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# THE FOOD PATTERNS OF SOUTHERN LOUISIANA RESIDENTS

A Thesis

Submitted to the Graduate Faculty of the  
Louisiana State University and  
Agricultural and Mechanical College  
in partial fulfillment of the  
requirements for the degree of  
Master of Science

in

The School of Human Ecology

by

Chad Eriksen

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## **ABSTRACT**

Obesity is one of the most pressing public health concerns in Louisiana. There are numerous reasons believed to be major contributors to the obesity epidemic, one of which is dietary habits. The purpose of this study was to investigate and identify the dietary patterns of southern Louisiana residents. A self administered, semi-quantitative questionnaire was used. Subjects (n=308) were recruited from Louisiana State University (LSU). Results suggested that it is possible to describe the dietary patterns of a southern Louisiana population. Compared to whites, the percentage of African Americans who were served or consumed fried fish, rice, red beans and rice, and fried chicken was significantly higher. Men were more likely to have consumed or been served fried chicken, hamburgers, steak, and meatloaf compared to women. The most frequently consumed or served foods included breakfast cereal, luncheon meat sandwiches, spaghetti, vegetables, baked chicken and wild game meat. Results from this study could be used to develop diets, nutrition education material, and interventions that are tailored specifically to this region.

## **CHAPTER 1 INTRODUCTION**

The purpose of this study was to investigate the dietary patterns of a southern Louisiana population. Several studies have explored the food habits of specific regions throughout the world; however, few have focused specifically on southern Louisiana meal patterns and cooking practices (Deshmukh-Taskar, et al., 2007; Desilets, et al., 2007; Nasreddine, et al., 2006; Pettinger, Holdsworth, & Gerber, 2006). Southern Louisiana's unique food culture has helped families maintain a sense of generation and cultural identity. Food is one of the most beloved aspects of Louisiana culture and Louisiana cuisine is considered one of the most popular ethnic cuisines in America (Bienvenu, Brasseaux, & Brasseaux, 2005; Folse, 2004). However, this same unique food culture has contributed to Louisiana also becoming synonymous with obesity and other obesity related diseases.

### **Justification**

Obesity is the most pressing public health issue not only in America as a whole, but is also one of the greatest public health challenges in Louisiana (Bray, 2003; Louisiana Office of Public Health, 2005). Louisiana has ranked 50<sup>th</sup> in sixteen out of the past seventeen editions of America's Health: State Health Rankings (United Health Foundation, 2005). Since 1990, the prevalence of obesity in Louisiana has increased 18.5% (United Health Foundation, 2005). Louisiana ranked 8<sup>th</sup> highest in the country in obesity and is ranked in the top six states in obesity related total medical expenditures (Louisiana Office of Public Health, 2005). In 2003, Louisiana spent approximately \$1.37 Billion on total health expenditures related to obesity (Louisiana Office of Public Health, 2005).

The Louisiana Council on Obesity Prevention and Management was created to analyze the problem of obesity in Louisiana and to design a comprehensive, statewide plan to address both childhood and adult obesity (Louisiana Office of Public Health, 2005). In 2001, the council



submitted recommendations on addressing the problem of obesity to the Louisiana legislature. One of the recommendations included providing education and fostering discussion among both health care providers and consumers (Louisiana Office of Public Health, 2005). Elucidating the dietary patterns of southern Louisiana would be a valuable resource and could help with future efforts to increase the overall health of southern Louisiana residents.

While a myriad of factors are hypothesized to contribute to obesity and other obesity-related chronic diseases, a major contributor is poor food choices (James, 2004; Surgeon General, 2001; US Department of Health and Human Services, 2000). Cultural identity, demographics, and socioeconomic status (SES) all play important roles in the development of food habits and patterns. Food consumption patterns differ depending on socioeconomic status, demographics, and lifestyle; therefore, intervention and nutrition education programs need to be tailored based on these differences.

The obesity epidemic is a complicated and complex health concern, which has no immediate or obvious solution. The prevention and treatment of obesity must be addressed comprehensively and include all possible contributing factors. The food patterns of southern Louisiana could be a potential reason underlying the prevalence of obesity in Louisiana. Describing and understanding the food patterns of this region could potentially result in a decrease in the prevalence of obesity and obesity related diseases.

Results from this study could provide a basis for future studies and contribute to the prevention of obesity and maintenance of healthy weight status in Louisiana. Exploring and describing the food patterns of southern Louisiana residents could potentially provide education on and foster discussion about obesity among both health care providers and consumers. This study is warranted because knowing the foods commonly consumed by southern Louisiana residents is critical in order for food and nutrition professionals to plan tailored diets, nutrition

education programs, and interventions specific to this region.

## **Objectives**

Self-administered questionnaires were used to:

1. Describe foods commonly consumed by the residents of southern Louisiana for breakfast, lunch, dinner, and snacks.

## **Assumptions**

Assumptions made prior to the study included:

1. Participants are representative of the target population.
2. Responses from the participants are honest.
3. ‘Hometown’ is where participants have lived the majority of their life.

## **Limitations**

1. A convenience sample was used, which may not be representative of the target population.
2. Since the majority of participants were recruited from nutrition classes, the information reported may not be representative of an average or typical university student.

## **Definitions**

- Body Mass Index (BMI): An anthropometric measure defined as one’s weight in kilograms divided by the square of one’s height in meters.
- Focus Group Discussion (FGD): A type of qualitative research method, which uses guided group discussions to generate an understanding of the participants’ concerns, experiences, or attitudes/beliefs related to a clearly defined topic.
- Southern Louisiana: The region of Louisiana containing the following parishes: Acadia, Ascension, Assumption, Calcasieu, Cameron, East Baton Rouge, East Feliciana,

Evangeline, Iberia, Iberville, Jefferson Davis, Jefferson, Lafayette, Lafourche, Livingston, Orleans, Plaquemines, Pointe Coupee, St. Bernard, St. Charles, St. Helena, St. James, St. John the Baptist, St. Landry, St. Martin, St. Mary, St. Tammany, Tangipahoa, Terrebonne, Vermillion, Washington, West Baton Rouge, and West Feliciana (Appendix A).

- Socioeconomic Status (SES): The education level and total household income of a population.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **History of Southern Louisiana Cuisine**

Throughout the United States and around the world, Louisiana has become well recognized for its diverse and flavorful cuisine. Southern Louisiana's unique food culture has helped families maintain a sense of generation and cultural identity throughout the years. However, Christakis and Fowler (2007) hypothesize that strong, social networks appear to be a contributing factor in the obesity epidemic. Cultural identity and social networks are plentiful in southern Louisiana and, therefore, may provide the foundation for explaining the prevalence of obesity in this region.

While Louisiana is well-known to the rest of the world for its flavorful cuisine, Louisiana is separated gastronomically as there is a major culinary difference in the foods preferred between northern and southern Louisiana. It has been said that Louisiana is divided by a "crawfish curtain", between the south, where crawfish is lauded, and the north, where it is detested (Gutierrez, 1984). Northern Louisiana was settled mostly by Americans of English, Scotch Irish, and German ancestry and has had little French influence (Kittler & Sucher, 2004). Southern Louisiana, on the other hand, is a unique and diverse combination of many more different ethnic and cultural influences, including Native American, French, Spanish, German, English, and African (Bienvenu, Brasseaux, Brasseaux, 2005; Folse, 2004).

Although southern Louisiana cuisine has become more of a "melting pot", two different and distinct culinary groups still emerge: Creole cuisine and Cajun cuisine. The genesis of Creole (meaning "native born") cuisine can be traced to the settling of European immigrants in the late 15<sup>th</sup> century (Folse, 2004; Gutierrez, 1984). Creole culture emerged during the late 16<sup>th</sup> century when the Spanish took over the Louisiana territory and welcomed immigrants to the region (Folse, 2004). As a result, trading became very active and spices from the Caribbean

became readily available. Creole cuisine is the result of a mixture of several different and varied cultures, including Spanish, African, German, and Native American groups. African slaves introduced okra to the region as well as a vast knowledge of different spices. The African word for okra is 'gumbo', which is still a traditional southern Louisiana dish. Spanish immigrants brought the use of cooked onions, green peppers, tomatoes, and garlic, while Native Choctaw Indians introduced the use of file, made from sassafras leaves and used as a thickening agent for gumbo (Folse, 2004).

While Creole cuisine is an amalgamation of varied cultures, Cajun cuisine is influenced by Creole culture and is differentiated by the incorporation of wild game (Bienvenu, Brasseaux, & Brasseaux, 2005; Folse, 2004; Gutierrez, 1984). Creole cuisine was food typically consumed by upper class aristocracy; however, typical Cajun cuisine was developed by poorer refugees and farmers who used whatever food resources that were readily available (Bienvenu, Brasseaux, Brasseaux, 2005; Gutierrez, 1984). Rice was and still is plentiful in southern Louisiana and remains a staple in Cajun cuisine. Traditionally, rice was added to dishes and stews in order to feed more people for a longer period. Because of the geographical location, seafood was plentiful and therefore became a major item of Cajun dishes. Presently, Creole food is still considered a more refined and sophisticated cuisine while Cajun cuisine a more common, every day food.

### **Dietary Pattern Influences**

Valuable information can be ascertained simply by observing the dietary patterns of a specific group of people. Cultural identity, demographics, and socioeconomic status (SES) all play important roles in the development of food habits and patterns. Nutrition-related attitudes and behaviors are determined by cultural and socioeconomic factors (Crockett & Sims, 1995). Socioeconomic and demographic factors have been determined to influence food choices and

patterns. Deshmukh-Taskar et al. (2007) examined the influence of SES, demographic, and lifestyle factors on food group consumption in Bogalusa, Louisiana. The authors concluded that the influence of income, education, sex, ethnicity, marital status, and physical activity had an effect on food group consumption. Many different factors influence the current dietary patterns of south Louisiana.

**Culture.** Dietary patterns play a major role in defining cultural identity. Families, friendship groups, religions, networks, and virtually almost any organized group is defined by dietary patterns and behaviors. Dietary attitudes, patterns and behaviors, including food purchasing, preparation, and eating, are typically established early in life and continue to track into adulthood (James, 2004). Dietary patterns can be associated with festivity and celebration, lamentation, religious observances, and with certain lifecycle rites of passage (Beardsworth & Keil, 1996). Furthermore, it has been suggested that our eating patterns are absolutely central to our sense of identity, both our collective identity as a group and our individual identity (Beardsworth & Keil, 1996).

In addition to establishing cultural identity, dietary patterns can act to preserve cultural traditions and maintain group identity (Airhihenbuwa & Kumanyika, 1996). Food often assumes a symbolic role. The meanings given to foods in a particular culture may be unique to that specific culture, but may have different or no special meaning in other cultures (Airhihenbuwa & Kumanyika, 1996). While two different cultural groups may consume the same kind of food, the cultural meanings of such food are not necessarily the same.

