse (Freda, 1994). Projections made more than a decade ago have come to fruition, making the Hispanic group a majority minority in the year 2000 (Caudle, 1993; U.S. Department of Health and Human Services [USDHHS], 2000). In this new, ethnically diverse culture, nurses may need to modify their approach to health care for pregnant women from the traditional Anglo-Saxon viewpoint of the previous century.

Reported statistics of the ethnic changes in the United States population indicate that the percentage of births in this country for the year 2000 was 15.25% for African-Americans and 20.07% for Hispanic-Americans (USDHHS, 2000). These statistics represent a stable population growth for African-Americans and a 20% increase for Hispanic-American births from the

1998 census. Simultaneously, African-Americans and Hispanic-Americans have more families below the poverty level, more families with a female householder, more mothers seeking prenatal care later in their pregnancies, more infants born with a low birth weight, and a higher frequency of infant morbidity and mortality than their Caucasian counterparts (Caudle, 1993). Thus, it logically follows that these two groups have more unmet needs for effective health care.

The beliefs and practices specific to an individual's culture influence all human interactions. More specifically, Mercer (1986) reported that culture is an important variable in that it can affect the maternal-fetal attachment process and the development of the maternal role. Where lacking, health care practices must change so that nurses become more sensitive to the needs of all childbearing women in order to understand, communicate, and work effectively with the patients of other cultures (Leininger, 1985, 2002; Reynolds, 1993; Tripp-Reimer & Afifi, 1989; Tripp-Reimer, Brink, & Saunders, 1984). In order to do this, educators and care providers must have knowledge about the psychological adaptation that facilitates the maternal role attainment process during pregnancy in these cultural groups. They must also be cognizant of the general influence of cultural norms and values on the maternal-role-attachment process in order to provide culturally competent care to all patients.

The purpose of this pilot study was to compare maternal-fetal attachment behaviors of African-American gravidas and Hispanic-American gravidas in the 20th–32nd weeks of pregnancy. Hispanic-Americans included members whose ancestors immigrated from any Spanish-speaking country (i.e., Mexico, Central America, South America, and the Caribbean Islands). The pilot study addressed the feasibility of addressing the following research questions:

- 1. What are the maternal-fetal attachment behaviors of African-American gravidas in the 20th–32nd weeks of pregnancy?
- 2. What are the maternal-fetal attachment behaviors of Hispanic-American gravidas in the 20th–32nd weeks of pregnancy?
- 3. Is there a difference in the maternal-fetal attachment behaviors between African-American and

Hispanic-American gravidas in the 20th–32nd weeks of pregnancy?

The conceptual framework for the study was based on the concept of attachment as described by Rubin (1967a, 1967b, 1975, 1984) and on Leininger's cultural care diversity and universality theory (Leininger, 1988, 1993, 2002; Reynolds, 1993). This framework supports the importance of the relationship of the mother to her unborn fetus in attaining the maternal role. Cultural care theory, an integral part of the conceptual framework, identifies the need for the provision of culturally competent care.

Childbearing is viewed as a rite of passage in many cultures. The ways in which differing cultural groups view this transition can depend on a number of factors, including health and illness values and beliefs, health practices and remedies, and social support. African-American women often respond to pregnancy and prenatal care in the same manner as many other cultural groups, based on their satisfaction with self, socioeconomic status, and career goals (Purnell & Paulanka, 2003). Family and a large social network often guide the African-American gravidas' health beliefs and practices. Hispanic-American women view pregnancy as a natural and desirable phenomena, often seeking prenatal care later or not at all, relying on family and traditional healers with strong beliefs related to the hot-and-cold theory of disease prevention and maintenance (Purnell & Paulanka, 2003). During pregnancy, both of these cultural groups adhere to many prescriptive and restrictive beliefs and taboos. Among Hispanic women, a prescriptive belief includes wearing special articles of clothing to ensure a safe pregnancy; among African-American women, a restrictive belief may include avoiding having one's picture taken to prevent stillbirth (Andrews & Boyle, 2003). Common to both cultural groups are the barriers to prenatal care that they encounter (i.e., lack of money, access to care, trust in the medical healthcare system,

During pregnancy, both Hispanic women and African-American women adhere to many culturally prescriptive and restrictive beliefs and taboos. education, and reliance on family and traditional healers for information and support during pregnancy).

