

Haitian American Mothers' Health And Dietary Beliefs Concerning Their Infants

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HAITIAN AMERICAN MOTHERS' HEALTH AND DIETARY BELIEFS
CONCERNING THEIR INFANTS

by

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A thesis submitted in fulfillment of the requirements
for the degree of Master of Arts
in the Department of Anthropology
in the College of Sciences
at the University of Central Florida
Orlando, Florida

Fall Term
2008

ABSTRACT

Studies on the effects of immigration are becoming more important as the number of immigrants into the United States continues to grow. This study was implemented in order to discover the infant feeding practices and beliefs of Haitians living in Central Florida. A food frequency card sort and interview were conducted with thirty-four Haitian mothers. Mothers were asked to identify which foods they fed their children. Foods pictured on the cards included a majority of Haitian staple foods, some of which are primary to the American diet as well. Low food feeding frequencies were generally attributed to lack of access to foods or lack of funds. Inexpensive foods, such as rice and beans, which are staples to the Haitian diet, remain prevalent in infant feeding among Haitians living in the United States. However, more American starches like potatoes and cereals are replacing other Haitian staples, such as yams and yuca. This study suggests that dietary acculturation among Haitian Americans is occurring, but not rapidly in this population. Furthermore, women did not express a strong relationship between beliefs about particular foods and infant health.

TABLE OF CONTENTS

LIST OF TABLES	iv
INTRODUCTION AND HISTORY	1
PROBLEM AND PURPOSE	7
MATERIALS AND METHODS	11
RESULTS	14
DISCUSSION	18
CONCLUSION	22
APPENDIX A: INFORMED CONSENT FORM	24
APPENDIX B: INSTITUTIONAL REVIEW BOARD APPROVAL	27
APPENDIX C: FOOD CARDS	29
APPENDIX D: INTERVIEW	31
REFERENCES	33

LIST OF TABLES

TABLE 1.0	19
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INTRODUCTION AND HISTORY

Currently, Haiti is in a state of economic despair. The people lack the means to acquire or produce adequate amounts of food and there are problems with the distribution of food within Haiti. Internally, there are a number of factors that have influenced Haiti's lack of agricultural stability. A major agricultural issue facing the nation is the extensive deforestation of the country. Since its colonization in the late 1700s, Haiti's forested land has shrunk from over 75 % to a startling 1 % (Erikson, 2004: 294). The deforestation of Haiti has led to an annual loss of 36 million tons of topsoil, destroying entire ecosystems and rendering the land unsuitable for adequate farming (Erikson, 2004: 294). Another side effect of the massive runoff of nutrient-rich soil has been a destruction of many coastal marine ecosystems (Erikson, 2004: 294). The deforestation of Haiti has not only limited the people's agricultural ability, but the harvesting of the ocean's bounty as well. In 1982, an African porcine epidemic forced the slaughter of all Haiti's pigs (Maingot, 1987: 80). The loss of the pigs was devastating to the people who depended upon the pig for food and for some religious activity (Maingot, 1987: 80). A variety of solutions were introduced, but all were short of successful.

Since its foundation as the western hemisphere's second republic in 1804, the political and economic stability of Haiti has been closely tied to Haiti's relationship with the United States. For decades, Haitian refugees, seeking escape from the tyrannical Duvalier regime, have fled to the United States. Despite years of Haiti's oppression and famine, it was not until May of 1984 that the first food related riots broke out in Haiti, in the city of Gonaives (Maingot, 1987: 80). Following the riots, a drought on the island led to a 20% reduction in the production of rice and corn, as well as a shortage of power normally supplied by hydroelectric plants (Maingot, 1987: 80). The loss of so much produce sent the quality of the Haitian diet into a downward

spiral. Haiti's geographical position in the Caribbean has contributed to its economic and agricultural condition. In 2008, three tropical cyclones assaulted the small nation within a three-weeks, killing over 200 people and displacing more than 15,000 families (WHO, 2008). The fact that the storms occurred in such a short amount of time made rescue and relief efforts more difficult. The United Nations (UN) and various Non-Government Organizations (NGOs) were most stretched by the impact of hurricane Gustav (WHO, 2008). Seasonal storms like these cause mudslides and floods, which makes navigation through the already tumultuous rural areas of Haiti even more difficult.

Haiti's population is currently over 8 million people, a rise of more than 2 million people since the fall of the Duvalier regime in 1986 (Erikson, 2000: 294). According to the United Nations Food and Agricultural Organization (UNFAO), 3.8 million Haitians are going hungry everyday (Regan, 2004: 44). This accounts for almost half of the nation's populace. Approximately two-thirds of the population lives in the countryside, and more than three-quarters of these rural dwellers live in poverty (Plunkett, 2000: 5). Compounding the problem of deforestation is that many rural Haitians live on land not suitable for farming. These Haitians tend to make their living from the sale of wood and charcoal instead of from crop and livestock activity (Plunkett, 2000: 5). Despite the agricultural anguish, the small island nation is still seeing immense growth in population.

While it is true that much of the food instability is found in rural Haiti, the urban population of Haiti is also in a critical position. Many of the poorest rural Haitians have migrated to cities like Port-au-Prince and Cap Haitien in search of jobs. Haiti is now host to the most pronounced urban primacy in the world, with almost two million people living in the

Haitian capital of Port-au-Prince (Plunkett, 2000: 5). Urban primacy is a rare phenomenon where one of a nation's cities is more than double the population size of any other.