The word “companion” is Latin for “bread sharer” (Anderson, 2005). Food is typically shared with individuals with whom one is close and, therefore, symbolizes a form of solidarity. From elaborate feasts including an entire village or community to simple family mealtimes, humans have evolved into “social feeders” (Anderson, 2005). There are multiple benefits to

social feeding, but the primary reason is that people simply enjoy eating with others (Anderson, 2005). The purpose of mealtime, whether a feast or family mealtime, is to bring a group of people together and affirm their solidarity (Anderson, 2005). While a meal can gather a group together and strengthen the feeling of identity, it can also provide a sense of distinction from other groups by acting as a separator (Jonsson et al., 2002). One group may use food as a homogenizing agent, but another group may try to use food to distinguish itself from others. Within a group, food patterns can mark differences in social class, ethnicity, gender, and other factors.

The cultural influence on dietary behavior has been well-documented (Airhihenbuwa & Kumanyika, 1996; Hargreaves, Schlundt, & Buchowski, 2002; James, 2004; Jonsson et al., 2002; Pettinger, Holdsworth, & Gerber, 2004; Pettinger et al., 2006; Pettinger, Holdsworth, & Gerber, 2008). Food consumption patterns between Central England and Southern France have been well described (Holdsworth & Gerber, 2000; Pettinger et al., 2004, 2006; Pettinger et al., 2008). Having previously investigated the differences in food consumption patterns between Central England and Mediterranean France (Holdsworth & Gerber, 2000), Pettinger et al. (2004) conducted a cross-sectional study to investigate the differences in attitudes and cultural influences on food choice between these two nations. The authors concluded that there are substantial differences in the attitudes and beliefs to food and health between the two populations (Pettinger et al., 2004). When choosing food, French respondents placed a greater value on the pleasurable and social aspects of eating, while convenience and organic/ethical food issues had a greater influence on English respondents' food choices. According to the authors, the differences observed in this study highlight both the complex nature of food choice and the influence of culture on dietary patterns.

Several studies have utilized focus group discussions (FGD) to investigate the food choices and eating patterns of a particular population (Airhihenbuwa & Kumanyika, 1996; Hargreaves et al., 2002; James, 2004; Jonsson et al., 2002; Neumark-Sztainer, et al., 1999; Tessaro et al., 2006; Vuckovic, et al., 2000). Airhihenbuwa and Kumanyika (1996) conducted a series of FGDs to explore the cultural aspects of eating patterns among low- and middle-income African Americans and to identify cultural and psychosocial barriers/enablers on the potential for dietary change. The participants were recruited from an urban Pennsylvania community and were then stratified by age, sex, and SES. Questions were posed to the participants to determine whether traditional African American food patterns were perceived as important cultural traditions. The authors also explored the participants' desire to preserve certain food patterns despite their association with deleterious health consequences. The analysis of the data elicited three major themes. The first theme addressed the association of food choices with being African American, for example whether or not being African American affected food choices and whether economics and age played a role in these choices. The second theme explored issues related to the context of eating such as whether or not participants preferred to eat in a restaurant or at home. The third and final theme addressed participants' beliefs and opinions about the healthfulness of "soul food" and other traditional food practices. For instance, participants were asked about the definition, meaning, and health effects of "soul food" and what should be done about its unhealthy aspects. The authors concluded that these themes may be relevant when planning and implementing nutrition programs in African American communities.

Another study used FGD to determine the impact of culture and community on the nutrition attitudes and food choices of African Americans (James, 2004). The study design included six FGD with 40 a total of participants from various socioeconomic backgrounds. Although participants represented a variety of different socioeconomic levels, the author reported



that each group had adequate variation in life experience to allow for differing opinions. When probed about the current eating patterns of many African Americans, staying connected to the African tradition and culture was the most common response by the participants. Participants indicated that ‘eating healthfully’ meant sacrificing part of their cultural heritage and trying to conform to the dominant culture (James, 2004).

**Demographics and Socioeconomic Status.** SES and demographics such as age, gender, and race can significantly influence the food habits and patterns of a population. For example, in the United States breakfast consumption patterns tend to follow a “U” shaped pattern with one- to two-year-old children and adults aged eighty-years-old and older consuming breakfast most frequently and children and adolescents (ages twelve to nineteen) least often (Frazao, 2005). The percent of children and adolescents consuming breakfast has significantly decreased over time (Siega-Riz, Popkin, & Carson, 1998). Like children and adolescents, adults also have a tendency to frequently skip breakfast. Approximately 20% of adults from the third National Health and Nutrition Survey (NHANES III) cohort reported skipping breakfast on a regular basis (Cho et al., 2003).

Breakfast skippers tend to be children from a low SES, adolescents, non-whites, and obese individuals (Keski-Rahkonen, et al., 2003; Rampersaud et al., 2005). Children and adolescents skip breakfast more often than any other meal of the day (Nicklas, O'Neil, & Berenson, 1998; Rampersaud et al., 2005). Approximately 24% of women between the ages of 25-34 years-old regularly omit breakfast from their diets (Schlundt et al., 1992). Skipping breakfast is associated with health-compromising behaviors such as smoking, more frequent alcohol use, low education level, infrequent exercise, and increased alcohol consumption (Cohen, et al., 2003; Keski-Rahkonen et al., 2003). Common reasons for skipping breakfast include time constraints, dieting to lose weight, and lack of appetite (Rampersaud et al., 2005;

Schlundt et al., 1992; Song et al., 2005). Breakfast consumers, on the other hand, tend to lead overall healthier lifestyles and are not associated with as many health-compromising behaviors (Keski-Rahkonen et al., 2003). People who eat breakfast tend to be non-smokers, married, more physically active, and they are individuals who attempt to maintain healthy body weights (Ma et al., 2003; Song et al., 2005).

Deshmukh-Taskar et al. (2007) examined the influence of socioeconomic, demographic, and lifestyle factors on food group consumption in Bogalusa, Louisiana. The authors concluded that the influence of income, education, sex, ethnicity, marital status, and physical activity had an effect on food group consumption. Young adult European-American women consumed more dairy, vegetables, and fats than African American women (Deshmukh-Taskar, et al., 2007). However, compared to European American men and women, African American men and women consumed more servings of fruit per day (Deshmukh-Taskar, et al., 2007).

The rate of obesity in the United States follows a socioeconomic gradient, such that the highest rates of obesity occur among populations with the highest rates of poverty and the least education (Drewnowski & Specter, 2004). In 2002, 18.1% of the Louisiana population lived in poverty while the percentage of all ages living in poverty in the United States was 12.1 (Louisiana Office of Public Health, 2005). The dietary patterns of a population are linked to inequalities in education and income; therefore, the high percentage of Louisiana residents living in poverty and the low levels of education may explain in part the current trend in obesity.

The relationship between diet quality and SES has been explored extensively (Champagne et al., 2007; Darmon & Drewnowski, 2008; Drewnowski & Darmon, 2005; Drewnowski & Specter, 2004; Kirkpatrick & Tarasuk, 2008). Results from these studies have consistently shown that more healthful and higher-quality diets are associated with affluence, whereas nutrient-poor diets are consumed by persons of lower SES. There is a positive

association between low SES and the consumption of energy-dense foods, including refined grains and added fat. In contrast, people from a higher SES are more likely to consume fresh fruits and vegetables, lean meats, low-fat dairy products, and whole grains (Darmon & Drewnowski, 2008; Kirkpatrick & Tarasuk, 2008).

Energy dense diets are nutrient-poor and are associated with higher energy intakes and with lower intakes of essential micronutrients (Kirkpatrick & Tarasuk, 2008). Data from 1994-1996 CSFII and the Diet and Health Knowledge Survey (DNKS) showed that when compared with the affluent SES cohort, a significant proportion of low SES adults had inadequate intakes of fiber, and vitamins A, C, E, and folate (Gleason, Rangarajan, & Olson, 2000).

### **Food Consumption Patterns and Disease Risk**

The rate of obesity in both children and adults is increasing at a steady and alarming rate. Over 30% of the adult United States population is obese ( $BMI \geq 30$ ) while 17.1% of children are overweight ( $BMI > 95^{th}$  percentile) (Odgen et al., 2006). Approximately 75% of 10-14-year-old children who are at risk for becoming obese ( $BMI > 85^{th}$  percentile) are substantially overweight or obese in their twenties (Crossman, et al, 2006). Obesity plays a significant role in the development of metabolic syndrome and significantly increases the incidence of type 2 diabetes mellitus (T2DM), coronary heart disease, and some types of cancer (Bray, 2003). In addition to the deleterious physiological effects, obesity also has significant economic consequences. Each year, obese people spend approximately 37% more on healthcare costs than people of normal weight (Thorpe, 2004). With a price tag of \$117 billion and over 300,000 deaths per year, obesity is the most pressing public health issue in America (Bray, 2003).

Over the past thirty years a major shift in dietary patterns has taken place and may help explain the increase in adiposity among children and adults (Nicklas, et al, 2001; Nielsen, Siega-Riz, & Popkin, 2002). Increased restaurant and fast food consumption, soft drinks and salty

snack consumption, greater portion sizes, and greater away-from-home consumption strongly influence increased total energy intake and are associated with weight gain and obesity (Greenwood & Stanford, 2008; Nielsen et al., 2002). Conversely, the regular consumption of breakfast and a diet rich in fruits and vegetables promote weight loss and maintenance.

Fast food, which can be defined as convenience food purchased in self-service or carry-out eating places (Poirier et al., 2006), has become a dominant eating pattern among children and adults (Greenwood & Stanford, 2008). Thirty-seven percent of the adults and forty-two percent of the children who participated in the Continuing Survey of Food Intakes by Individuals (CSFII) reported eating fast food on one or both survey days (Paeratakul, et al, 2003). The consumption of fast food promotes a positive energy balance thereby increasing the risk for weight gain. A multitude of studies have investigated the association between fast-food consumption and body weight (Bowman, et al, 2004; Bowman & Vinyard, 2004; French et al., 2001; Paeratakul et al., 2003; Satia, Galanko, & Siega-Riz, 2004). Compared to those who do not consume fast foods, the consumption of fast food is associated with increased intake of total energy, fat, saturated fat, sodium, and a decrease in more healthful foods and nutrients such as fruits, vegetables, and micronutrients (Bowman & Vinyard, 2004; Paeratakul et al., 2003). Even after controlling for age, gender, SES, and demographic factors, Bowman and colleagues found a positive association with energy intake and frequency of fast food consumption (Bowman & Vinyard, 2004).

Larger food portions could be contributing to the increasing prevalence of overweight and obesity by causing a positive energy balance. In both children and adults, food portions have been positively associated with energy intake (McConahy, et al, 2002; McConahy, et al, 2004; Orlet Fisher, Rolls, & Birch, 2003; Rolls, Morris, & Roe, 2002; Rolls, et al, 2004; Rolls, Roe, & Meengs, 2007). Studies have shown that the more food people are served the more energy they will consume (Rolls, Morris, & Roe, 2002; Rolls, et al, 2004; Rolls, Roe, & Meengs, 2007).

