

CRITICAL FACTORS RELATED TO COMMUNICATION OF NUTRITION
INFORMATION TARGETING LUMBEE WOMEN IN ROBESON COUNTY, NC

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ABSTRACT

Lisa Huggins Oxendine: Critical Factors Related to Communication of Nutrition Information
Targeting Lumbee Women in Robeson County, NC
(Under the direction of Suzanne Havala Hobbs)

The current state of nutrition communication is not effective for Lumbee tribal women in Robeson County, North Carolina. Interviews with Lumbee women leaders representing tribal, health, and lay circles along with a review of the literature show changes to critically important factors are needed for Lumbee women to benefit from nutrition communications.

This nonexperimental, descriptive study shows that effective nutrition communication changes consider and reflect Lumbee tribal culture. Further, Lumbee women must become fully engaged in all aspects of nutrition communication including planning, intervention, and policy-making. Lumbee women are leaders who call for an urgent focus on nutrition communication to reduce the occurrence of diet-related diseases. They are interested in supporting Lumbee women to improve their dietary behaviors. Leadership and nutrition training opportunities along with mentor programs will encourage Lumbee women to fully engage in nutrition communication change efforts. The Lumbee tribal organization has experience as a collaborative partner on behalf of tribal members and has existing resources useful for nutrition communication. Thus, this organization is the key agency to lead efforts for nutrition communication changes.

A coalition should be formed of collaborative partners drawn from Lumbee women, the Lumbee Tribe organization, and agencies committed to Lumbee women's nutritional health.

Collaborative partners should develop plans, influence policies, and determine measures that address cultural, socioeconomic, contextual, and other challenges to effective nutrition communications for Lumbee women. This guiding coalition should consider ways to encourage support by Lumbee tribal members, local churches and religious leaders, healthcare organizations, food industry members, and employers. A plan based on study findings and leadership principles is included as a guide to establishing a system of effective nutrition communication strategies for Lumbee women in Robeson County, NC.

To my mother, Sallie Harris Huggins, and all the Lumbee tribal members represented by the Duke Clinical Research Institute findings.

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Chapter 1: Introduction

A. Statement of Issue

Despite guidelines that promote healthy behaviors, diet-related health conditions continue to pose problems for many people in North Carolina (NC) and the nation including American Indians (AIs) ¹⁻³. The National Institutes of Health's *Health Disparities Strategic Plan and Budget Fiscal Years 2009-2013* reports a greater incidence of chronic health conditions for racial and ethnic minority groups compared with other Americans ⁴⁻⁵. Lumbee tribal women in Robeson County, NC exemplify this report ⁶⁻⁷.

A retrospective examination of Duke University Medical Center (DUMC) hospital data for cardiac interventions since 1969 show Lumbee tribal patients were often female and younger than other patients ⁶⁻⁷. Sixteen percent of Lumbee patients versus 6.5 percent of the comparison group (no race data were indicated) had a prior history of angioplasty ⁶⁻⁷. The analysis of 920 Lumbees and 2763 non-Lumbees found Lumbee cardiac risk factors (percentages compare Lumbees to non-Lumbees in the study) included hypertension (70.9/62.5), diabetes (37.6/28.1), family history of coronary artery disease (51.7/38.8), and comparatively elevated body mass index (median 29.0/27.5) ⁷.

The *Atlas of Heart Disease and Stroke Among American Indians and Alaska Natives* reported that counties on the shared North Carolina (NC)/South Carolina (SC) border are among those with the highest incidence of heart disease-related death for AIs⁸. Robeson County is a NC county that borders SC and is home to many members of the Lumbee Tribe⁹⁻¹⁰. Together, the findings of this report with the geographic location of Robeson County support the DUMC findings^{6-8, 10}.

Dietary Guidelines for Americans, 2010 developed by the US Department of Health and Human Services indicates that prevention of chronic disease includes limiting fat intake while consuming adequate amounts of dietary fiber³. A study by Bell et al, believed to be the first research review of nutrient intake by Lumbee women, included findings that Lumbee women consume excess fats and insufficient amounts of fiber¹¹. The Bell et al study shows that Lumbee women model nutrition behaviors which pose elevated risks for development of cardiovascular disease and other chronic diseases^{3, 11}.