Review of Literature

Current literature directed at maternal-infant health care is replete with discussions of attachment and bonding. Klaus, Kennell, Plumb, and Zuehlke (1970) reported one of the initial studies on bonding. The results of this early study demonstrated an orderly and predictable pattern of maternal-infant behaviors. Rubin (1967a, 1967b, 1975, 1984) and Cranley (1981), among others (Gaffney, 1986; Grace, 1989; Heidrich & Cranley, 1989), have consistently documented that pregnant women demonstrate attachment behaviors toward their fetuses. Rubin (1967a) studied the developmental tasks of pregnancy in depth and described women's behaviors as they progressed through each task. The most critical developmental task of pregnancy, prenatal attachment to the fetus, has been correlated with a positive adaptation to the pregnancy and to the subsequent task of motherhood

Maternal-fetal attachment has been defined by Cranley (1981) as "the extent to which women engage in behaviors that represent an affiliation and interaction with their unborn child" (p. 282). Based on Rubin's (1967a, 1967b) research of the developmental tasks of pregnancy and on Leifer's (1977) study of attachment behaviors, Cranley (1981) developed and tested the Maternal-Fetal Attachment Scale (MFAS) in an attempt to measure the concept of maternal-fetal attachment during pregnancy. The results of Cranley's (1981) initial study supported the concept that women attach to the fetus, prenatally, as captured by the MFAS.

Although much research has been conducted, further development of a knowledge base about prenatal attachment has been disappointing (Muller, 1992). Attempts to relate a multitude of variables to maternal-fetal attachment have been inconsistent. Researchers have used the MFAS to study the relationship between attachment and a variety of variables, but only gestational age and quickening have consistently demonstrated significant correlation with maternal development of prenatal attachment (Grace, 1989; Heidrich & Cranley, 1989; Lerum & LoBiondo-Wood, 1989; LoBiondo-Wood, 1985). Zachariah (1994) determined that a positive correlation of maternal-fetal attachment with gestational age and cultural/social variables was consistent with the Although researchers have described the maternalfetal attachment process and maternal role attainment, very few researchers have studied these processes in non-Caucasian cultures.

findings of Cranley (1981), Grace (1989), Heidrich and Cranley (1989), and Rubin (1975).

Although researchers have described the maternalfetal attachment process and maternal role attainment, very few researchers have studied these processes in non-Caucasian cultures. Using a predominantly Caucasian, middle-class population, Carter-Jessop (1981) developed intervention activities to promote postnatal attachment. Carson and Virden (1984) were unsuccessful in their attempt to replicate the findings of Carter-Jessop (1981) while using a larger, culturally diverse sample. It was unclear if the contrasting results were related to cultural differences. To date, no other reported research has identified cultural differences in maternal-fetal attachment or attainment of the maternal role.

Method

Design

The sample selection criteria for this descriptive study controlled for the extraneous variables of race, age, weeks of gestation of pregnancy, and the ability to read and understand English or Spanish. The variables of marital status, education level, and the number of pregnancies were accounted for in the collection of the demographic data.

Subjects were recruited from two prenatal clinics located in two Mid-Atlantic States. The majority of the clients served in these clinical sites were from African-American and Hispanic-American ethnic backgrounds.

Sample

A convenience sample of 40 subjects in this pilot study included pregnant women of either culture who were 18 years or older, were at 20–32 weeks gestation, received prenatal care at either of the two clinics, and could read

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and understand English or Spanish. Of the 40 subjects, 20 (50%) were from the African-American culture, and 20 (50%) were from the Hispanic-American culture. The African-American subjects ranged in age from 18-31 years (mean age = 21.9 years), while the Hispanic-American subjects ranged in age from 18–36 years (mean age = 23.8 years). The mean ages of the two groups were not significantly different. A significant difference existed in the marital status of the two groups. All of the subjects (100%) in the African-American group were single, while a majority (60%) of the subjects in the Hispanic-American group were married. The majority (85%) of the African-American group had completed high school, with only a minority (35%) of the Hispanic-American group reporting that they had completed high school (p < .05). The means of the weeks of gestation of the two groups were significantly different (t = -2.19, df = 38, p < .05): The mean for the African-American group was 26.6 weeks, and the mean for the Hispanic-American group was 29.6 weeks. The range of the number of children for the African-American group was 0–2, while the range for the Hispanic-American group was 0-3. The two groups were not significantly different on this variable.

Protection of Human Subjects

Study approval was received from the human subjects review committee of the sponsoring university and from both participating agencies. All subjects gave written consent.

Instruments

Data were collected using Cranley's (1981) MFAS, 24item Likert scale with five subscales:

- 1. *Role Taking* (e.g., "I picture myself feeding the baby");
- 2. *Differentiation of Self from Fetus* (e.g., "I enjoy watching my tummy jiggle as the baby kicks inside");
- 3. *Interaction with Fetus* (e.g., "I poke the baby to get him/her to poke back");
- 4. *Attributing Characteristics to Fetus* (e.g., "It seems the baby kicks and moves just to keep me from resting"); and

5. *Giving of Self* (e.g., "I feel all the trouble of being pregnant is worth it").