Unfortunately for the rural-urban migrants in Haiti, there is little work to be found in the city. While inadequate land is the cause of food insecurity in Haiti's countryside, it is unemployment and underemployment that are affecting the food crisis currently impacting the inhabitants of the nation's urban centers (Plunkett, 2000: 5). Food security for Haiti is far from near. It will take a great amount of foreign aid as well as domestic changes to get Haiti's food network stabilized. The lack of stable food supply demands that foods be imported into the country. These foods are most likely not all native foods to Haiti, which is likely altering the Haitian diet.

Haitian adults are among the least likely people in the all of the Americas to be obese. In an analysis of Latin American women (15-49 years old), Haiti was among the bottom three in obesity prevalence (Kain, Vio, and Albala, 2003: 79). While there is an impact of food insecurity on adults, children are more likely to be effected by such conditions, with food insecurity's clear connections to poor health and sanitation conditions (Plunkett, 2000: 5). One in three Haitian children will suffer malnutrition in her/his lifetime, and one in eight will die before the age of five (Plunkett, 2000: 5). HIV/AIDS has an impact on both health and nutrition in the Haiti. While a complete analysis of the effect of HIV/AIDS on Haitian health is outside the scope of this work, it should be noted that the presence of the disease in the population is about 10% of adults in urban areas, 5% of adults in rural areas, accounting for the highest infection rate in the Western Hemisphere (Macias-Chapula, 1999). HIV infection impacts health in many ways, including loss of labor from the sick and lost time caring for the sick.

In the late 1970s, approximately 15 % of Haiti's children, aged six to eleven months, were underweight for their age using the National Center for Health Statistics reference data (Mulder-Sibanda, 1998: 347). Despite a brief trend toward improvement in these figures in 1990, as of 1995 the number of underweight Haitian infants was on the rise with approximately 19 % of children aged six to eleven months designated underweight (Mulder-Sibanda, 1998: 347). Economically deprived Haitians who leave their country for the United States, or other developed nation, will have access to a food supply unlike that which they had access to in Haiti. Increased access to foods will impact their diet and the health and nutrition of their children.

Introducing a group of people to a new way of living will undoubtedly impact most areas of their lives. The study of people's lives whose modes of living are undergoing change as a result of contact with foreign cultures is referred to as acculturation study (Herskovits, 1937: 259). The importance of such studies has been well documented. In 1937, Melville Herskovits suggested that acculturation studies acted as the bridge between "scientific" and "applied" anthropology.

There are various ways in which a person acculturates. One such way is dietary behavior leading to change in nutritional status. Between 1985 and 2001, over eighteen published studies, measuring both diet and acculturation, found some correlation between the level of acculturation and change in diet (Benari, Fung, and Edelstein, 2007: 1). Evidence was found to support the idea that an increase in exposure to the host culture will ultimately lead to acculturation and alteration of traditional eating patterns and dietary practices (Benari, Fung, and Edelstein, 2007: 1). Better understanding of the dietary acculturation process will likely aid health professionals in providing dietary and nutritional care to immigrants in the United States (Lieberman and Bobroff, 1990). While dietary acculturation is an ongoing development, it should also be noted

that some food customs are the last traditions to change in a group of people living within a foreign culture (Kittler and Sucher, 2000). The reasoning is that a food preparation and consumption occur inside the home where the influences of host cultures may be limited (Kittler and Sucher, 2000). This is truer for immigrant populations that segregate themselves from the mainstream culture of the host nation, where native foods are available and daily schedules permit the preparation of and consumption of traditional meals.

Immigrants into the United States come from all around the world. The acculturation process for Haitians is much different than that of most of the European immigrants, in part, because of Haiti's politically instability and its ambivalent relationship with the United States, (Benari, Fung, and Edelstein, 2007: 2). The desire to maintain social networks from the home nation is strong and often impacts immigrants' decisions on where and when to migrate (Hagan, 1998: 55). While remaining closely tied to the Haitian community may delay acculturation, it can "smooth" the incorporation process (Hagan, 1998: 55). Dietary adaptation is no exception to this process. However, Haitian children exposed to traditional American foods in school breakfast and lunch programs speed the rate of dietary acculturation (Kittler and Sucher, 2000).

Moving to an area where there is an entrenched Haitian population reduces many of the short-term negative side effects of resettlement (Hagan, 1998: 55). Still, a 1986 study showed that approximately 78% of Haitians living in Miami had not a single Anglo friend, with only a third reporting any sort of regular contact with Anglos (Stepick and Grenier, 1992: 67). These numbers almost identically match the numbers for the African American population of Miami (Stepick and Grenier, 1992: 67). Racism and ethnocentrism are factors accounting for this social isolation from other segments other Anglo, Hispanic and African American populations. While there is some discrimination based solely on color, the fact that many recent Haitian immigrants

speaking little English impedes acculturation and economic advancement (Stepick and Grenier, 1992: 67). Stepick and Grenier (1992) found that 62% of Haitians believed that Anglos would discriminate against them; and in fact, the same study reported that 67 % of Anglos believed that they were in some way superior to Haitians.

While there is cultural adaptation among Haitians living in the United States and there is a wide range of income and educational levels, for many Haitians poverty is a major underlying factor influencing diet and health. Because of their immigration status, many Haitian immigrants are without assistance (Widmayer et al, 1990: 410). Furthermore, Haitian mothers report feeling that they are unable to adequately provide for their infants due to the daily challenges of poverty, prejudice, fear of deportation and the stress of living in an unfamiliar environment (Widmayer et al, 1990: 411). Variations in care have been linked to nutritional status, growth and cognitive development in the children of disadvantaged Haitian groups (Widmayer et al, 1990: 411). Understanding the development of Haitian infants is key to better understanding how Haitians are adapting to life in the United States.