This leads to the challenge of how to educate Lumbee women to follow health promoting nutrition guidelines. One approach is to understand how best to communicate nutrition information to Lumbee women. Greater understanding of nutrition communication factors, including recommended behavioral changes related to critical cultural, socioeconomic, and contextual factors has the potential to improve health measures for these women.

A review of the literature shows there have been few studies of Lumbee women and those conducted have not focused on how to develop or communicate nutrition information to this group. No research currently exists to inform policy, intervention development, or understanding of critical factors or how best to influence those factors.

This study uses qualitative, descriptive methods to understand critical nutrition communication factors and needed alterations to develop a plan, directed toward the Lumbee Tribe organization, which encourages Lumbee women in Robeson County to consume nutritious foods. Determination of critical factors and necessary changes can result in important recommendations such as policy development and collaborative partnerships. Prior to beginning this research, it was anticipated that necessary changes could impact the Lumbee Tribe organization. Thus, an important facet of this research includes the application of leadership concepts to propose ways the Lumbee Tribe organization can implement changes deemed critical by study results. The terms “American Indian” and “Native American” will be used interchangeably in the discussion of this research.

B. Background

The Lumbee Tribe with approximately 55,000 members is primarily located in the counties of southeastern NC ⁹. To gain perspective for the tribe’s size consider the 2010 Census report that NC’s AI population, represented among eight state recognized tribes and one federally recognized tribe, was 1.3% or approximately 122,110¹²⁻¹³. In 2013, AIs (AI alone) accounted for 1.6% of NC’s population ¹⁴. Robeson County where most tribal members live, has a population of 134,841¹⁴. In 2013, AIs comprised 39.5% of the county’s population ¹⁴.

The 2008-2012 American Community Survey 5-Year Estimates report that 44.2% of households headed by AI women in Robeson County are below the poverty level ¹⁵. Coupled with the burden of poverty is the fact that the Lumbee Tribe is a non-federally recognized tribe ⁹. Thus, members do not receive health services from the Indian Health Service but access health care services through private and state and county-operated health care facilities⁹.

The Lumbee Tribe government which consists of three branches was established in 2000^{9,16}. The Tribal Chairperson, elected by tribal members, holds executive powers and represents the Lumbee Tribe to other governments such as the United States¹⁷. The Tribal Chairperson holds power to enact tribal laws and to veto ordinances enacted by the Tribal Council⁹. The Tribal Council composed of twenty-one elected representatives of tribal districts is the legislative branch of the tribal government and is tasked with enacting ordinances¹⁷. The Supreme Court (Judicial Branch of tribal government) consists of five tribal members (two are law school graduates and three are lay tribal members) who render decisions regarding the Lumbee Constitution and tribal ordinances¹⁷. Supreme Court members are nominated by the Tribal Chair and appointed by the Tribal Council¹⁷. The Lumbee Tribe organization has administrative offices in Pembroke, NC⁹. In this discussion, the Lumbee Tribe government along with the administrative and support staff of the tribal government are referred to as the Lumbee Tribe organization.

The tribe is distinguished by unique speech patterns that have been studied and termed as “Lumbee-English” by linguists^{18,19 (p8)}. It is suspected that tribal members’ tendency to remain in the rural communities of their birth preserved speech patterns over generations²⁰. Tribal members include Old English words in their conversations and English surnames predominate, adding support to the theory that Lumbees are descendants of Indians friendly with a group of English colonists who disappeared from Roanoke Island in 1587²¹. Some believe these colonists, also called The Lost Colony, were saved from starvation by nearby Indians who subsequently inter-married with them²¹.

Historically, tribal members farmed crops and maintained family gardens and farm animals such as hogs for food^{9,21}. Lard rendered from hog fat was a staple in food preparation

²¹. These food traditions were taught across generations perpetuating reliance upon high fat diets as an accepted norm.