Portions served by restaurants and fast-food establishments are nearly double the size of current recommended USDA serving sizes (Young & Nestle, 2003). However, food servings served and consumed in American homes has also increased over time (Wansink & van Ittersum, 2007). Compared to the 1931 edition of the The Joy of Cooking, the serving size of some entrées in the 2006 edition increased by as much as 42% (Wansink & van Ittersum, 2007). The size of average dinnerware plates has increased 36% since 1960 (Wansink & van Ittersum, 2007). Another study showed a significant effect of portion size on intake for both men and women. Subjects were served varying sizes of submarine sandwiches (6, 8, 10, and 12 inches) on four different days. Both women and men consumed more energy (31% and 56%, respectively) when served the 12-inch sandwich compared to the 6-inch sandwich (Rolls, et al, 2004). Increased package size and plate shape have also been associated with increased energy consumption (Wansink, 2004).

Several eating patterns are associated with excess weight, one of which is skipping breakfast (Crossman et al., 2006). An association with skipping breakfast and the risk for overweight has been explored at length (Ma et al., 2003; Song, et al, 2005; Wing & Phelan, 2005; Wyatt et al., 2002). Moreover, skipping breakfast has a positive relationship with the risk of becoming obese. Compared to regular breakfast consumers, adults who skip breakfast have a 4.5 times greater risk for becoming obese (Ma et al., 2003). Nonetheless, a significant percentage of American adults skip breakfast as a method aimed at weight maintenance (Schlundt, et al, 1992). Skipping breakfast have been associated with an increase in BMI, snacking frequency, and high-fat snack consumption in children (Crossman et al., 2006; Nicklas, et al, 2000). Breakfast skippers may tend to over compensate throughout the day for the energy missed at breakfast (Cho, et al, 2003; Schlundt et al., 1992). Children who regularly included breakfast in their diet, on the other hand, consumed more energy; however, they were less likely

to be overweight (Berkey, 2003; Rampersaud, et al, 2005). Skipping breakfast is more common among overweight and obese children compared with normal weight children (Barton et al., 2005), which may explain this relationship. Another explanation may be that children who eat breakfast on a regular basis tend to be more physically active than those who do not eat breakfast.

Obesity plays a significant role in the development of numerous co-morbidities, such as T2DM, cardiovascular disease (CVD), and some types of cancer (Bray, 2003). The current increase in the prevalence of obesity and physical inactivity are positively associated with the number of people affected by T2DM (Wild, et al, 2004). Over 85% of people diagnosed with T2DM are overweight or obese (Pi-Sunyer, 2007). Excess body weight is highly correlated with an increase in the risk for developing T2DM, with the risk of developing T2DM increasing 10-30% with every 1 unit increase in BMI (Jacobs-van der Bruggen et al., 2007; Pi-Sunyer, 2007; Tuomilehto et al., 2001). The risk of developing T2DM is 2-fold in mildly obese, 5-fold in moderately obese, and 10-fold in severely obese people (Pi-Sunyer, 2007). Compared to a prudent and more sensible diet, data from the Health Professionals Follow-up Study revealed a significant positive association with the risk for T2DM and a western-style diet (van Dam, et al, 2002). Characterized by a high consumption of red and processed meat, high-fat dairy products, refined grains, and sweets and desserts, the western pattern diet was consistently associated with T2DM even after controlling for potential confounders. Conversely, the prudent diet, which was characterized by a high consumption of vegetables, fruits, fish, poultry, and whole grains, was associated with a reasonably lower relative risk for T2DM (van Dam, et al, 2002 ).

## **CHAPTER 3**

### **SUBJECTS AND METHODS**

#### **Institutional Review Board Approval**

This study was approved by the Institutional Review Board (IRB) of the Louisiana State University (LSU) AgCenter.

#### **Procedures**

To assess and describe the food patterns practiced in the homes of southern Louisiana residents, a semi-quantitative, self-administered questionnaire was used. Subjects were LSU students and faculty and represented the following parishes: Acadia, Ascension, Calcasieu, East Baton Rouge, East Feliciana, Evangeline, Iberia, Iberville, Jefferson Davis, Jefferson, Lafayette, Lafourche, Livingston, Orleans, Plaquemines, Pointe Coupee, St. Bernard, St. Charles, St. James, St. John the Baptist, St. Landry, St. Martin, St. Mary, St. Tammany, Tangipahoa, Terrebonne, Vermillion, West Baton Rouge, and West Feliciana (Appendix A).

#### **Pre-Pilot Testing**

The original questionnaire (Appendix C) was designed to be completed by Extension agents from the Louisiana Cooperative Extension Service. Several Extension agents were invited to participate in this study because they are nutrition professionals who are familiar with the food consumption patterns of southern Louisiana residents, primarily to describe foods eaten by residents of their specific parish or parishes.

The questionnaires were distributed via e-mail and the agents were asked to return the completed questionnaires back to the researcher. A copy of the e-mail which was sent along with the questionnaire can be found in Appendix B. The Extension agents were asked to describe the foods most commonly consumed by the residents in their respective parish for breakfast, lunch, dinner, and as a snack. The most typical food preparation methods were also included in the questionnaire.

Our plan was that after the agents had completed and returned the questionnaires, FGDs were going to be conducted using residents from southern Louisiana. Based on recommendations from the Extension agents, participants were going to be recruited from several southern Louisiana parishes based on their geographical location. The FGD were going to consist of six to twelve participants, which has been shown to be the most effective size (Stewart, Shamdasani, Rook, 2007). Having fewer than six subjects could result in a reticent group, while having greater than twelve subjects could prevent some participants from having adequate time to contribute to the discussion (Stewart, Shamdasani, Rook, 2007; Morgan, 1998). Questions for the FGD were developed to address the objectives of the study.

For this initial testing, a low response rate was received and we realized that communicating via email for this particular study design was not the most effective mode of communication for a pilot project. Personal contact would have been more effective because the researcher could have answered questions and have further explained the design of the study. Due to time restraints, we opted for an alternative means of collecting the data needed for this thesis and it is described in the next section.

Future studies utilizing the valuable expertise of the parish Extension agents needs to involve a face-to-face approach, perhaps in regional meetings. This involves a significant time commitment by the researcher or graduate student to set-up and implement. However, without a doubt, the value of this approach cannot be understated. The Extension agents know their population better than anyone from the outside. Therefore, taking advantage of this wealth of knowledge will yield perhaps more valuable data for the whole southern region of Louisiana than is presented by the altered approach adopted, described and implemented for the project described here.



## **Pilot Questionnaire**

The pilot questionnaire was created to specifically target the southern Louisiana population. A group of nutrition experts assisted in designing the questionnaire. Thirty-five pilot questionnaires (Appendix D) were distributed to students and staff from Louisiana State University. As the participants were recruited from the campus of LSU, it was assumed that they possessed similar characteristics to subjects participating in the main study. Five participants were excluded because their hometown was outside of southern Louisiana. The pilot questionnaire was conducted to evaluate the effectiveness and clarity of the questions constructed.

Seven questions concentrated on demographics, including hometown, age, gender, race, ethnicity/heritage, education level, and major. Twelve questions focused on food purchasing, food preparation, dietary patterns and cooking practices. Four questions asked participants to describe the five foods that were most frequently served/consumed in their homes for breakfast, lunch, dinner, and for a snack, respectively. Based on the participant's responses, a list of foods commonly served/consumed was generated. If three or more participants reported having been served/consumed a particular food, it was selected to be used in the final questionnaire. For example, eight participants reported peanut butter and jelly sandwiches as a food most commonly served/consumed for lunch; therefore, peanut butter and jelly sandwiches were included in the final version. The list of foods that were most commonly reported to having been served/consumed in participants' homes can be found in the final version of the questionnaire (Appendix E).

After the pilot questionnaires were conducted, the responses were analyzed to identify any potential problems. Only two questions needed revision, while all other questions were not modified from their original form. In questions one and two, the term "primarily" was placed in

front of “responsible” to read: “Who was primarily responsible for preparing the meals at your home?” and “Who was primarily responsible for purchasing food for your family?”, respectively. Nineteen questions that addressed the objectives of the study were included in the pilot and final drafts.

## **Questionnaire**

Subjects were recruited from the LSU campus. The final questionnaire (Appendix E) was administered to a total of eight classrooms (n=400), which consisted of one general chemistry class, four nutrition classes, and three textiles, apparel, and design classes (TAM) using a standardized protocol. Before administering the questionnaire, the author explained the objectives of the project and provided directions for completing the questionnaire. Although the objective of this project was to describe the food patterns of southern Louisiana residents, every student was invited to complete the questionnaire.

While the pilot questionnaire asked participants to describe the foods that were most frequently served/consumed in their homes, the final questionnaire asked participants to select the five most frequently consumed/ served foods from a list. The list of possible choices was created based on the responses from the pilot questionnaire. The complete list of foods that were most commonly reported to having been served/consumed in participants’ homes is in the final version of the questionnaire (Appendix E).

## **Analysis**

Statistical analysis was performed using SAS (v. 9.1.3; SAS Institute, Inc., 2006, Cary, NC). Descriptive statistics were computed. Central tendencies and frequencies were computed for demographic variables. Chi-square analysis was used to determine the differences between demographic characteristics, dietary patterns, and food patterns. P-values were considered significant at  $p < 0.05$ .

When comparing locations, all parishes east of the Mississippi River were designated ‘East’ and those parishes located west of the Mississippi River were designated ‘West’. If a parish was intersected by the river, the side of the parish which had more area located west of the river was considered ‘West’ and if more area was located east of the river it was considered ‘East’. For instance, the majority of Iberville parish is west of the Mississippi River; therefore, it was designated ‘West’. However, two parishes (St. James and Plaquemines) were bisected by the Mississippi River. The location of the parishes was determined by the proportion of participants from each side; therefore, St. James and Plaquemines parishes were classified ‘West’ because there were fewer participants from that side.

Also, in order to increase the statistical power, some responses to the dietary patterns questions were grouped together. For instance, ‘always (7 days/week)’ and ‘often (3-6 days/week)’ were combined to form one group; and ‘sometimes (1-2 days/week)’ and ‘never’ were combined to form the other group. These demographics and statistical information are presented next.

## **CHAPTER 4 RESULTS**

### **Demographics**

Demographic information of the participants is presented in Table 1. Of the 400 participants who completed the questionnaire, ninety-two were excluded because their hometown was outside of the defined southern Louisiana region. Most subjects were between the ages of 18 and 24 and most were female. Twenty-nine southern Louisiana parishes were represented in this study. East Baton Rouge parish was the most represented parish (27.3%). Other highly represented parishes included Jefferson parish (10.7%), St. Tammany parish (9.1%), and Lafayette parish (8.8%).