PROBLEM AND PURPOSE

This study is aimed at determining whether or not Haitian mothers are engaging in infant feeding practices that differ from the traditional methods of infant feeding in Haiti. A better understanding of what Haitian infants are eating could greatly benefit future generations of Haitian Americans by providing health practitioners who work within the Haitian community valuable insights into how Haitian mothers are nurturing their babies. In Haiti, as is the case for much of the world, the mother is the most likely candidate to feed children through infancy. One trend that is not expected to disappear is that a mother, or another female figure like an aunt or grandmother, will be the primary caregiver for the infant.

The world over, most mothers begin their infants' feeding process with breastfeeding (Van Esterik, 2002). The natural extension of this feeding methodology is for the mother to continue feeding the child transitional foods once the child has been weaned. These foods may be table foods prepared in a way to accommodate the infant's digestive system or may be special traditional or commercially prepared infant foods.

A problem facing Haitian children in America is that many of their parents grew up in Haiti, which has a history of infant malnutrition since the 1920s (Berggren, Hebert, Waternaux, 1985: 1141). In the 1980s programs were put into place in Haiti to teach mothers how to use native foods to adequately wean their children (Berggren, Hebert, Waternaux, 1985: 1141). Foods that were used in this weaning project were high-energy foods like rice and corn (Berggren, Hebert, Waternaux, 1985: 1142). Yams or sweet potatoes were used in regions where soil was adequate enough for their growth (Berggren, Hebert, Waternaux, 1985: 1142). If a Haitian American mother follows her mother's feeding practices, these foods will probably continue to be utilized in weaning, despite the relocation to the United States.

The majority of rural Haiti is limited to a few staple foods: corn, rice, beans, sorghum and wheat (Plunkett, 2000). Rural farmers usually grow these foods for distribution and sometimes for private use. In the United States, mothers will have a much larger variety of feeding options for their children which may include their first access to processed foods. An inexperienced or uneducated mother could find this plethora of choices overwhelming.

When to wean a child from breast milk is another important issue for Haitian mothers and children. The World Health Organization recommends exclusive breastfeeding for the first six months of infancy (IAEA, 2007). While some Haitian mothers breastfeed their children for much longer, some upwards of a year, the introduction of other foods into the infant's diet is also occurring (IAEA, 2007). According to Dr. Joseline Pierre Marhone, Head of Food and Nutrition in the Haitian Ministry of Health, "Culturally [Haitian] mothers do not believe that breast milk is enough for the baby and they try to introduce foods early" (IAEA, 2007). The mothers believe they are doing what is best for their child but they may be doing more harm than good.

Another reason for early weaning in Haiti is the spoiled milk syndrome. When a mother has "bad blood" due to a blood borne disease such as HIV, it is seen as impossible for the mother to deliver her child "good milk" (Farmer, 1988: 63). This reasoning for early weaning is another threat facing the infant population of Haiti. Furthermore, with high rates of HIV infection among women in Haiti, breastfeeding can pose a risk for HIV transmission to nursing infants (Coutsoudis et al, 2008).

The average infant has growth spurts at three weeks, six weeks, and three months (Nutrition Resource Centre, 2007: 2). Introducing alternative foods, effectively reducing the amount of milk intake, leaves the baby with a diet low in fat, protein and other vital nutrients

when he or she needs it most (Nutrition Resource Centre, 2007: 2). Premature introduction of foods can be hazardous. Besides reducing milk intake, there are other reasons to delay the introduction of solid foods to a child before her or she is four to six months old. Before this time, infants are not developmentally ready to process or swallow foods due to the extrusion reflex and neuromotor immaturity (Crocetti, Dudas, and Krugman, 2004: 54). Also, an infant's kidneys are usually not able to adequately eliminate excessive nitrogen, electrolytes or foreign antigens (Crocetti, Dudas, and Krugman, 2004).

The Special Supplemental Nutrition Program for Women, Infants, and Children, better known as the WIC Program, only recommends feeding a child under six months solid foods if the child has a breast milk lactose intolerance or allergy (Department of Agriculture, 2007: 68987). Despite warning from medical professionals and programs like WIC, mothers continue to introduce solid foods too early (Crocetti, Dudas, and Krugman, 2004: 54). This is due to a number of reasons, which could include a mother's impatience or perhaps unfamiliarity with the true dangers associated with the practice of introducing solid food before the baby is physically is ready for them.

Some dietary professionals suggest that iron-rich foods like beef, chicken, eggs, and beans, should be gradually and consistently introduced to the baby at about six months old (Nutrition Resource Centre, 2007: 3). However, there is still a debate about which foods are most important to a child's early development. Martha Archuleta, Extension Food and Nutrition Specialist at the State University of New Mexico recommend introducing rice and cereal, followed by strained fruits or fruit juice and mashed vegetables (Archuleta, 2005: 2). The early introduction of iron-rich foods may be useful to offset the iron-deficiency of breast milk. Once these foods have been established into the child's diet, then the introduction of iron-rich foods

should commence (Archuleta, 2005: 2). While there is still no consensus on which foods should initially be introduced to an infant, there is an overwhelming agreement that foods should not be introduced until at least 4- 6 months and not later than 8 months. By 12 months, the child should be eating solid foods regularly. The diet of a 12 month-old should include milk, cereals, fruits, vegetables, and a few protein rich foods like meat (Parent Express, 1991: 3).