Lumbee tribal members have become known for health problems with dietary behaviors as possible causative factors ⁶. Prior to 2006 when a heart center was established at Southeastern Regional Medical Center (renamed Southeastern Health) in Robeson County, Lumbee tribal members and other county residents traveled to medical centers outside the area for interventional cardiac care ²². In its 2012 petition for a second cardiac catheterization lab, Southeastern Health's (SH) leadership reported fifty patients per month were transferred prior to adding the heart center and afterward transfers decreased to two per month ²². SH supported its request by noting Robeson County's large AI population and AIs' increased risk for heart disease-related deaths ²²⁻²³.

SH has decreased the need to travel for care but the request for another cardiac catheterization lab shows the need for cardiac care has not decreased ²². In fact, it implies that the causes for cardiac disease in Robeson County have not been fully addressed.

C. Significance of Issue

Lumbee women reportedly experience heart disease and associated risk factors more often than other cardiac patients at DUMC ⁶⁻⁷. These findings alone are concerning. When viewed in the context of published findings that Lumbee women's diets pose risks for chronic conditions such as heart disease and they live in an area associated with increased incidence of cardiac death, there is clearly substantiated need for concern ^{3, 8, 11}. Understanding how best to communicate nutrition information to Lumbee women can potentially reduce the incidence of chronic disease and risk of death for these women. Investigation of nutrition communication

needs for Lumbee women is the focus of this study that has potential implications for the improvement of their comprehensive health.

Lumbee women's adherence to recommended dietary guidelines can serve as a model to others. Application of nutrition guidelines by Lumbee women may signal to their families, co-workers, and communities that adherence to recommended dietary guidelines is acceptable and valuable. Thus, the dietary actions of Lumbee women can positively influence the eating behaviors of other individuals. Additionally, reduction in morbidity could reduce time lost from work and health care costs associated with lack of adherence to dietary guidelines²⁴. Most importantly, there is potential to reduce the increased risk of death.

There have been few studies focused on Lumbee women. Further, there have been no studies that ask Lumbee women to elaborate their nutrition communication needs. Finally, the resulting plan from this study will encourage the Lumbee Tribe organization to address obstacles that hinder Lumbee women's ability to apply nutrition guidelines. Likewise, the plan developed from study findings will guide leaders' development of policies, plans, collaborations, and actions that result in effective communication of nutrition information to Lumbee women in Robeson County.

Chapter 2: Literature Review

The literature review shows past studies with Lumbee women were focused on cancer, dietary intake, tobacco use, post-partum depression, and parenting^{11, 25-29}. There has been minimal research related to their nutritional behaviors. Further, there has been no research directed toward learning their thoughts about effective communication of nutrition information or needed alterations to critical nutrition communication factors. This research explores the overarching question-“How should critical factors related to communication of nutrition information to Lumbee women be altered to enable Lumbee women in Robeson County, NC to consume nutritious foods?”

To discover literature relevant to this question, key words associated with the target audience and topic were searched- effective communication of nutrition information to Lumbee women in Robeson County, NC. The following key terms were searched in PubMed, CINAHL, and Google Scholar: Lumbee women, Lumbee women and nutrition, American Indian women, and American Indian women, NC. Articles accepted into the review include studies conducted with American Indian women across the US. Dr. Ronny Bell, Dr. Mark Dignan, Dr. Electra D. Paskett and Dr. Shelia Fleischacker have conducted studies among the Lumbee Tribe. A review of studies by these researchers found relevant studies conducted with elderly AIs in NC. Also, health communication principles that consider culture and health communications for specific audiences were reviewed. This inclusion added the following key terms: health communication, culturally sensitive, and health communication tailoring population. See

Appendix E for further detail concerning the search terms and articles in this review. The following table is a list of topics resulting from the review of relevant literature.