The distribution between races was consistent with the LSU student population at large (Fall 2008 Louisiana State University System Dashboard, 2008). The majority of the cohort was white (82%), while 8.4% were African American. The educational level of the undergraduate participants was evenly distributed. Additionally, a small number of graduate students and faculty/staff also completed the survey.

A summary of the responses for cultural identity is presented in Table 1. The most common responses for culture included 'English' and 'French Cajun'. Only a small percentage (6.7%) of the cohort reported 'Creole'. Twenty-eight percent (n=87) of the participants chose 'other' and provided responses. Common responses included 'German', 'Italian', 'American', 'French', 'Irish', and 'Middle Eastern'. As expected, most Creoles (62%) were from east of the Mississippi River and Cajuns (65%) were from west of the river.

Nutrition/Dietetics majors represented the majority of the cohort with 28.2% (n=83). Another common major reported was 'Biology'. A summary of the responses for majors can be found in Table 1.

**Table 1.** Demographic characteristics of the study participants

<b>Variable</b>	<b>n</b>	<b>%</b>
<b><u>Age (years)</u></b>		
18-24	291	94.5
25-30	10	3.2
31-35	2	0.65
36-40	1	0.32
41-50	2	0.65
51 or older	2	0.65
<b><u>Gender</u></b>		
Male	85	28.1
Female	218	71.9
<b><u>Race/Ethnicity</u></b>		
White/Caucasian	253	82.1
African American	26	8.4
Asian or Pacific Islander	13	4.2
Hispanic	12	3.9
Other	9	2.9
Native American	0	0.0
<b><u>Culture</u></b>		
English	98	31.7
French Cajun	94	30.4
Other	86	28.0
Spanish	21	6.7
Creole	21	6.7
African	10	3.2
<b><u>Education</u></b>		
Freshman	87	28.2
Sophomore	81	26.3
Junior	67	21.8
Senior	70	22.8
Graduate Student	2	0.65
Staff/Faculty	1	0.03
<b><u>Major</u></b>		
Nutrition/Dietetics	83	28.2
Biology	46	16.0
Other	35	12.2
Kinesiology	34	11.6
Textiles, Apparel, and Merchandising	34	11.6
Engineering	26	8.8
Health Sciences	20	7.1
General Studies	14	4.8

## Dietary Patterns

Distribution for the dietary patterns as well as food preparation and purchasing information of the population sampled is presented in Table 2.

**Table 2.** Summary of food preparation, purchasing, and dietary patterns of the study participants

Variable	n	%
<b>Food Preparation</b>		
Mother	244	79.2
Father	36	11.7
Grandmother	7	2.3
Grandfather	0	0.0
Yourself	24	8.0
Other	6	1.9
<b>Food Purchaser</b>		
Mother	260	84.4
Father	39	12.7
Grandmother	1	0.32
Grandfather	0	0.0
Yourself	24	8.0
Other	6	1.9
<b>Lower fat dairy</b>		
Always (7 days/week)	103	33.4
Often (3-6 days/week)	94	30.5
Sometimes (1-2 days/week)	76	24.7
Never	35	11.4
<b>Fried Foods</b>		
Always (7 days/week)	0	0.0
Often (3-6 days/week)	35	11.4
Sometimes (1-2 days/week)	204	66.2
Never	67	21.8
<b>Fruit</b>		
Always (7 days/week)	70	23.0
Often (3-6 days/week)	130	42.6
Sometimes (1-2 days/week)	98	32.1
Never	7	2.3
<b>Vegetables</b>		
Always (7 days/week)	138	45.0
Often (3-6 days/week)	147	48.0
Sometimes (1-2 days/week)	20	6.5
Never	1	0.3
<b>Eat away from home</b>		
Always (7 days/week)	0	0.0
Often (3-6 days/week)	55	18.0
Sometimes (1-2 days/week)	220	72.0
Never	31	10.1

The majority of the participants reported their mothers as being the primary food preparer (79.2%) and food purchaser (84.4%). One-third of the cohort reported being served or consuming lower fat dairy products seven days per week. Eleven and 25% of the cohort reported being served or consuming lower fat dairy never or sometimes (1-2 days/week), respectively. Based on demographics, no differences were found except that the proportion of whites whose families chose lower fat dairy products was significantly higher compared to African Americans,  $\chi^2(1, N = 277) = 67.3, p = 0.01$ . No other significant differences were found between lower fat dairy consumption and gender, location (East or West), and classes (TAM or Chemistry).

Twenty-three percent and 42.4% of the cohort reported being served or consuming fruit always (7 days/week) and often (3-6 days/week), respectively. Forty-five and 47.7% of the cohort reported being served or consuming vegetables always (7 days/week) and often (3-6 days/week), respectively. Forty-five percent of the subjects reported eating vegetables seven days per week, while only 23% reported eating fruit seven days per week. Almost three-quarters of the cohort reported eating away from home 1-2 days per week. Besides increased lower fat dairy consumption by whites, no other significant differences were found between dietary patterns and demographic characteristics of the study participants.

### **Meal Patterns**

**Breakfast.** A complete summary of the most frequently served/consumed foods for breakfast is presented in Table 3. The five most commonly consumed/served foods at home for breakfast are ‘breakfast cereal’, ‘eggs’, ‘biscuits’, ‘toast’, and ‘fruit juice’. Seventy-seven percent of the participants selected ‘breakfast cereal’ as food commonly served/consumed in their home for breakfast. Twenty-nine participants selected ‘other’ and provided a breakfast food that was not on the provided list. The most popular responses included cereal/breakfast bars, milk (one participant wrote ‘milk with Nesquik chocolate’), and coffee.

**Table 3.** Summary of responses made by participants for the most frequently served/consumed foods for breakfast

<b>Breakfast Item</b>	<b>n</b>	<b>%</b>
Breakfast cereal	238	77.2
Eggs	187	60.7
Biscuits	137	44.5
Toast	127	41.2
Fruit Juice	113	36.7
Pancakes/waffles	100	32.5
Grits	94	30.5
Oatmeal	90	29.2
Pop tarts	83	26.9
Bacon/Sausage/Ham	80	26.0
Fruit	73	23.7
Yogurt	50	16.2
Donuts/cinnamon rolls	44	14.3
Bagels	43	14.0
Muffins	29	9.4
Other	29	9.4
French toast	24	7.8

**Lunch.** A complete summary of the most frequently served/consumed foods for lunch is presented in Table 4. Of the meal categories (breakfast, lunch, dinner, snacks), ‘Luncheon meat sandwiches’ was the most popular response (83%). The five most frequently consumed/served foods for lunch included the following: ‘luncheon meat sandwiches’, ‘peanut butter and jelly sandwiches’, ‘hamburgers’, ‘tuna sandwiches’, and ‘chips’. Forty-nine participants selected ‘other’ and provided answers. Rice was the most popular ‘other’ lunch choice. Rice or a dish including rice (e.g., rice with gravy, rice with steamed vegetables, rice with broiled chicken) accounted for 25% of the responses for ‘other’ lunch items. In addition to rice, ‘leftovers’, ‘Lean Cuisines<sup>®</sup>’, ‘baked/broiled chicken’, and ‘vegetables’ were the most popular responses.

**Table 4.** Summary of responses made by participants for the most frequently served/consumed foods for lunch

<b>Lunch Item</b>	<b>n</b>	<b>%</b>
Luncheon meat sandwiches	255	82.8
Peanut butter and jelly sandwiches	129	41.9
Hamburgers	111	36.0

(Table continued on next page)



Tuna sandwich	105	34.1
Chips	104	33.8
Grilled cheese sandwich	103	33.4
Macaroni and cheese	89	28.9
Pizza	80	26.0
Fruit	74	24.0
Soup	71	23.1
Green salad	69	22.4
Other	68	22.1
Salad with grilled chicken	63	20.5
French fries	55	17.9
Chicken salad	54	17.5
Fried chicken	40	13.0
Carrots	21	6.8

**Dinner.** A summary of the most frequently served/consumed foods for dinner is presented in Table 5. The most commonly consumed/served food for dinner was ‘spaghetti’ (54.1%). Other commonly consumed/served foods included: ‘vegetables’, ‘baked chicken’, ‘rice and gravy’, ‘mashed potatoes’, and ‘red beans and rice’. Thirty-five participants selected ‘other’ as an option and provided answers. Chicken dishes were a popular response and included grilled chicken, barbeque chicken, chicken pasta, and chicken curry. Another consistent response was rice with legumes, i.e. black beans and rice, lentils and rice, and pinto beans and rice. Additional responses for the ‘other’ option included potatoes (fried, oven roasted, and baked), chili, tacos, and various types of fish (smoked salmon, tilapia, and fish curry).

**Table 5.** Summary of responses made by participants for the most frequently served/consumed foods for dinner

<b>Dinner Item</b>	<b>n</b>	<b>%</b>
Spaghetti	165	54.1
Vegetables	164	53.8
Baked chicken	163	53.4
Mashed Potatoes	94	30.8
Red beans and rice	93	30.5
Rice and gravy	93	30.5
Steak	89	29.2
Roast	86	28.2
Green salad	86	28.2

(Table continued on next page)

Gumbo	71	23.3
Grilled fish	66	21.6
Rice	62	20.3
Jambalaya	55	18.0
Other	49	16.1
Noodles	47	13.4
Pizza	37	12.1
Fried chicken	32	10.5
Dinner rolls	29	9.5
Etouffée	26	8.5
Meatloaf	26	8.5
Fried fish	21	6.9

**Snacks.** A complete summary of the most frequently served/consumed foods for snacks is presented in Table 6. ‘Fruit’ and ‘chips’ were consumed/served most frequently by the participants as a snack. The other most commonly consumed/served foods for snacks included cookies, ice cream, granola bars, and popcorn.

**Table 6.** Summary of responses made by participants for the most frequently served/consumed foods for snacks

<b>Snack Item</b>	<b>n</b>	<b>%</b>
Chips	172	56.0
Fruit	171	55.7
Cookies	145	47.2
Ice Cream	114	37.1
Granola bars	109	35.5
Popcorn	105	34.2
Yogurt	88	28.7
Little Debbie snacks	87	28.3
Cheese and crackers	79	25.7
Sodas	72	23.5
Cereal	70	22.8
Pretzels	71	23.1
Cheese	65	21.2
Fruit snacks	56	18.2
Crackers	55	17.9
Carrots	41	13.4
Other	23	7.5

### **Differences in Consumption Patterns of Traditionally Consumed Foods**

As can be seen from the tables showing foods eaten at meals and snacks, the

predominance of traditionally eaten foods occurred primarily at the dinner meal occasion. A chi-square analysis of these foods based on demographic variables is provided in Table 7.