What foods mothers are actually initially introducing to their infants can vary greatly. In 1997, a study was done in the United States to observe what food types mothers introduced and in what order. The study showed that more than 80% of American mothers first introduced their children to cereals, followed by fruits at 30 %, vegetables just over 10%, and meats less than 5% (Baydar et al, 1997: 192). Some mothers gave more than one answer. Mothers' second choices for supplemental foods started at fruits at 58%, or vegetables at about 50% (Baydar et al, 1997: 192).

Cultural factors influence mothers' decisions: 90% of white mothers and 94 % of African American mothers began feeding their infants cereal while only 65% of Hispanic mothers reported introducing cereal as the first food (Baydar et al, 1997: 194). 50% of Hispanic and 37% of other mothers reported initiating feeding with fruits, while only 25% of white, and 16% of African American respondents reported initiation of feeding with fruits (Baydar et al, 1997: 194). The study did not mention whether or not Haitians were included under African American. Future research into why race played such a factor in these decisions would be valuable in determining why these dietary beliefs are present.

MATERIALS AND METHODS

This paper represents a study of infant feeding practices of Haitian women living in the United States. Recruitment took place at the Sixth Annual Caribbean Health Fair in Orlando, Florida in September 2008. The event is organized by the Center for Multicultural Wellness and Prevention (CMWP), an organization dedicated to enhancing the quality of life for various ethnic populations through the facilitation of health support services. The CMWP's goal is to decrease the health disparities that exist between different ethnic groups.

The Annual Caribbean Health Fair is an opportunity for many people to access health care services that they may not otherwise have the opportunity to utilize. All recruitment took place the day before the actual fair day among women at the fair grounds for mammogram screening and during the day of the fair itself. Women at the fair were recruited based on three criteria. All study participants had to be females of Haitian descent, be at least eighteen years old, and have at least one child who was one year of age or older. A total of 34 individuals present at the health fair met the criteria and were willing to participate.

Respondents were given an Informed Consent in English and/or Haitian Creole (Appendix A) that had been approved by the University of Central Florida Institutional Review Board (Appendix B). The Informed Consent requires checking off specific activities but not a signature. In most cases, the Informed Consent was read to the participant by the author or a Haitian Creole speaking female assistant. Participants were informed that the time required would be about fifteen minutes. The Informed Consent explained the two parts of the study: a food frequency card sorting activity and a short interview schedule of questions. At no point during their involvement were participants asked to divulge their names or any personal health

information. The women were given a decorative sponge as a small token of appreciation after completing the study.

Prior to conducting the research twenty-two foods (Appendix C) were identified as being common to the Haitian diet and eaten by young children. This list was assembled through discussions with Haitians living in Florida as well as health and nutritional professionals who work regularly with Haitian patients. A photograph of each food item was placed on a 5” by 7” card, labeled in the three languages most commonly spoken by Haitian Americans: English, French, and Haitian Creole, and laminated (Kumanyika et al, 1996: 138). The photos on the card were all in color and structured similarly to avoid favoritism of one card over another (Kumanyika et al, 1996: 138). These cards would be used in the first section of the study, the food frequency card sort.

A card sort was used to present attractive visual images, reduce the possibilities of language misunderstandings, and physically engage the participants in an enjoyable activity. (Lane, 2004: 50). The validity of the card sort approach was evaluated in a study of 47 female and 49 male Community Health Services participants (Psaty, et al 1992: 5) and in a study of rural African-American women comparing a 24 hour dietary recall, the Block Food Frequency Questionnaire and a card sort food frequency. There was high concordance among the three measures (Lieberman et al, 1994).

The study team included myself, Leslie Sue Lieberman, Ph.D. Professor of Anthropology and Director of the University of Central Florida Women’s Research Center and Clara Merone, a fluent Haitian Creole speaker. Members of the three-person team conducted all of the study activities. Dr. Lieberman trained Ms. Merone and myself in the proper manner for administering the card sort (Lieberman, 1998). Each individual was given or shown a stack of

randomly assorted cards and asked to place them or indicate to the researcher where to place them under the appropriate label based on frequency of their child's consumption at one year of age (Kumanyika et al, 1996: 138).

In the study, the participant was asked to remember what and how frequently they fed each of the twenty-two foods to their child when he or she was about one year old. The labels in English and Haitian Creole consisted of five frequency categories, from left to right: 1) rarely or never, 2) once a week, 3) 2-4 times a week, 4) once a day, and 5) more than once a day. Individuals with limited English capabilities had their card sort and interview conducted by Ms. Merone. The results of the card sort were recorded.

The second part of the study took place immediately following the card sort. A short interview schedule (Appendix D), asked about the participants' background, infant feeding practices and beliefs. Participants were offered a written copy of all the questions in either English or Haitian Creole. The three-person team also carried out this section of the study. Ms. Merone conducted the interviews with any participant who demonstrated limited English capabilities or indicated she preferred the interview to be conducted in Haitian Creole. Additional notes were taken during the course of the interview.

RESULTS

One question relevant to acculturation was the amount of time the participant (N= 34) has lived in the United States. Participants' length of residence in the United States ranged from 1 to 39 years. Therefore it is likely that some of the children of these mothers were born in Haiti, and others in the United States. It also means that the mothers were at varying points in the acculturation process when they raised their children. The average time mothers resided in the United States was about 17 years. Of all the respondents, only five reported living in the United States less than 5 years.