The response options in the MFAS range from "Definitely Yes" to "Definitely No" and are scored from 1-5, with 5 being the most positive statement. A mean score is then calculated by dividing the sum of the items scored by the number of items answered, resulting in potential scores for the scale ranging from 24-120 (Cranley, 1981). The subscales suggest a hierarchy of behaviors, which can be useful in assessing a woman's attachment behaviors through pregnancy. The tool measures a developmental sequence of behaviors, which can be useful in assessing a woman's progress through pregnancy (e.g., a pattern of lower scores can alert the researcher to potential attachment problems) (Cranley, 1981). According to Cranley (1981), early estimates for internal consistency using Cronbach's alpha ranged from 0.52–0.73 for the subscales and 0.83 for the entire scale, with more current estimates of the tool's reliability ranging from 0.83-0.87. Content validity was assessed by expert maternal-child nurses who reviewed the final draft of the revised tool. Using the alpha coefficient, internal consistency for the particular MFAS employed in this study was calculated to be 0.78 for the English version and 0.76 for the Spanish version.

Following Lynn's (1986) recommendations, the content validity index of the MFAS was calculated to be .91 and .90 for relevance among the African-American and the Hispanic-American culture, respectively. The MFAS was evaluated for reading level using the Smog readability method and the Fog readability formula (Lynn, 1989), with resultant grade levels of 4.5 and 4, respectively. Because of the nature of the study, the instrument was available in both English and Spanish.

Data Collection Procedure

Potential subjects were approached and offered an explanation of the study, with a Spanish translator available, if needed. After consenting to participate, the subjects were given the MFAS, in their chosen language, to complete in privacy.

Data Analysis

Descriptive statistics were calculated for the MFAS total scale and for each subscale in each of the two groups.

Using the means of the total MFAS scale and the subscales, a pooled, two-tailed *t*-test was used to determine any significant differences in maternal-fetal attachment behaviors of the two cultural groups. Demographic data were used to describe the subjects. An analysis of covariance based on gestational age was not used due to the small sample size in this pilot study.

Results

The pilot study demonstrated that, although the total scale scores were not significantly different, the Hispanic-American group had a higher range of scores and a higher mean score on the MFAS than the African-American group. These findings indicated that true differences might exist in maternal-fetal attachment behaviors among African-American and Hispanic-American gravidas in the 20th–32nd weeks of pregnancy. However, the potential influences of education, gestation of pregnancy, and marital status of the study sample cannot be overlooked. These variables, or others such as family support systems and socioeconomic status (factors not accounted for in this study), may have influenced the findings.

Maternal-fetal attachment behaviors, as described by the MFAS total scale and subscale scores of both groups, are presented in Table 1. The mean score for the total scale in both groups was high as related to the potential maximum score for the scale. In addition, mean scores on the subscales for both groups were highest in the categories of Attributing Characteristics to Fetus and Giving of Self, indicating both groups of women were more likely to respond to the characteristics of the fetus and would be willing to make lifestyle improvements that would benefit the fetus. The lowest mean score for both groups was in the category of Differentiation of Self from Fetus, indicating that the subjects were less likely to view the fetus as a separate being from themselves.

The Hispanic-American group had scores in the direction of higher means than the African-American group on all but one subscale and on the total MFAS score. However, the only significant differences between the two groups were found in the subscales of Attributing Characteristics to Fetus and Giving of Self. Thus, the Hispanic-American subjects were shown to be more likely to perform activities such as talking to their unborn baby, thinking about the baby's potential personality, and taking better care of themselves by adopting a healthier lifestyle (refer to Table 1).

Discussion

While a significant difference was not found between the total scale scores for the two groups, the Hispanic-American group scored significantly higher than the African-American group in two of the subscale categories: Attributing Characteristics to Fetus and Giving of Self. These categories may have been influenced by demographic variables, especially the three on which the

MFAS Mean Scores	Possible Score Range	African-American		Hispanic-American		
		n = 20	SD	n = 20	SD	t test
Total Scale $(df = 38)$	24–120	89.7	13.9	94.5	9.2	-1.30
Subscales						
Role Taking	4-12	17.2	2.5	17.7	2.2	67
Differentiation of Self from Fetus	4-20	15.7	2.9	15.3	2.9	.44
Interaction with Fetus	5-25	17.2	3.2	17.3	2.7	05
Attributing Characteristics to Fetus	6-30	21.0	4.7	23.5	2.9	2.02*
Giving of Self	5-25	18.4	3.9	20.8	2.1	2.42*

Table 1MFAS Total Scale and Subscale Mean Scores, SDs, and *t*-Test Analysis of the African-American and Hispanic-
American Cultural Groups

two groups were significantly different: education, gestation of pregnancy, and marital status.