**Table 7.** Chi-square analysis of differences in the proportion of select food items frequently consumed/served at dinner by demographic characteristics of the sample

Food Item	<b><u>Gender (n=303)</u></b>		<b><u>Race (n=277)</u></b>		<b><u>Location (n=308)</u></b>		<b><u>Culture (n=107)</u></b>	
	Male (n=85)	Female (n=218)	AA (n=26)	White (n=251)	East (n=177)	West (n=137)	Creole (n=21)	FC (n=86)
	%	%	%	%	%	%	%	%
Fried Chicken	16.5*	7.3	30.8**	9.2	9.9	11.0	28.6**	2.3
Fried Fish	10.6	5.1	15.4*	4.8	8.8	4.4	4.8	3.5
Red Bean & Rice	23.5	32.6	50.0*	30.3	32.8	27.0	38.1	28.0
Hamburgers	22.4*	11.0	7.7	15.9	17.5	10.2	9.5	15.1
Gumbo	27.1	19.7	11.5	24.7	17.5	27.7*	23.8	34.9
Steak	37.7*	25.2	19.2	28.3	24.6	34.3	28.6	25.6
Green Salad	16.5	33.0**	19.2	30.3	28.7	27.0	23.8	27.9
Vegetables	36.5	59.6**	46.2	53.4	56.7	49.0	47.6	47.7
Rice & Gravy	30.6	30.3	46.2	29.5	19.3	43.8**	47.6	45.4
Grilled Fish	17.7	22.9	11.5	10.7	25.7*	16.1	28.6	22.1
Meatloaf	14.1*	6.42	3.9	9.2	9.4	7.3	4.8	8.1
Rice	15.3	21.6	30.8*	13.9	22.2	17.5	19.1	12.8

*Note.* AA, African American; FC, French Cajun.

\*  $p < 0.05$ ; \*\*  $p < 0.01$

Compared to whites, the percentage of African Americans who were served or consumed ‘fried fish’, ‘rice’, and ‘red beans and rice’ was significantly higher ( $p < 0.05$ ), as well as ‘fried chicken’ ( $p < 0.01$ ). The difference in proportions between subjects from west of the Mississippi River who reported consuming or being served ‘gumbo’ and ‘rice and gravy’ compared to those from east of the Mississippi River is significant,  $\chi^2 (1, N = 308) = 27.7, p = 0.03$  and  $\chi^2 (1, N = 308) = 43.8, p = <0.0001$ , respectively. Conversely, the proportion of subjects from East of the Mississippi River who selected ‘grilled fish’ was significantly greater compared to subjects from the West,  $\chi^2 (1, N = 308) = 25.7, p = 0.03$ . Men were also more likely than women to have consumed or been served ‘fried chicken’, ‘hamburgers’, ‘steak’, and ‘meatloaf’ ( $p < 0.05$ ).

However, the proportion of women who selected ‘green salad’ and ‘vegetables’ as being served

or consumed in their home was significantly greater when compared to their male counterparts ( $p < 0.01$ ). Additionally, the proportion of subjects with a Creole background who were served or consumed 'fried chicken' was 28.6% whereas the proportion of those with a French Cajun background was only 2.3%. The difference in proportion is significant,  $\chi^2 (1, N = 107) = 28.6, p = <0.001$ .

### **Uniquely Consumed Foods**

Twenty-three percent ( $n=71$ ) of the participants reported eating 'unique foods'. The most commonly consumed 'unique food' included a variation of game meat. Of the subjects who provided responses for uniquely consumed foods, 22.5% responded with 'deer' or a variation of deer (e.g., deer sausage and venison roast), making it the most commonly consumed 'unique food'. Other types of game meat reported were duck, rabbit, alligator, fried squirrel, quail, elk and geese. The proportion of men who reported commonly consuming wild game was 66.7% whereas the proportion of women was only 36.2%. The difference in proportion is significant,  $\chi^2 (1, N = 68) = 66.7, p = 0.02$ . No significant difference was observed between wild game consumption and race (African American and white) or location (East and West).

Other types of unique food reported were types of seafood, including squid and turtle. Other unique foods included boudin, fried and pickled okra, pickled pig feet, chitterlings, and pork crackling.

## CHAPTER 5 DISCUSSION

This project was designed to evaluate the eating patterns of a southern Louisiana population. A semi-quantitative questionnaire was developed and then administered to individuals to describe the dietary habits of south Louisiana residents.

### **Main Findings**

**Demographics.** Compared to the demographics of Louisiana State University, the distribution between races was similar. For the present study, most of the participants were white, while 8.7% were African American. These results reflect the 2007-2008 LSU academic school year where 77% of the student population were white and 8.8% were African American (Fall 2008 Louisiana State University System Dashboard, 2008). During the 2007-2008 LSU academic school year, the percentage of men and women at LSU were 48% and 52%, respectively; however, in the current study the majority of the subjects were female (72%). This discrepancy can be attributed to the classes that made up the study cohort, including classes from textiles, apparel, and design (TAM) classes, which consisted primarily of all female students. Additionally, four nutrition classes were part of the cohort, which also consisted primarily of female students.

Ninety-five percent (n=295) of the cohort was between the ages of 18 and 24. Since this study asked participants to report on foods that were served or consumed while living at home, the age of the participants was an important factor. It was hypothesized that participants between the ages of 18 and 24 would provide a more current description of the dietary patterns of their households.

**Dietary Patterns.** The majority of the population reported that they ate away from home ‘sometimes’ (1-2 days/week). However, this information could be limited by the answers from which the participants could select. The question reads “How often did your family eat away

from home?” and the answers provided to choose from included the following: ‘always (7 days/week)’, ‘often (3-6 days/week)’, ‘sometimes (1-2 days/week)’, and ‘never’. For this particular question, another answer selection could have been provided between ‘sometimes (1-2 days/week)’ and ‘never’. The same additional answer choice could also have been provided for the question focusing on the frequency of fried food preparation in the home.

Results from this study indicate that African Americans consume fewer lower fat dairy products than whites, data consistent with findings from other studies (Ranganathan et al., 2005; Fulgoni et al., 2007). Data from the Bogalusa Heart Study showed that total dairy, milk, and cheese intake was higher in whites than in African Americans (Ranganathan et al, 2005).

**Meal Patterns.** Results from the U.S.D.A. Nationwide Food Consumption Survey showed that the four most commonly consumed breakfast foods are eggs, bread, and coffee; ready-to-eat cereal (RTEC) with milk; coffee and bread; and eggs, bread, and milk (Morgan, Zabik, & Stampely, 1986). Results from the current study are consistent with the results from the U.S.D.A. Nationwide Food Consumption Survey. The five most commonly consumed/served breakfast foods for the current study were breakfast cereal, eggs, biscuits, toast, and fruit juice. With 77% of the cohort selecting breakfast cereal, it was the most commonly consumed/served breakfast food. RTECs are commonly consumed in the United States. Twenty-one percent of 10-year-old children from the Bogalusa Heart Study ate RTEC at least once during the day (Nicklas, O'Neil, & Berenson, 1998), while 86% of 5- to 12-year-old children ate cereal at least once a week (Morgan et al., 1986).

In addition to being one of the most commonly consumed/served foods for dinner, chicken was also one of the most popular responses for participants who selected ‘other’. Responses included grilled chicken, barbeque chicken, chicken pasta, and chicken curry. ‘Vegetables’ was another top choice for dinner foods; however, more research is warranted to

further understand how ‘vegetables’ are being interpreted. Future studies should explore what types of vegetables are being served/consumed, vegetable preparation, and whether, for example, potatoes are being counted as a vegetable.

Southern Louisiana is well known for its traditional dishes such as gumbo, étouffée, and red beans and rice. However, of the five most commonly consumed/served foods for dinner, only one was a traditional southern Louisiana food. Thirty percent (n=94) of the cohort reported eating or being served red beans and rice for dinner. Gumbo and jambalaya were the next most popular traditional southern Louisiana foods served/consumed for dinner, reported as 23% and 18%, respectively.

Because of southern Louisiana’s geographical location, a staple food historically found in southern Louisiana cuisine is fresh seafood. However, results from the current study showed that only 21% and 6.7% of the cohort reported eating or being served ‘grilled fish’ and ‘fried fish’, respectively. Forty-nine subjects selected ‘other’ for their answer and provided a food consumed or served for dinner, of which only one response included seafood (shrimp). In addition, of the 128 responses provided for the question asking to describe any uniquely consumed foods, only 13.3% (n=17) of the responses included seafood (e.g., shrimp, oysters, crawfish, alligator and turtle).

Like seafood, rice is ubiquitous in southern Louisiana and is still a staple food found in Cajun cuisine. In the present study, rice was a food commonly consumed or served for lunch and dinner. For lunch, 49 participants selected the ‘other’ option and provided their own lunch food, of which 25% reported eating or being served rice or a dish including rice (e.g., rice and gravy, rice with vegetables, rice beans and rice, etc.). Results from the question about dinner foods served or consumed were consistent with those for lunch with regards to rice. ‘Rice and gravy’ and ‘red beans and rice’ were the third and fifth most commonly consumed/served food

for dinner, respectively. 'Rice', as its separate answer choice, was selected by 20.2% (n=63) of the cohort. In addition, rice with legumes, other than red beans (i.e. black beans and rice and pinto beans with rice), was a common response for those who selected and provided an answer for the 'other' option.

Another unique characteristic of Cajun cuisine is the use of wild game, which is readily available in southern Louisiana (Folse, 2004). In the current study, the most commonly consumed 'unique food' was wild game including deer, duck, rabbit, squirrel, elk, turtle, alligator and geese. Out of the seventy-one subjects who provided answers for the question asking about uniquely consumed foods, 45% (n=32) reported eating wild game. In the current study, 47% (n=15) of the subjects who reported eating wild game identified themselves as 'French Cajun'. In addition, approximately 30.4% (n=95) of the cohort identified themselves as being French Cajun while only 6.7% (n=21) identified themselves as Creole. One possible explanation for the higher consumption of wild game in this population could be the cultural differences between Cajun and Creole cuisine and the discrepancy between those who identify themselves as Cajun compared to those who identify with Creole culture.

Worthy of mention in this discussion are the results of the chi-square analysis which focused on demographic variables relative to the selection of traditional foods. Males reported less healthy food choices than females, evidenced by increased consumption of meats and fried foods, and higher intakes of salads and vegetables by females. Between the races, African-Americans had higher reported consumption of fried foods and staples such as red beans and rice. Very noticeable was the higher consumption or serving of foods such as gumbo and rice and gravy in areas west of the Mississippi River, presumably explained in large part by the "Cajun" influence in those areas. Finally, it was of interest that Creoles reported higher consumption of fried chicken compared with Cajuns. While difficult to explain, it may just



reflect a tendency to prefer this type of food. Also, those east of the Mississippi River (identified as Creole primarily) have been more impacted by Hurricane Katrina when access to food and home cooked meals might have been significantly reduced. ‘Fried chicken’ establishments offer cheap alternatives and, while not absolutely certain of why this pattern comes about, this is only a practical guess. This may have little to do with tradition, but be more reflective of natural disasters in the Creole population highly affected by the 2005 hurricane. These observations have not previously been reported. While the Bogalusa studies have reported on food groups, the current study was designed to identify traditional foods consumed in a much larger area of south Louisiana, rather than on the broader category of food groups or patterns.