When asked about beliefs concerning the relationship between foods and diseases, there was a general agreement among the mothers. There were almost no reported beliefs regarding foods or herbs related to a baby's likelihood of contracting an infectious disease such as tuberculosis or HIV. The mothers were not asked about chronic diseases such as asthma or cardiovascular disease. Of the thirty-four mothers questioned, only four of them reported any belief that certain foods could impact a child's chance of becoming ill. Of the four, only two named specific foods. One mother suggested that hot peppers could increase chances of becoming sick, while another stated she believed feeding a child spinach could decrease the likelihood of a child becoming infected.

Mothers were also asked if they believed a child's weight could impact the likelihood of a child becoming infected with diseases like tuberculosis and HIV. Nine of the thirty-four mothers reported that weight in some way impacted the chances of infection. Four reported that a baby being too skinny increased the chances of infection or that being bigger helped to fight off diseases. Five mothers reported that the baby needed to be "just right," not too big, not too small. None of the mothers stated that being underweight helped a child fight off infection. Since

mothers were asked how frequently they fed foods, and not in what quantity, this information was not analyzed with regard to the food frequency card sort data.

Mothers' feeding behaviors for their one year olds showed diversity. While most parents reported feeding their child three to four times a day, there were some differences. Two mothers reported only feeding their child two meals a day, with intermittent snacking, and two mothers reported feeding their child eight times a day. Some mothers reported allowing their child to have snacks and a few reported that this was not practiced. How much food the child was being fed at each meal or snack time was not ascertained from the interview.

When the participants were asked about what foods they first fed their baby, there was agreement about many foods, but not all. The most common response was cereal, with ten mothers reporting it as the first solid food introduced to their child. However, the most common food group was vegetable, with eleven mothers reporting its use, mostly mashed potatoes (4). Four reported fruits, generally banana or plantains. Six mothers stated that they gave their baby overcooked, soft rice as the first solid food. Other answers included fish, chicken, beef, and soup, but each was limited to only three mentions or fewer.

The age of introduction to solid foods also varied greatly among the respondents. Answers ranged from three to eighteen months. Nine of the mothers stated that they first introduced solid food when their child was three months old, one at four months, one at five months, eight at six months, one at seven months, three at nine months, eight at twelve months, and two responses of eighteen months. There was a tri-modal distribution at three, six and twelve months. One mother could not remember the age at which her child or children first ate solid foods, and did not answer.

Besides the infant's mother, there are other people who may be responsible for a child's feeding. While it has already been established that for most cultures, the mother is the primary infant caregiver, it is possible that another individual could be responsible for an infant's food intake. The mothers in this study were asked if there were any people other than themselves that shared such a responsibility. Fifteen mothers reported that they were the sole person responsible for feeding their child when they were one year old. Only three respondents said that the baby's father was a feeding figure. As expected, most of the people responsible for feeding the children were female. Nine mothers reported assistance from the baby's grandmother and two respondents reported assistance from one of the baby's aunts. Additionally, six mothers stated that a babysitter, whose sex was not determined, fed their child. Two mothers reported that a sibling, in both cases an older sister, played a role in his or her feeding. Only one mother mentioned that the child's uncle was a participant in the feeding process.

Some mothers are unaware of the potential dangers associated with giving a baby a bottle to take to bed. When asked about this practice, the mothers in the study had mixed answers. Twenty-two of the thirty-four mothers reported use of a bottle for their child when he or she was put to bed. Of the twenty-two respondents that reported use of a bottle in bed, fourteen claimed that they gave their baby a bottle filled only with milk. Others reported mixing milk with another substance like fruit juice, tea, strained vegetable or mashed fruits. One of the mothers identified the mixture of fruits or vegetables with milk as "la bouillie." Mothers who did not give their babies a bottle to take to bed responded that they were either aware of the dangers of ear infection or aspiration, or simply that they were told by their doctors and nurses not to do so.

The card sort revealed how frequently, but not in what quantity, each of the pre-selected foods was fed to the one-year-old child. Mothers were asked if they fed their children foods 1)

rarely or never, 2) once a week, 3) 2-4 times a week, 4) once a day, and 5) more than once a day. Some of the more frequently fed foods included beans, bananas, carrots, grapes, leek, oatmeal, oranges, and rice. The infrequently fed foods were okra, yuca, yams, papaya, corn and beef.