Table 1- Organization of Relevant Literature

Organization of Literature
A. Dietary Behaviors of AIs in the US
B. Dietary Behaviors of Lumbee Tribal Members in Robeson County, NC
C. Dietary Studies With Rural Elderly in NC
D. Dietary Interventions With AIs
E. Factors That Influence Health Behavior Changes by AIs
F. The Effectiveness of Targeted and Tailored Health Communications
G. Culture as a Basis for Successful Health Communications

A. Dietary Behaviors of AIs in the US

The literature review revealed a disconcerting theme in the dietary behaviors of AIs. AI diets are not reflective of health promoting dietary guidelines for a number of measures. In a review by Bell et al of dietary studies among AIs (including Lumbee) from 1959-1996, AIs' diets did not adhere to dietary guidelines for nutrients such as fat consumption (excess) and dietary fiber (insufficient intake)³⁰. Similar findings for fat and dietary fiber were shown with forty-seven men and fifty-seven women in two Ojibwe communities in Minnesota and Wisconsin³¹. A study of food purchasing behavior by Apaches in Arizona revealed a tendency to purchase foods high in fat and sugar³².

Additionally, fruits and vegetables are not consumed in adequate amounts. In a study of seventy-one women with ties to sixteen tribes in Oklahoma, few participants reported adequate fruit or vegetable intake³³. Frequently consumed foods included soft drinks, butter/margarine, ice cream, ground beef, hot dogs, and tea³³. Similarly, analyses of AI data collected in 1995-1996 and 2005-2006 across thirty-six states showed lack of health promoting dietary behavior including inadequate fruit and vegetable intake over the course of ten years³⁴.

When tribal affiliation and geographic location are reviewed, it is apparent that lack of dietary guideline adherence occurs in multiple tribes and in many areas across the US^{31, 35-37}. A comparison of diet recall from 1988-1991 among men and women aged 45-74 in ten tribes in Arizona, Oklahoma, North Dakota, and South Dakota participating in the Strong Heart Study (the largest study of cardiovascular disease among AIs) found most participants were at risk for development of chronic diseases including cardiovascular problems³⁵. A five year prospective study among tribes of the Pacific Northwest found diets deficient in Vitamin C, folate, and calcium³⁶. Phone and in-person interviews with Catawba Indians in NC and SC showed diets were low in vegetables and fruits³⁷. A study conducted in Columbus County, NC with two hundred ninety-one men and women representing Siouan Indians, whites, and blacks found that all races consumed excess amounts of recommended fat with less than recommended levels of dietary fiber³⁸. Siouan Indians are located in close geographic proximity to Lumbee Indians in Robeson County³⁹. These studies show that multiple AI tribes across the US are prone to eating behaviors that do not closely match dietary recommendations.

Another theme in these studies of dietary behavior by AIs is the recurring report of excess rates of chronic diseases and risk factors for cardiovascular disease. The Oklahoma study reported ninety percent of participants were overweight and one-third had diabetes³³. Excess

weight was also reported in the Ojibwe study³¹. The study of AI participants across thirty-six states over ten years noted incidence of diabetes, obesity, hypertension, and other risk factors for cardiovascular disease in women and men³⁴.

This review of dietary studies among AIs shows alarming patterns. Tribal members across the US are not adhering to healthy dietary guidelines and are experiencing chronic diseases which can be associated with dietary behavior^{3, 30-38}.

B. Dietary Behaviors of Lumbee Tribal Members in Robeson County, NC

Similar to national findings in studies with AIs, members of the Lumbee Tribe are not closely following dietary recommendations. In 1995, Bell et al conducted a seminal study to collect "... baseline dietary information from Lumbee Indian women in NC" to establish "... a nutrition education program...to reduce the diet-associated risk of chronic diseases..."¹¹ (p. 1426). Over half of the one hundred twenty Lumbee women interviewees were above ideal body weight and consumed excess fats¹¹. Further, study participants reported inadequate consumption of dietary fiber and minerals¹¹. However, antioxidant nutrients were adequately consumed which the authors attributed to Lumbee tribal members' tradition of growing vegetables and fruits¹¹. According to communications with the first author (Bell), the nutrition education program was developed but not published.