### **Limitations**

There were several limitations of this study. First, the close-ended style of questions may have resulted in biased responses. Specifically, providing choices for participants to select limited more specific responses. The original pilot questionnaires included open-ended questions; however, there were also multiple inherent limitations in using an open-ended style questionnaire. Attempting to categorize the foods described would have been an arduous process and one which would not have provided sufficient data for statistical analysis given the limited number of subjects. For example, when asked to describe the foods most commonly served/consumed for breakfast, one subject could have written oatmeal, another subject could have written oatmeal with skim milk, and another could have written oatmeal with whole milk, raisin, brown sugar, and strawberries. While oatmeal is common to all three answers, the addition of the extras could potentially have confounded the process. This was detected by a pilot questionnaire (Appendix B) using open-ended questions.

Although the close-ended style questionnaire was more efficient than the open-ended questionnaire, there were still limitations to using close-ended questions. For example, based on

responses from the pilot questionnaires, ‘vegetables’ was included in the final questionnaire. A follow-up study would have to be conducted to elaborate on the meaning of ‘vegetables’, including types and varieties of vegetables consumed, preparation methods used, and whether or not the respondent includes potatoes as a vegetable. The servings of the USDA pyramid considers french fries as a vegetable with fat added, for example.

A convenience sample was used in this study and may not give an accurate depiction of the southern Louisiana population. Additional studies which would include the expertise of Louisiana Cooperative Extension Service agents could have a much greater impact in more accurately depicting the foods typical Louisiana residents consume and would be a great follow-up to this study.

The small number of participants (n=308) included in this study may not be representative of the approximately 28,019 students enrolled at LSU or of a typical southern Louisiana population. Four nutrition classes and three TAM classes participated in the current study. The majority of these classes consisted of female students, which is inconsistent with the gender characteristics of LSU. Additionally, nutrition students have more knowledge about nutrition and dietary patterns, which could have influenced their responses. Using nutrition students could have produced information not reflective of other LSU students. On the other hand, nutrition students may be more aware of food and food consumption patterns and may have provided very accurate data.

Another limitation was an editing error, which was discovered after all questionnaires had been completed and collected. For question 10 (commonly consumed/served foods for dinner), ‘gumbo’ was provided twice. During the analysis, the responses for each ‘gumbo’ selection were tallied and then added together for a total response number. Statistical analysis was able to correct for this mistake.

## **Implications**

With such a high percentage of the cohort consuming wild game, nutrition educators should address wild game meat consumption in this population. Nutrition education material could include information on the different types of wild game found in Louisiana, wild game and food safety, and recipes that incorporate wild game. Again, this education piece will be helpful to local Louisiana Cooperative Extension Service agents.

## **Recommendations**

Future studies should consider offering a similar questionnaire to different populations. Subjects from the current study were all from a university and were pursuing a higher education. However, only 18.7% of people living in Louisiana have obtained a bachelor's degree (U.S. Census, 2000). While the racial distribution of the current study was consistent with LSU demographics, it was not representative of Louisiana. For instance, according to the 2000 U.S. Census the racial makeup of East Baton Rouge parish was 45.7% white and 50% black or African American (U.S. Census, 2000). In New Orleans, 67.3% was black or African American and 28.1% was white (U.S. Census, 2000). This should be taken into consideration for any future studies. Due to the 2005 hurricanes, these figures have surely changed, especially in the New Orleans area and depending on migration, may have impacted other southern areas of Louisiana.

SES of the current sample is not representative of southern Louisiana and a future study should consider this. A suggestion would be to include the parents' education levels in the demographic survey. Knowing the education level of participant's parents could help identify differences between SES and food patterns without asking participants to identify their family's income level.

## **Conclusion**

Results from this study could be used to develop tailored diets, nutrition education programs, and interventions specific to this region. Before nutrition education material can be tailored to a specific community, the dietary patterns within that community must be identified. Additional research is warranted in this population to further elucidate the specific dietary patterns of southern Louisiana residents. Results from this study could serve as a basis for future studies or protocols that would further identify the dietary patterns of southern Louisiana residents. Future research could include administering a similar questionnaire to food and nutrition professionals throughout the southern Louisiana region. The food and nutrition professionals could report on the dietary patterns of the community for which they are responsible and the results could then be compared to the results from the current study.

As a final note, the prevalence of obesity in the United States and in Louisiana is climbing at an alarming rate. Obesity is a complicated and multifaceted problem with many different contributing factors, one of which is poor food choices (James, 2004; Surgeon General, 2001; US Department of Health and Human Services, 2000). Identifying the dietary patterns of a specific community can help to better understand which food choices are contributing to a poor diet so they could then be addressed in an educational program offered in the community.

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**APPENDIX A**  
**LOUISIANA STATE MAP**



**APPENDIX B**  
**E-MAIL MESSAGE SENT TO EXTENSION AGENTS**

Dear Agent,

My name is Chad Eriksen and I am a graduate student at LSU in Human Nutrition and Food. I work with Dr. Heli Roy at the Pennington Biomedical Research Center designing materials to be used for educational purposes. I am currently in the process of completing my thesis work, which is focused on the food patterns and cooking practices of southern Louisiana residents. Since you work hands-on with residents in your parish, I feel you have a unique understanding of their food consumption patterns and could therefore provide invaluable information about their dietary habits.

I would appreciate if you could fill in the attached questionnaires and email them back to me by March 3<sup>rd</sup>, 2008. Attached, you can find a questionnaire specific to each parish you represent. Your responses will be used as data for my thesis research and the data collected will hopefully eventually be used to design southern Louisiana specific nutrition education instruments, such as portion-size picture books, cookbooks with healthier recipes, etc...

Thank you in advance for your participation!

By filling out this questionnaire, you are providing consent to participate in this study. You may direct any additional questions regarding this study to Dr. Heli Roy, LSU AgCenter, at 225-578-4486. If you have questions in regards to being a research subject in this study, please contact Dr. David Morrison at 225-578-4182.

Sincerely,

Chad Eriksen

**APPENDIX C**  
**EXTENSION AGENT QUESTIONNAIRE**



## Louisiana Parish Eating and Food Habits

The following survey asks questions about meal patterns and cooking practices of **adult (18 and older) residents** in your parish.

We are interested in **your opinions** and **viewpoints**: there are no right or wrong answers to the questions. Please be as thorough and thoughtful as possible.

Do not hesitate to contact the research staff if you have any questions before, during, or after filling out this form.

**We are extremely grateful for your time and effort!**

*Chad Eriksen  
Research Assistant  
LSU School of Human Ecology*

*Dr. Heli Roy  
EFNEP Coordinator*

### EXAMPLE

**1. Please describe the 10 most frequently consumed foods people in your parish eat for DINNER:**

- 1) Gumbo with roux, okra, crab, and shrimp
- 2) Red beans and rice with smoked pork sausage
- 3) Spaghetti with meat sauce
- 4) Fried Chicken
- 5) \_\_\_\_\_

**2. Please describe the race/ethnic background for the population of your parish:**

- |  |             |        |
|--|-------------|--------|
| a. African American                    | <u>50</u> % | } 100% |
| b. Caucasian                           | <u>30</u> % |        |
| c. Hispanic/Latino                     | <u>10</u> % |        |
| d. Asian                               | <u>8</u> %  |        |
| e. Other (list) <u>Native American</u> | <u>2</u> %  |        |

**3. The percentage of residents in my parish who meet the national recommendations for the following food groups (given that there are differences in age and gender) is on average:**

- a. Grains (including cereal, breads, pasta, rice, etc) 100 %
  - i. What portion of the grains consumed are **whole** grains? 25 %
  - ii. What portion of the grains consumed is **refined** grains? 75 %
  - iii. Please name the top 3 grain items consumed:
    1. White bread
    2. White rice
    3. Whole wheat bread
- b. Vegetables 50 %
  - i. What are the top 3 vegetables consumed?
    1. Canned green beans
    2. Corn on the cob
    3. French fried potatoes
- c. Fruit and 100% fruit juice 50 %
  - i. What are the top 3 fruits consumed?
    1. Bananas
    2. Orange juice
    3. Apples
  - ii. What is the top 100% fruit juice consumed?

1. Orange juice
- d. Dairy 40 %
- i. Milk 40 %
  - ii. Cheese 50 %
  - iii. Yogurt 10 %
  - iv. What percentage of your population would choose lower fat dairy products? 50 %  
(Out of 100% who eat dairy).
- e. Meat, poultry, fish 100 %
- i. What are the top 3 sources of meat, poultry, and fish?
    - 1. Ground meat
    - 2. Chicken
    - 3. Catfish
  - ii. What percentage chooses lean sources of meat? 40 %
  - iii. What percentage eat game meats (rabbit, venison, squirrel, duck, etc)? 25 %
  - iv. What percentage of the foods prepared is fried or has fat added during cooking?  
85 %
- f. What percentage of the population consumes discretionary calories (desserts, added sugars, alcoholic beverages, candy, etc): 100 %

Indicate the correct option or write your answer on the line. Please answer all questions.