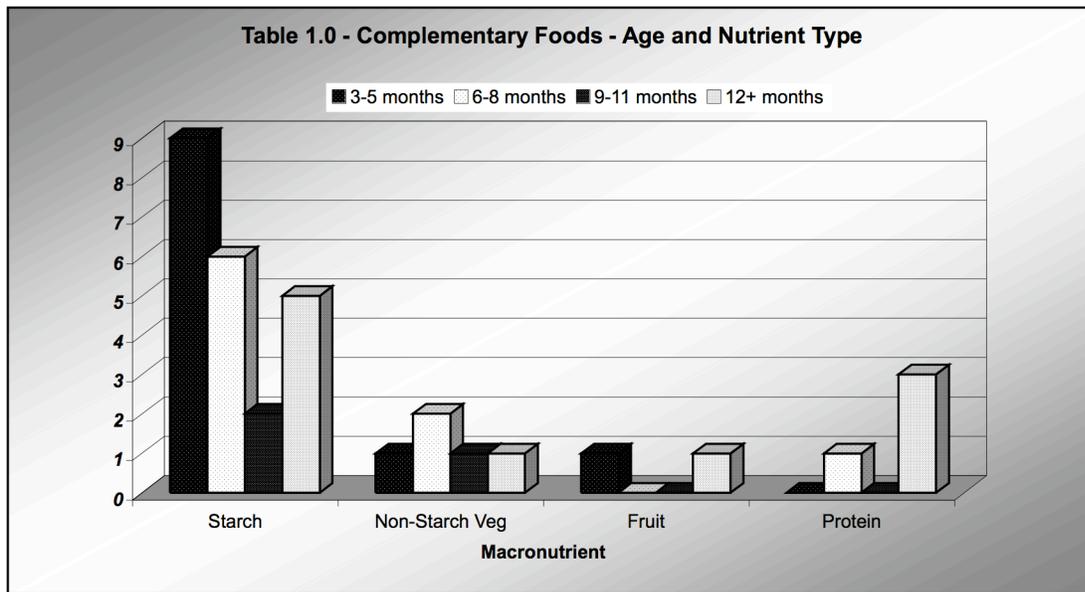
The Spearman's rank correlation coefficient (ρ) was used to analyze the feeding frequency relationships among the 22 foods in the card sort. For example, there was a negative correlation between oatmeal and yuca (-.440) and oatmeal and yams (-.322). Both yams and yuca are typical of the Haitian diet in the Caribbean (Treche, 1996). Papaya was negatively correlated with the consumption frequency of chicken (-.327). There was also statistical evidence to support the idea that mothers receiving assistance from a grandmother were more likely to feed rice and beans to the infant. The mean frequency responses were calculated with 1 as “rarely or never” and 5 as “more than once per day”. The mean feeding frequencies for beans was 4.00 and for rice 4.52 with grandmothers and 3.08 for beans and 3.72 for rice when only mothers were responsible for infant feeding. Other answers by respondents who reported grandmothers’ assistance included more chicken and plantains in the infant’s diet. These foods, while generally consumed by people of all ages in Haiti, would likely not be recommended as starter complementary foods.

DISCUSSION

There are a number of possible explanations for the results. First, all three foods, oatmeal, yams, and yuca, are soft, easily digested and palatable. Nutrient replacement is often a part of the dietary acculturation process (Desilets et al, 2007). It is a possibility that mothers do not feel the need to seek out “traditional” foods when there is an easily accessible alternative available. Also, wheat in Haiti is seen as food of the poor. Oatmeal may be perceived as a more prestigious and nutritious food compared to wheat cereals (e.g., cream of wheat). It should also be noted that yuca is a time-consuming vegetable to peel and requires a long cooking time compared to oatmeal. The short amount of time it takes to prepare oatmeal makes it a valuable commodity for busy mothers. The use of oatmeal could be evidence supporting the idea that the Haitian American population is going through the process of dietary acculturation.

The negative correlation of feeding papaya versus chicken may be related to the Caribbean classification of foods as hot/cold, chicken is a hot food, while papaya is a cold food (Boster and Weller, 1990: 174, 177). Traditionally, the hot and cold foods are to be maintained in balance to maintain optimal dietary health (Boster and Weller, 1990). However, quantities of food were not documented, and in some cases other cold foods such as rice and carrots could be used to obtain balance in the hot/cold dietary belief system. As reported earlier, nine of the thirty-four participants reported that at least one of their child’s grandmothers took part in the child’s feeding. Four of the children whose grandmother took part in their feeding were initially introduced to cereal, in accordance with the recommendations of American infant nutrition experts (Archuleta, 2005). Two of these mothers reported initiating feeding with rice, another acceptable initial supplementary (Archuleta, 2005).

Most of the mothers began feeding their children starches as the initial complementary food. Over 80 % of those mothers that began solid food feeding between 3 to 5 months started feeding with starches, such as potatoes and cereals, while no mothers reported initial feeding with protein foods like meat or fish. There appears to be a trend for starchy food to be more likely with early introductions. 30% of mothers that began complementary feeding after 12 months reported that the initial complementary food was a protein, with 50% of these mothers identifying starches as the baby’s first solid food. Of the two mothers who reported initially feeding fruits to their baby, one was feed from 3 to 5 months, the other at 12 months. From 9 to 11 months, the second mostly commonly fed foods were starches at about 66% and non-starchy vegetables (e.g. okra, leek) at about 33%. None of the mothers who reported initial solid food feeding from 9 to 11 months reported introduction of fruit or protein as the first complementary food. Table 1.0 illustrates the relationship between age of introduction of complimentary foods and nutrient type of the first food.



The frequency data collected can tell us much about Haitian American infant feeding practices. First, there is evidence present that shows the population is still closely connected to its dietary tradition. Rice is a staple in the Haitian diet in Haiti and is continuing to play an important role in Haitian American infant diet. Eleven of the thirty-four mothers reported feeding rice to their one year old more than once a day. Similarly, eleven mothers reported feeding rice once a day, and eleven mothers reported feeding it to their child about two to three times per week. Only one mother reported feeding rice about once a week and no mother reported feeding it rarely or never.

However, other staples of the Haitian diet in Haiti are not being fed to these Haitian American children. Surprisingly, twenty-eight of the thirty-four mothers reported feeding their child yuca rarely or never, with no mothers feeding yuca on a regular basis. When asked why they were not feeding their children yuca, the responses varied. Some mothers replied that their children did not like the taste, while others reported that their doctors recommended other foods, like cereal and rice, and they were merely complying with doctor's orders. Others stated that they simply did not feel the need to go out of the way to acquire the food, which is not always found in large supermarkets.