All subjects were 18 years or older. The African-American subjects had a significantly higher education level than the Hispanic-American subjects. The finding that Hispanic-Americans are likely to be less educated than other cultural groups is frequently found in the literature (Caudle, 1993; Spector, 2004). Educational level may affect any of the subscale categories, particularly Giving of Self, a concept of willingness to change lifestyle. Davis and Akridge (1987) and Cranley (1981) have found that Giving of Self was the most frequently reported behavior in their studies (72%, n = 22 and 93%, n = 71, respectively); likewise Fuller (1990) found this behavior as the second highest in her study (mean = 98.4, n=32). If a pregnant woman is better educated, one might assume that she would take better care of herself during her pregnancy. Researchers have found that level of education is related to timing of entry into prenatal care (Colley-Gilbert, 1999) and to prediction of health service (i.e., choice of health care services and facilities accessed) (Raghupathy, 1996). Therefore, based on the assumption that education is positively related to selfcare during pregnancy, an expected study finding would have been that the better educated African-American group would have scored higher on the subscale of Giving of Self; however, the Hispanic-American group scored significantly higher. Given this finding in an unexpected direction, it may be that the cultural influence was stronger than the educational influence. One part of the cultural influence was the significantly more frequent marital status of the Hispanic-American group. It is unknown how many of the single subjects also lived with a partner or how a partner influenced lifestyle accommodations during pregnancy. While marriage might have an important influence on attachment, this assumption has not been supported by other research findings (Koniak-Griffin, 1988; Wayland & Tate, 1993). Researchers have found that social support, not necessarily marriage, may influence attachment (Connelly, 1998; Cranley, 1981; Wilson et al., 2000).

Significant differences between the two groups in Attributing Characteristics to Fetus could have been influenced by gestation of pregnancy rather than by culture. According to Cranley (1981), this behavior begins prior to the third semester. The mother probably begins to attribute characteristics to the fetus when she begins to guess about the baby's personality in the second trimester. While the Hispanic-American group significantly scored higher than the African-American group on this subscale, 85% of them were in the third trimester, while only 55% of the African-Americans were at this point in their pregnancies.

Previous research using the MFAS indicates that, of the variables studied, the strongest relationship is with maternal-fetal attachment and increased gestation of pregnancy. The literature supports that the woman who has experienced quickening and has a more advanced gestation will score higher on the MFAS (Grace, 1989; Heidrich & Cranley, 1989; Lerum & LoBiondo-Wood, 1989; LoBiondo-Wood, 1985; Rubin, 1967b; Zachariah, 1994). The findings of this study were predicted by the research of Rubin (1967a, 1967b, 1984), who theorized that the woman uses the entire pregnancy to complete the attachment process. The gestation range of the subjects may explain the fact that, in this study, the lowest subscale scores achieved by both groups were in the subscale of Differentiation of Self from Fetus.

While the African-American group had a trend towards fewer children and were more likely to be younger than the Hispanic-American group, these differences were not significant. Reported research does not substantiate a relationship between attachment and age or parity (Davis & Akridge, 1987; Grace, 1989; Kemp, Sibley, & Pond, 1990; Koniak-Griffin, 1988; Koniak-Griffin & Verzemnieks, 1991; Lerum & LoBiondo-Wood, 1989). Thus, even if the groups were different on these variables, an expected attachment difference would not have occurred.

Study Limitations

The limitations to this study include the use of a small convenience sample, the use of two settings, and the use of a translator. Interpretation of the MFAS questions may be different for non-Caucasian cultures because norms for non-Caucasian groups have not been reported. Another potential limitation of the study design, also related to the tool, is the use of the Likert-scale format. Flaskerud (1988) questioned the possibility of this format being culturally biased. She stated that the problems in using this type of scale in other cultures could be related to education, content, lack of semantic equivalence, faulty translation, differing character of social interactions in various groups, or the nature of the response required. Thus, studies of reliability of the MFAS should be conducted before using it with a specific population.