PARISH: \_\_\_\_\_

**1. Please describe the 10 most frequently consumed foods people in your parish eat for BREAKFAST:**

- 1) \_\_\_\_\_
- 2) \_\_\_\_\_
- 3) \_\_\_\_\_
- 4) \_\_\_\_\_
- 5) \_\_\_\_\_
- 6) \_\_\_\_\_
- 7) \_\_\_\_\_
- 8) \_\_\_\_\_
- 9) \_\_\_\_\_
- 10) \_\_\_\_\_

**2. Please describe the 10 most frequently consumed foods people in your parish eat for LUNCH:**

- 1) \_\_\_\_\_
- 2) \_\_\_\_\_
- 3) \_\_\_\_\_
- 4) \_\_\_\_\_
- 5) \_\_\_\_\_
- 6) \_\_\_\_\_
- 7) \_\_\_\_\_
- 8) \_\_\_\_\_
- 9) \_\_\_\_\_
- 10) \_\_\_\_\_

**3. Please describe the 10 most frequently consumed foods people in your parish eat for DINNER:**

- 1) \_\_\_\_\_
- 2) \_\_\_\_\_
- 3) \_\_\_\_\_
- 4) \_\_\_\_\_
- 5) \_\_\_\_\_
- 6) \_\_\_\_\_
- 7) \_\_\_\_\_
- 8) \_\_\_\_\_
- 9) \_\_\_\_\_
- 10) \_\_\_\_\_

**4. Please describe the 10 most frequently consumed foods people in your parish eat for a SNACK:**

- 1) \_\_\_\_\_
- 2) \_\_\_\_\_
- 3) \_\_\_\_\_
- 4) \_\_\_\_\_
- 5) \_\_\_\_\_
- 6) \_\_\_\_\_
- 7) \_\_\_\_\_
- 8) \_\_\_\_\_
- 9) \_\_\_\_\_
- 10) \_\_\_\_\_

5. Are there any foods uniquely consumed by residents in your parish? For example, milk thistle, opossum, nutria, etc...

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_

6. Please describe the race/ethnic background for the population of your parish:

- |                        |         |        |
|------------------------|---------|--------|
| a. African American    | _____ % | } 100% |
| b. Caucasian           | _____ % |        |
| c. Hispanic/Latino     | _____ % |        |
| d. Asian               | _____ % |        |
| e. Other (list) _____, | _____ % |        |

7. What is the percentage of each heritage represented in your parish:

- |                        |         |        |
|------------------------|---------|--------|
| a. Creole              | _____ % | } 100% |
| b. French Cajun        | _____ % |        |
| c. Spanish             | _____ % |        |
| d. African             | _____ % |        |
| e. English             | _____ % |        |
| f. Other (list) _____, | _____ % |        |

8. What is the percentage of the education levels of adults within your parish:

- |  |         |        |
|--|---------|--------|
| a. Below GED or below a high school degree | _____ % | } 100% |
| b. GED or high school degree               | _____ % |        |
| c. Some vocational or technical training   | _____ % |        |
| d. Completed 2-year associate degree       | _____ % |        |
| e. Completed bachelor's degree or higher   | _____ % |        |

9. What is the average income level for residents in your parish: (Please indicate only one)

- a. ≤ \$15,000
- b. \$15, 000 to 30,000
- c. \$30,001 to 45,000
- d. \$45,001 to 60,000
- e. >\$60,000

**10. In general, how often do the residents of your parish follow the Food Guide Pyramid and the Dietary Guidelines for Americans: (Please indicate only one)**

- a. All of the time
- b. Most of the time
- c. Some of the time
- d. Rarely
- e. Never

**11. The percentage of residents in my parish who meet the national recommendations for the following food groups (given that there are differences in age and gender) is on average:**

- a. Grains (including cereal, breads, pasta, rice, etc) \_\_\_\_\_ %
  - i. What portion of the grains consumed are **whole** grains? \_\_\_\_\_ %
  - ii. What portion of the grains consumed is **refined** grains? \_\_\_\_\_ %
  - iii. Please name the top 3 grain items consumed:
    - 1. \_\_\_\_\_
    - 2. \_\_\_\_\_
    - 3. \_\_\_\_\_
- b. Vegetables \_\_\_\_\_ %
  - i. What are the top 3 vegetables consumed?
    - 1. \_\_\_\_\_
    - 2. \_\_\_\_\_
    - 3. \_\_\_\_\_
- c. Fruit and 100% fruit juice \_\_\_\_\_ %
  - i. What are the top 3 fruits consumed?
    - 1. \_\_\_\_\_
    - 2. \_\_\_\_\_
    - 3. \_\_\_\_\_
  - ii. What is the top 100% fruit juice consumed?
    - 1. \_\_\_\_\_
- d. Dairy \_\_\_\_\_ %
  - i. Milk \_\_\_\_\_ %
  - ii. Cheese \_\_\_\_\_ %
  - iii. Yogurt \_\_\_\_\_ %

- iv. What percentage of your population would choose lower fat dairy products?  
\_\_\_\_\_ %
- e. Meat, poultry, fish \_\_\_\_\_ %
- i. What are the top 3 sources of meat, poultry, and fish?
1. \_\_\_\_\_
  2. \_\_\_\_\_
  3. \_\_\_\_\_
- ii. What percentage chooses lean sources of meat?  
\_\_\_\_\_ %
- iii. What percentage eat game meats (rabbit, venison, squirrel, duck, etc)?  
\_\_\_\_\_ %
- f. What percentage of the foods prepared is fried or has fat added during cooking?  
\_\_\_\_\_ %
- g. What percentage of the population consumes discretionary calories (desserts, added sugars, alcoholic beverages, candy, etc): \_\_\_\_\_ %

**12. What percentage of residents in your parish would you predict have the following diseases?**

- a. Diabetes \_\_\_\_\_ %
- b. High blood pressure \_\_\_\_\_ %
- c. Heart disease \_\_\_\_\_ %
- d. High cholesterol \_\_\_\_\_ %
- e. Cancer \_\_\_\_\_ %
- f. Other (list) \_\_\_\_\_, \_\_\_\_\_ %
- g. Other (list) \_\_\_\_\_, \_\_\_\_\_ %

**13. My estimate of the percentage of adults in my community who exercise or engage in structured physical activity (including walking, sports, biking, dancing) for 30 minutes or more at a time for most if not all days of the week? (Please indicate only one answer)**

- a. 0-15%      b. 16-30%      c. 31-50%      d. 51-65%      e. 66-80%

**14. The percentage of residents in my parish who participate in each activity is approximately**

- a. Walking \_\_\_\_\_ %
- b. Team sports \_\_\_\_\_ %
- c. Dancing \_\_\_\_\_ %
- d. Biking \_\_\_\_\_ %



- e. Aerobics \_\_\_\_\_ %
- f. Other (list) \_\_\_\_\_, \_\_\_\_\_ %
- g. Other (list) \_\_\_\_\_, \_\_\_\_\_ %

**15. Thinking about where people shop, the percentage of food coming from the following is approximately:**

- a. Supermarkets (Albertsons, Winn-Dixie, Kroger, etc) \_\_\_\_\_ %
- b. Smaller neighborhood market stores \_\_\_\_\_ %
- c. Specialty stores (fruit/vegetable stand, bakery, etc) \_\_\_\_\_ %
- d. Convenience stores (Circle K, Gas station food marts, etc) \_\_\_\_\_ %
- e. National discount chains (Wal Mart, Sams, Target, etc) \_\_\_\_\_ %
- f. Smaller discount stores (Fred's, Dollar General, etc) \_\_\_\_\_ %
- g. Personal gardens \_\_\_\_\_ %
- h. Other (list) \_\_\_\_\_, \_\_\_\_\_ %

**16. How many of the people in your parish use the following method of transportation to go to and from the grocery store?**

- a. Walk \_\_\_\_\_ %
- b. Bicycle \_\_\_\_\_ %
- c. Drive \_\_\_\_\_ %
- d. Get a ride \_\_\_\_\_ %
- e. Customer service van \_\_\_\_\_ %
- f. Public bus \_\_\_\_\_ %
- g. Taxi \_\_\_\_\_ %
- h. Other (list) \_\_\_\_\_, \_\_\_\_\_ %

**17. How many of the residents in your parish consume their meals at the following locations?**

- a. At home \_\_\_\_\_ %
- b. Sit-down restaurant \_\_\_\_\_ %
- c. Fast-food establishment \_\_\_\_\_ %
- d. Other (list) \_\_\_\_\_, \_\_\_\_\_ %
- e. Other (list) \_\_\_\_\_, \_\_\_\_\_ %

**Thank you for your time and effort!**

**APPENDIX D**  
**PILOT QUESTIONNAIRE**

## Eating and Food Habits

The purpose of this questionnaire is to determine your **family's eating patterns**—mainly concentrating on the foods served when you were/are living at home or prior to college.

We are interested in your opinions and viewpoints: there are no right or wrong answers to the questions. Please be as thorough and thoughtful as possible.

Do not hesitate to contact the research staff if you have any questions before, during, or after filling out this form.

**We are extremely grateful for your time and effort!**

Chad Eriksen  
Research Assistant  
LSU School of Human Ecology  
chaderiksen@gmail.com

Dr. Heli Roy  
EFNEP Coordinator

## Demographic Information

1. Hometown : \_\_\_\_\_  
(Parish/County) (State)

2. Age:
- ☐ (A) 18-24
  - ☐ (B) 25-30
  - ☐ (C) 31-35
  - ☐ (D) 36-40
  - ☐ (E) 41-50
  - ☐ (F) 51 or older

3. Gender:
- ☐ (A) Male
  - ☐ (B) Female

4. Race: (Check one)
- ☐ (A) African American
  - ☐ (B) Hispanic
  - ☐ (C) White (Non-Hispanic)
  - ☐ (D) Native American
  - ☐ (E) Asian or Pacific Islander
  - ☐ (F) Other \_\_\_\_\_

5. Do you consider yourself one of the following? Check all that apply.

- ☐ (A) Creole
- ☐ (B) French Cajun
- ☐ (C) Spanish
- ☐ (D) African
- ☐ (E) English
- ☐ (F) Other \_\_\_\_\_

6. Education Level: \_\_\_\_\_

- ☐ (A) Freshman
- ☐ (B) Sophomore
- ☐ (C) Junior
- ☐ (D) Senior
- ☐ (E) Graduate Student
- ☐ (F) Staff/Faculty
- ☐ (G) Does not apply

7. Major: \_\_\_\_\_

**Please use a #2 pencil to complete this form.**

**Be sure to fill in the circle completely.**

**Example:**

**Gender:**    ☐ (A) Male  
                  ☐ (B) Female

**Indicate the appropriate response or write your answer on the line.**

Please answer all questions.

**18. Who was responsible for preparing the meals at your home?**

- a. Mother
- ☐ (B) Father
- ☐ (C) Grandmother
- ☐ (D) Grandfather
- ☐ (E) Yourself
- ☐ (F) Other \_\_\_\_\_

**19. Who was responsible for purchasing food for your family?**

- a. Mother
- ☐ (B) Father
- ☐ (C) Grandmother
- ☐ (D) Grandfather
- ☐ (E) Yourself
- ☐ (F) Other \_\_\_\_\_

**20. How often did your family choose lower fat dairy products?**

- |                           |                           |                           |                           |
|---------------------------|---------------------------|---------------------------|---------------------------|
| <input type="radio"/> (A) | <input type="radio"/> (B) | <input type="radio"/> (C) | <input type="radio"/> (D) |
| Always (7 days/week)      | Often (3-6 days/week)     | Sometimes (1-2 days/week) | Never                     |

**21. How often did your family prepare fried foods?**

- |                           |                           |                           |                           |
|---------------------------|---------------------------|---------------------------|---------------------------|
| <input type="radio"/> (A) | <input type="radio"/> (B) | <input type="radio"/> (C) | <input type="radio"/> (D) |
| Always (7 days/week)      | Often (3-6 days/week)     | Sometimes (1-2 days/week) | Never                     |

**22. How often was fruit (not including fruit juice) served in your home?**

- |                           |                           |                           |                           |
|---------------------------|---------------------------|---------------------------|---------------------------|
| <input type="radio"/> (A) | <input type="radio"/> (B) | <input type="radio"/> (C) | <input type="radio"/> (D) |
| Always (7 days/week)      | Often (3-6 days/week)     | Sometimes (1-2 days/week) | Never                     |