The low level of feeding frequency of traditional Haitian staple starches in the responses indicates that, for one reason or another, mothers are altering feeding behaviors. Another staple of the Haitian diet not utilized in infant feeding in America were yams. Twenty-one of the mothers were not feeding yams to their children. What was discovered through the course of the study was that potatoes were supplanting yams in the infant's diet. In fact, mashed potatoes were one of the most popular primary complementary foods among the mothers. Only five mothers reported regular or daily feeding of papaya to their children, with sixteen reporting rare or no

use. However, what differs about papaya is that several of the mothers claimed that if they had more money, they would be purchasing more papaya not only for their baby but also for the entire family. The lack of papaya feeding among infants may also be evidence of a lingering Haitian cultural belief. According to personal conversations with Marie—Jose Francois, MD, MPH, some Haitians believe that papaya has the capacity to dry up breast milk, which would make it a poor choice as a complimentary food.

While most of these mothers have not lived their entire lives in the United States, almost all of their children have. Evidence has shown that second generation immigrants adopt local food habits, especially during childhood, increasing chances of obesity and other food-related problems that were not encountered in the countries of origin (Oswald, 1999, Gray et al, 2004). However, generation alone is not the only factor, as language ability often plays a vital role in the dietary acculturation process (Gray et al, 2004: 358). As mentioned before, almost all of the respondents in this study had a working knowledge of spoken English. The evidence provided above supports the literature regarding the acculturation process of immigrants in the United States.

CONCLUSION

This work has served to confirm much of the literature regarding the way immigrants acculturate nutritionally. Many of the Haitian mothers living in Central Florida demonstrated behaviors that would be identified more closely with American infant feeding traditions than with those in Haiti. The expected lack of formal education regarding infant nutritional needs coupled with economic disparity in Haiti has led to the premature introduction of complimentary foods in the diet of infant's living in Haiti. While some of the Haitian mothers in America are continuing this trend, more report introducing complimentary foods later in infancy. With eleven of the thirty-four mothers introducing foods before the suggested guidelines. However, there are a few infants who are being fed solid foods until after their first birthday.

Possibly more available nutrition education will lead to the later introduction of complimentary foods at a more appropriate stage in the infant's development. Two of the mothers who were introducing solid foods between 6-8 months even reported doing so only because at some point during their child's growth, they were instructed to do so by a health professional. Despite some changes in feeding behavior, much of the Haitian dietary tradition has remained intact, or has only been altered slightly. Rice and beans is still the mainstay of the Haitian diet in America, corresponding with infant feeding practices in Haiti, early feeding of meat and chicken remains quite low, likely due to the cost of acquiring such meals with regularity.

While there was clearly evidence provided supporting the influence of acculturation, there were many limitations to the study. First, the respondents were not asked if their children were born in Haiti or the United States. This would undoubtedly have an impact on which foods the mother had access to, in turn, affecting the child's diet. However, the length of the mother's

stay in the United States was recorded, and from those responses it could be assumed that most, if not all of the respondent's children were born in the United States. The mothers were not asked about the birthplace of their child due to the likelihood that if their child was born abroad, mothers might fear that recording that information could endanger the immigration status of the family.

Most revealing of acculturation in diet is the replacement of traditional Haitian starches by others more common to the American diet. The evidence gathered throughout the course of this study has suggested that yams and yuca are being replaced in the Haitian American community by potatoes and cereals. In addition, the mothers who are feeding yams and yuca with regularity are often the mothers who introduced complementary foods too early in their infant's development based on dietary recommendations.

More work is needed to determine the rate at which Haitian mothers are adapting their infant feeding patterns to correspond to those of other American mothers and the U.S. dietary guidelines. As mentioned before, diet is often one of the last aspects of a culture to be lost by members of migrant groups when dietary practices can be maintained. Evidence of divergence from the traditional infant feeding practices in the first generation of Haitian American mothers indicates that dietary acculturation is occurring. Further study involving multiple generations of mothers may provide more insight into the rate of change within the Haitian population in central Florida.

APPENDIX A: INFORMED CONSENT FORM

Haitian American Mothers' Health and Dietary Beliefs
Concerning their Infants

Researchers study many topics. To do this we need the help of people who agree to take part in a research study. This study is being conducted by Dan Schooler, a Masters student at the University of Central Florida, under the guidance of Dr. Leslie Sue Lieberman. Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board. Questions or concerns about research participants' rights may be directed to the UCF IRB office, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246, or by campus mail 32816-0150. The hours of operation are 8:00 am until 5:00 pm, Monday through Friday except on University of Central Florida official holidays. The telephone numbers are (407) 882-2276 and (407) 823-2901.

Principal Investigator(s) UCF: Daniel J Schooler

Sub-Investigator(s) UCF: Leslie Sue Lieberman, Ph.D.,

This consent form gives detailed information about the study. A member of the team will discuss this information with you.

1. **PURPOSE OF RESEARCH STUDY:** The purpose of this study is to better understand the health and nutritional beliefs about infant growth among Haitian mothers living in the United States.
2. **EXPECTED DURATION:** You can expect to be involved in this part of this research for 10 to 15 minutes.
3. **PROCEDURES TO BE FOLLOWED:** You will first be asked to answer some background questions about your beliefs and infant feeding behaviors. You will then be asked to look at cards with pictures of different foods. You will be given colorful photos laminated on standard size cards of 20 different foods that have been identified as common to the Haitian diet. You will be asked to sort these cards into the different categories based on the frequency of your infant's feeding. The categories you will chose from are: 1) rarely or never, 2) once a week, 3) two to four times a week, 4) once a day 5) two or more a day. The card sort process will also be demonstrated. The foods in the card sort will be generalized, for example; a picture of a whole banana also includes mashed bananas. The expected time for the first card sort is s about 5 minutes. The second card sort will require the mothers to select categories for the foods based upon nutritional beliefs. In this card sort the categories are: 1) May help prevent a HIV, 2) May cause HIV 3) May help treat a HIV, 4) Has little or no effect on HIV. The researchers will record answers for both card sorts. That will complete your participation in the study.