Secondary analysis of the study data compared dietary intake among Lumbee women who were smokers and non-smokers⁴⁰. Smokers reported inadequate intake of fruits, vegetables, fiber, iron, calcium, and folate⁴⁰. Cholesterol consumption was similar among smokers and non-smokers but smokers consumed more butter/margarine, caffeine, alcohol, sugar, and pork⁴⁰.

Also, similar to national studies, Lumbee tribal members experience health conditions clinically associated with unhealthy dietary behaviors. The DUMC retrospective review which showed that Lumbee women have significant cardiac disease and associated risk factors including excess weight is a prime example of this theme⁶⁻⁷. Further, as found by Levin et al in a comparative study of Lumbee, Catawba, Menominee, and Chippewa tribes in NC, SC, Wisconsin, and Minnesota, respectively, Lumbee men and women self-report having chronic diseases such as hypertension and cardiovascular disease⁴¹. Researchers noted differences in the occurrence of chronic disease and risk factors for cardiovascular disease among the tribes and regions they represented then concluded that interventions to influence AIs' health should be targeted to specific tribes⁴¹.

Health conditions related to calcium deficiency are another potential result of Lumbee women's diets. A study with two hundred forty African American (AA), AI, and white elderly women in Robeson County showed most of the participants did not consume adequate amounts of dietary calcium⁴². The study indicated that participants especially at risk for calcium deficiency were women who did not consume calcium supplements⁴².

Documents report the Lumbee Tribe is interested in tribal members' health and in interventions to improve health⁴³. The NC Tribal Health Assessment conducted by the Department of Health Behavior & Health Education at the UNC Gillings School of Global Public Health determined the health needs of NC tribes⁴³. The report indicates the Lumbee Tribe was selected for an in-depth assessment based on the following criteria: "... interest and desire; infrastructure in place (e.g., staff); readiness to begin implementing a project; whether health is on the Tribal Council's agenda; and willingness to complete the work necessary to

conduct three additional follow-up meetings”^{43 (p. 4)}. This report implies that the tribal agency’s interest in health can improve the dietary behaviors of Lumbee women.

C. Dietary Studies With Rural Elderly in NC

Studies were conducted in NC that focused on the dietary behaviors of elderly people⁴⁴⁻⁴⁶. The study by Arcury et al used pseudonyms for the two study areas with one location described as “... more removed from metropolitan areas and has a small city in which county services historically have been based. Despite a substantial number of Native Americans in the study area, there are no Indian Health Service facilities available to county residents.”^{44 (p. 490)}. This description is similar to many of Robeson County’s characteristics. For example, many Lumbee tribal members live in Robeson County but do not receive Indian Health Service benefits⁹. The following discussion is a review of studies with rural elderly participants in two NC counties. All of the studies include AIs and as Robeson County was potentially one of the study counties then most of the AI participants would have been Lumbee tribal members.

Arcury et al interviewed county service providers involved with nutrition programs and learned they had skewed perceptions of nutrition barriers for the elderly in their counties due to incomplete knowledge of resources⁴⁴. One of the study counties chose to address this finding with monthly meetings of service providers to discuss elder nutrition issues⁴⁴.

Two studies indicated factors that promote willingness for diet-related changes by rural NC elderly. A study with sixty-four AA, AI, and European American widows showed that widowhood is a time when women are likely to change eating behaviors since they no longer need to consider the preferences or dietary needs of their spouse⁴⁵. Another study showed that

elders with diabetes change food preparation methods but tend not to change the foods they consume ⁴⁷.

A study of vitamin and mineral supplement use had similar results to the Robeson County calcium study previously discussed ⁴². The study with rural elderly showed that most of the participants had nutrient deficient diets and supplement users were more likely to be women and similarly European American or AI ⁴⁸.