**23. How often were vegetables (including green salad, potatoes, and other vegetables) served in your home?**

- |                           |                           |                           |                           |
|---------------------------|---------------------------|---------------------------|---------------------------|
| <input type="radio"/> (A) | <input type="radio"/> (B) | <input type="radio"/> (C) | <input type="radio"/> (D) |
| Always (7 days/week)      | Often (3-6 days/week)     | Sometimes (1-2 days/week) | Never                     |

**24. How often did your family eat away from home?**

- |                           |                           |                           |                           |
|---------------------------|---------------------------|---------------------------|---------------------------|
| <input type="radio"/> (A) | <input type="radio"/> (B) | <input type="radio"/> (C) | <input type="radio"/> (D) |
| Always (7 days/week)      | Often (3-6 days/week)     | Sometimes (1-2 days/week) | Never                     |

**25. Please describe the 5 foods that were most frequently served/consumed in your home for BREAKFAST:**

11) \_\_\_\_\_

12) \_\_\_\_\_

13) \_\_\_\_\_

14) \_\_\_\_\_

15) \_\_\_\_\_

**26. Please describe the 5 foods that were most frequently served/consumed in your home for LUNCH:**

11) \_\_\_\_\_

12) \_\_\_\_\_

13) \_\_\_\_\_

14) \_\_\_\_\_

15) \_\_\_\_\_

**27. Please describe the 5 foods that were most frequently served/consumed in your home for DINNER:**

11) \_\_\_\_\_

12) \_\_\_\_\_

13) \_\_\_\_\_

14) \_\_\_\_\_

15) \_\_\_\_\_

**28. Please describe the 5 foods that were most frequently served/consumed in your home for a SNACK:**

11) \_\_\_\_\_

12) \_\_\_\_\_

13) \_\_\_\_\_

14) \_\_\_\_\_

15) \_\_\_\_\_

**29. Are there any unique foods that were commonly consumed at your home? For example, chitterlings, opossum, nutria, etc...**

1) \_\_\_\_\_

2) \_\_\_\_\_

3) \_\_\_\_\_

**Thank you for your time and effort!**

**APPENDIX E**  
**FINAL QUESTIONNAIRE**



## Eating and Food Habits

The purpose of this questionnaire is to determine your **family's eating patterns**—mainly concentrating on the foods served when you were/are living at home or prior to college.

This information will be used to design new nutrition education materials specific to southern Louisiana. You will be asked to answer written demographic questions, including age, race, and education level, and to answer questions about your family's eating patterns. There are no risks associated with this study. Individuals may receive no direct benefit from this study.

We are interested in your opinions and viewpoints: there are no right or wrong answers to the questions. Please be as thorough and thoughtful as possible.

Do not hesitate to contact the research staff if you have any questions before, during, or after filling out this form.

By filling out this questionnaire, you are providing consent to participate in this study. You may direct any additional questions regarding this study to Dr. Heli Roy, LSU AgCenter, at 225-578-4486. If you have questions in regards to being a research subject in this study, please contact Dr. David Morrison at 225-578-4182.

**We are extremely grateful for your time and effort!**

Chad Eriksen  
Research Assistant  
LSU School of Human Ecology  
chaderiksen@gmail.com

Dr. Heli Roy  
EFNEP Coordinator

## Demographic Information

1. Hometown : \_\_\_\_\_

(Parish/County) (State)

2. Age:
- ☐ (A) 18-24
  - ☐ (B) 25-30
  - ☐ (C) 31-35
  - ☐ (D) 36-40
  - ☐ (E) 41-50
  - ☐ (F) 51 or older

3. Gender:
- ☐ (A) Male
  - ☐ (B) Female

4. Race: (Check one)
- ☐ (A) African American
  - ☐ (B) Hispanic
  - ☐ (C) White (Non-Hispanic)
  - ☐ (D) Native American
  - ☐ (E) Asian or Pacific Islander
  - ☐ (F) Other \_\_\_\_\_

2. Do you consider yourself one of the following? Check all that apply.

- ☐ (A) Creole
- ☐ (B) French Cajun
- ☐ (C) Spanish
- ☐ (D) African
- ☐ (E) English
- ☐ (F) Other \_\_\_\_\_

3. Education Level:

- ☐ (A) Freshman
- ☐ (B) Sophomore
- ☐ (C) Junior
- ☐ (D) Senior
- ☐ (E) Graduate Student
- ☐ (F) Staff/Faculty
- ☐ (G) Does not apply

4. Major: \_\_\_\_\_

**Please use a #2 pencil to complete this form.**

**Be sure to fill in the circle completely.**

**Example:**

**Gender:**    ☐ (A) Male  
                  ☐ Female

Indicate the appropriate response or write your answer on the line.

Please answer all questions.

1. Who was primarily responsible for preparing the meals at your home?

- ☐ (A) Mother
- ☐ (B) Father
- ☐ (C) Grandmother
- ☐ (D) Grandfather
- ☐ (E) Yourself
- ☐ (F) Other \_\_\_\_\_

2. Who was primarily responsible for purchasing food for your family?

- ☐ (A) Mother
- ☐ (B) Father
- ☐ (C) Grandmother
- ☐ (D) Grandfather
- ☐ (E) Yourself
- ☐ (F) Other \_\_\_\_\_

3. How often did your family choose lower fat dairy products?

- |                           |                           |                           |                           |
|---------------------------|---------------------------|---------------------------|---------------------------|
| <input type="radio"/> (A) | <input type="radio"/> (B) | <input type="radio"/> (C) | <input type="radio"/> (D) |
| Always (7 days/week)      | Often (3-6 days/week)     | Sometimes (1-2 days/week) | Never                     |

4. How often did your family prepare fried foods?

- |                           |                           |                           |                           |
|---------------------------|---------------------------|---------------------------|---------------------------|
| <input type="radio"/> (A) | <input type="radio"/> (B) | <input type="radio"/> (C) | <input type="radio"/> (D) |
| Always (7 days/week)      | Often (3-6 days/week)     | Sometimes (1-2 days/week) | Never                     |

5. How often was fruit (not including fruit juice) served in your home?

- |                           |                           |                           |                           |
|---------------------------|---------------------------|---------------------------|---------------------------|
| <input type="radio"/> (A) | <input type="radio"/> (B) | <input type="radio"/> (C) | <input type="radio"/> (D) |
| Always (7 days/week)      | Often (3-6 days/week)     | Sometimes (1-2 days/week) | Never                     |

6. How often were vegetables (including green salad, potatoes, and other vegetables) served in your home?

- |                           |                           |                           |                           |
|---------------------------|---------------------------|---------------------------|---------------------------|
| <input type="radio"/> (A) | <input type="radio"/> (B) | <input type="radio"/> (C) | <input type="radio"/> (D) |
| Always (7 days/week)      | Often (3-6 days/week)     | Sometimes (1-2 days/week) | Never                     |

7. How often did your family eat away from home?

- |                           |                           |                           |                           |
|---------------------------|---------------------------|---------------------------|---------------------------|
| <input type="radio"/> (A) | <input type="radio"/> (B) | <input type="radio"/> (C) | <input type="radio"/> (D) |
| Always (7 days/week)      | Often (3-6 days/week)     | Sometimes (1-2 days/week) | Never                     |

**8. Please select the 5 foods that were most frequently served/consumed in your home for BREAKFAST:**

- |                           |               |             |                       |
|---------------------------|---------------|-------------|-----------------------|
| (A) Fruit juice           | (F) Biscuits  | (K) Muffins | (P) Bacon/Sausage/Ham |
| (B) French toast          | (G) Yogurt    | (L) Bagels  | (Q) Other_____        |
| (C) Breakfast cereal      | (H) Pop-tarts | (M) Eggs    | (R) Other_____        |
| (D) Pancakes/waffles      | (I) Oatmeal   | (N) Toast   | (S) Other_____        |
| (E) Donuts/cinnamon rolls | (J) Grits     | (O) Fruit   | (T) Other_____        |

**9. Please select the 5 foods that were most frequently served/consumed in your home for LUNCH:**

- |                              |                   |                   |                   |
|------------------------------|-------------------|-------------------|-------------------|
| (A) Grilled cheese sandwich  | (F) Green Salad   | (K) Fruit         | (S) Tuna sandwich |
| (B) Salad w/ grilled chicken | (G) Fried chicken | (L) Soup          | (T) Other_____    |
| (C) Macaroni and cheese      | (H) Carrots       | (M) Chicken Salad | (T) Other_____    |
| (D) Luncheon meat sandwiches | (I) French fries  | (N) Chips         | (U) Other_____    |
| (E) Peanut butter & Jelly    | (J) Hamburgers    | (O) Pizza         | (V) Other_____    |

**10. Please select the 5 foods that were most frequently served/consumed in your home for DINNER:**

- |                        |                    |               |                  |
|------------------------|--------------------|---------------|------------------|
| (A) Mashed potatoes    | (H) Jambalaya      | (O) Spaghetti | (V) Dinner rolls |
| (B) Fried chicken      | (I) Gumbo          | (P) Roast     | (W) Other_____   |
| (C) Fried fish         | (J) Steak          | (Q) Pizza     | (X) Other_____   |
| (D) Baked chicken      | (K) Green Salad    | (R) Gumbo     | (Y) Other_____   |
| (E) Red beans and rice | (L) Vegetables     | (S) Meatloaf  | (Z) Other_____   |
| (F) Noodles            | (M) Rice and Gravy | (T) Rice      | (1) Other_____   |
| (G) Hamburgers         | (N) Grilled fish   | (U) Etouffee  | (2) Other_____   |

**11. Please select the 5 foods that were most frequently served/consumed in your home for a SNACK:**

- |               |                         |              |                           |
|---------------|-------------------------|--------------|---------------------------|
| (A) Fruit     | (F) Fruit snacks        | (K) Sodas    | (P) Little Debbie® snacks |
| (B) Cereal    | (G) Chips               | (L) Crackers | (Q) Other_____            |
| (C) Popcorn   | (H) Yogurt              | (M) Cheese   | (R) Other_____            |
| (D) Cookies   | (I) Cheese and crackers | (N) Pretzels | (S) Other_____            |
| (E) Ice cream | (J) Granola bars        | (O) Carrots  | (T) Other_____            |

**12. Are there any unique foods that were commonly consumed at your home? For example, chitterlings, opossum, nutria, etc...**

- 1) \_\_\_\_\_
- 2) \_\_\_\_\_
- 3) \_\_\_\_\_

## **VITA**

Chad Michael Eriksen was born to Gary and Shirley Eriksen in July, 1982 in Big Spring, Texas. He received his Bachelor of Arts degree in communication studies and a minor in biology in 2004 from the University of Alabama. In August 2006, Chad enrolled for graduate studies in the School of Human Ecology at Louisiana State University. Chad is a December 2008 candidate for a Master of Science in the human nutrition and food division within the School of Human Ecology.