Criticisms of the validity of the MFAS are documented in the literature (Grace, 1989; Muller, 1992; Muller & Ferketich, 1993). This criticism relates to the interpretation of the subscales' measures of attachment. According to Cranley (1992), the subscales alone have not been shown to have satisfactory reliability estimates; therefore, she recommended that the scale score only be interpreted when used as a whole. However, according to Cranley (1992), the subscale items can be instructive to many women by suggesting activities that, otherwise, may have not occurred to them. Additional subscale study may reveal useful information about subscale behaviors. Perhaps continued maternal-fetal attachment research will result in revisions of the MFAS, including improved reliability and validity.

Implications for Research

This research should be replicated, using a larger, randomly selected sample of the ethnic groups studied. In light of the questionable reliability and validity of the MFAS subscale scores, reliability studies should be conducted with each ethnic group. A longitudinal study could measure attachment behaviors at various times during the second and third trimesters. The MFAS may need to be redesigned to include a format that may be more culturally sensitive (i.e., revision of the Likert scale to include three response options as opposed to five). Further investigation of the variables that influence maternal-fetal attachment should be conducted (e.g., use the variable of "social support" as opposed to "marriage"). Ultimately, a need exists to document the extent to which encouraging mothers to engage in attachment behaviors actually influences their attachment to the newborn.

Implications for Practice

Recommendations appropriate for practice are important. Nurses, childbirth educators, and health care providers must become culturally competent to meet the needs of diverse ethnic populations. As the population of the United States continues to transition to a much As the population of the United States continues to transition to a much more ethnically diverse culture, individuals caring for pregnant women must be aware of the most appropriate strategies to utilize in the promotion of a positive maternal-fetal attachment.

more ethnically diverse culture, individuals caring for pregnant women must be aware of the most appropriate strategies to utilize in the promotion of a positive maternal-fetal attachment. Perinatal educators can use the MFAS items, which measure some of the feelings and behaviors of pregnant women, as an approach to elicit discussion about prenatal attachment with women. At any phase of pregnancy, care providers can use the items in the MFAS as a starting point to discuss potential attachment activities in which the parents might engage.

Researchers have found that, in both the African-American and the Hispanic-American populations, cultural beliefs and health practices have a significant impact on their well-being regardless of their income and educational levels (Caudle, 1993). Knowledge of the cultural beliefs and values of the women they serve will allow perinatal educators to better understand the African-American and Hispanic-American clients' mothering and attachment behaviors, particularly as they relate to attainment of the maternal role. The development of intervention strategies is important to enhancing prenatal attachment behaviors that are individualized and appropriate for pregnant women of differing cultures during specific periods of gestation. If women of various cultural groups demonstrate attachment behaviors differently, it is important to be aware of these differences (see Table 2).

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MFAS Subscales and Item Content	Suggestions for Introducing Activities			
<i>Role Taking</i>Feeding the babyCaring for the babyPicturing the baby	Exploring pregnancy ambiguity early in the pregnancy can allow the health care provider to assist in the resolution of potential problems. Assessment of care needs can begin early in pregnancy, especially with infant feeding preferences.			
<i>Differentiation of Self from Fetus</i>Watch fetus move and kickDeciding on a name for the baby	Encouraging attention to fetal cues helps parents understand effects they have on a good fetal environment, including the presence of a support person.Providing resources for baby names.			
Interaction with FetusTalking to the fetusPlaying with the fetus	Supporting interaction activities conveys to the mother and father that the health care provider finds these activities valuable and meaningful.			
Attributing Characteristics to FetusWondering if the fetus can hearFeeling the baby kick at feeding timesIdentifying when baby hiccups	 Support talking and reading to the fetus. Teach parents to become familiar with "usual" characteristics of the fetus—some differences may alert the mother to potential problems (e.g., the influence of the mother's diet on the fetus or an unusual change in fetal activity). 			
Giving of SelfTrying to stay healthyEating good dietFeeling as if "my body is ugly"	 Encourage healthy lifestyles, not just during the pregnancy, but for a lifetime (i.e., diet, exercise, and avoiding smoking, alcohol, and stress). Assess body image, with strategies to promote self-esteem. 			

Table 2 MFAS Items and Suggestions for Introducing Related Activities to Expectant Parents

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Su Familia: Hispanic Family Health Helpline

The Su Familia National Hispanic Family Health Helpline (1-866-783-2645) is a bilingual, toll-free service designed to help Hispanic families connect with basic health information, local health providers, and federally supported programs. Su Familia is funded by the Health Resources and Services Administration's Office of Minority Health. The Su Familia Helpline is available from 9:00 a.m. to 6:00 p.m., Eastern Standard Time, Monday through Friday. More information is available on the National Alliance for Hispanic Health Web Site (http://www.hispanichealth.org).