4. **IDENTIFICATION OF EXPERIMENTAL PROCEDURES:** *(None)*
5. **POTENTIAL RISKS AND DISCOMFORTS:** There are no anticipated physiological or psychological risks associated with completing this study. You do not have to answer questions or complete tasks that make you feel uncomfortable.
6. **POTENTIAL BENEFIT TO SUBJECT OR OTHERS:** Your cooperation may add to the knowledge of how diseases impact nutritional behavior and infant health.
7. **CONFIDENTIALITY OF RECORDS:** Your identity will be kept confidential. Your name will not be used in any report in any fashion.
8. **COMPENSATION:** You will not receive financial compensation for participating in this study. A small gift will be provided for those who participate.
9. **VOLUNTARY PARTICIPATION:** You are free to refuse or stop participation in this research study at any time without penalty or loss of benefits to which you are otherwise entitled.
10. **INVOLUNTARY TERMINATION:** Your participation in this study may be ended under the following circumstances: not following protocol, you appear to be upset or distressed.
11. **PROCEDURES FOR WITHDRAWAL:** You may withdraw at any time by writing or calling Leslie Lieberman, PhD at 407-823-5142, Women's Research Center, PO Box 160955, University of Central Florida, Orlando, FL 32816-0955.
12. **NUMBER OF PARTICIPANTS:** The approximate number of people involved in the study at this site will be thirty women.

- I am at least 18 years of age or older
- I have read or have had read to me the procedure described above
- I voluntarily agree to take part in the questionnaire and card sort activity
- I understand that I may stop my participation at any time

APPENDIX B: INSTITUTIONAL REVIEW BOARD APPROVAL



University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901, 407-882-2012 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Notice of Expedited Initial Review and Approval

From : **UCF Institutional Review Board
FWA00000351, Exp. 6/24/11, IRB00001138**

To : **Daniel Schooler and Leslie S Lieberman**

Date : **September 02, 2008**

IRB Number: **SBE-08-05781**

Study Title: **Haitian American Mothers' Health and Dietary Beliefs Concerning their Infants**

Dear Researcher:

Your research protocol noted above was approved by **expedited** review by the UCF IRB Chair on 8/29/2008. **The expiration date is 8/28/2009.** Your study was determined to be minimal risk for human subjects and expeditable per federal regulations, 45 CFR 46.110. The category for which this study qualifies as expeditable research is as follows:

7. Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

A **waiver of documentation of consent** has been approved for all subjects. Participants do not have to sign a consent form, but the IRB requires that you give participants a copy of the IRB-approved consent form, letter, information sheet, or statement of voluntary consent at the top of the survey.

All data, which may include signed consent form documents, must be retained in a locked file cabinet for a minimum of three years (six if HIPAA applies) past the completion of this research. Any links to the identification of participants should be maintained on a password-protected computer if electronic information is used. Your funding agency, your department, or other entities may impose additional requirements. Access to data is limited to authorized individuals listed as key study personnel.

To continue this research beyond the expiration date, a Continuing Review Form must be submitted 2 – 4 weeks prior to the expiration date. Advise the IRB if you receive a subpoena for the release of this information, or if a breach of confidentiality occurs. Also report any unanticipated problems or serious adverse events (within 5 working days). Do not make changes to the protocol methodology or consent form before obtaining IRB approval. Changes can be submitted for IRB review using the Addendum/Modification Request Form. An Addendum/Modification Request Form **cannot** be used to extend the approval period of a study. All forms may be completed and submitted online at <http://iris.research.ucf.edu>.

Failure to provide a continuing review report could lead to study suspension, a loss of funding and/or publication possibilities, or reporting of noncompliance to sponsors or funding agencies. The IRB maintains the authority under 45 CFR 46.110(e) to observe or have a third party observe the consent process and the research.

On behalf of Tracy Dietz, Ph.D., UCF IRB Chair, this letter is signed by:

Signature applied by Janice Turchin on 09/02/2008 09:54:17 AM EDT

IRB Coordinator

APPENDIX C: FOOD CARDS

- 1 oatmeal
- 2 corn
- 3 plantain
- 4 chicken
- 5 carrot
- 6 beans
- 7 banana
- 8 papaya
- 9 orange
- 10 yams
- 11 grapes
- 12 bread
- 13 bouillon/ soup
- 14 okra
- 15 yuca
- 16 egg
- 17 spaghetti
- 18 fish
- 19 leek
- 20 meat
- 21 corn meal
- 22 rice

APPENDIX D: INTERVIEW

1) How many times a day did you feed your baby?

2) Do you believe that the weight and size of a baby is related to risk for a baby getting HIV or tuberculosis (Big Baby, Skinny Baby)?

Yes/No, Explain _____

3) Do you believe there are any foods or herbs that can reduce the chance of a baby becoming infected with HIV or tuberculosis?

Yes/ No, Explain _____

4) At what age did you start feeding your baby solid foods?

5) What were the first solid foods you gave your baby?

6) Do you believe your baby is/was a good eater or a poor eater? Why?

7) Does/did your baby take a bottle to sleep?

Yes/No. If yes, what is/was in it? _____

8) Are/were there people other than you responsible for feeding your baby?

Yes/No. If yes, who? _____

9) Have you live in the U.S for more than 5 years?

Yes/ No, Explain _____

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