Two studies had differing results for fruit and vegetable consumption. One study reported "... more than half" of participants had adequate fruit and vegetable consumption ⁴⁶ (p. ⁵³). The other study reported inadequate consumption ⁴⁹. Still, both studies affirmed that elderly participants do not adhere to recommended intake levels for dairy, grains, fats, or sugars ^{46,49}.

These studies in two rural NC counties show a tendency for elderly AIs not to adhere to health promoting dietary guidelines. Additionally, widowhood and chronic illness are factors which increase the likelihood that elderly, rural individuals will change their dietary behaviors ^{45,47}. Further, it is evident there is a need for communication across agencies to ensure nutrition-related issues for rural, elderly individuals are realized and appropriately addressed ⁴⁴.

D. Dietary Interventions With AIs

There have been dietary interventions with promising results among AIs. A randomized controlled trial among urban southwestern women in mostly Pueblo and Navajo tribes with delayed intervention for the control group yielded improvements in multiple indicators ⁵⁰. There was increased fruit and vegetable consumption up to one year post-intervention ⁵⁰. Further, both the intervention and control group with delayed intervention lost weight, improved insulin sensitivity, and decreased total cholesterol ⁵⁰. The program, specifically designed for AIs, used

group discussions, training sessions, and materials with images of AI women to teach healthy dining-out and snacking, food label interpretation, and healthy meal preparation ⁵⁰.

An intervention with community participation and program delivery at school, work, and church sites was used with the Eastern Band of Cherokee Indians (EBCI) in western NC, the only federally recognized tribe in the state ⁵¹. Positive outcomes included an increase in healthy dietary behaviors, development of church messages promoting healthy behaviors, increased modeling of healthy behaviors, and request by other churches and work sites to join the program ⁵¹.

A multi-phase project among NC AI tribes including the Lumbee in Robeson County began with development of partnerships between the tribes and study researchers ⁵². Data was collected using Talking Circles and interviews with tribal members and community leaders ⁵². Positive outcomes of the project include development of a toolkit that tribes use to facilitate tribal members' access and consumption of healthy, affordable food ⁵². Researchers also developed a list of recommendations useful for entities interested in developing partnerships with NC AI tribes ⁵². The recommendations emphasize the need for culturally appropriate interactions and partnering with tribal leaders able to lead policy development and community change ⁵². Additionally, this project led to a new initiative among NC AI tribes-Healthy, Native North Carolinians ⁵². This capacity building initiative supports efforts of NC tribes and urban Indian organizations to "...develop, implement, and evaluate feasible and sustainable community changes regarding healthy eating and active living" ⁵² (p S128).

These interventions demonstrate the impact of target audience culture on results⁵⁰⁻⁵¹. Moreover, this points to the need to understand target audience culture in order to choose elements which can prove beneficial for interventions⁵⁰⁻⁵¹.

E. Factors That Influence Health Behavior Changes by AIs

There are factors that influence willingness of AIs to alter their health behaviors. Examples of these contributing factors include role modeling and information sharing by tribal leaders and individuals similar to the targeted AIs⁵³. A study in Robeson County used audience representatives in the form of lay health advisors who provided education, encouraged attendance for mammograms, and addressed mammography barriers with a resulting increase in mammography rates for rural, low income AI and AA women⁵⁴.

Struthers et al conducted a qualitative study with Native peer educators who shared their experiences as facilitators of Talking Circles where "... the facilitator and participants sit in a circle, and oral tradition is used to carry out interactions"^{55 (p. 175)}. Peer educators felt Talking Circles provided "... meaningful education in the communities, because the valiant efforts with pamphlets [given to clients in the Indian Health Service clinic] don't get Indian people to change behavior"^{55 (p. 177)}. Researchers felt that trained AI facilitators are greater determinants for success than Talking Circles⁵⁵. There are differences of opinion regarding the cause for successful interventions with AIs⁵⁵. However, it is apparent that use of target audience representatives is a culturally influenced approach which promotes behavior change by AIs⁵⁵.

Still, despite considering and including elements of target groups' culture, unanticipated cultural factors can interfere with intervention outcomes. Messer et al used Lumbee and EBCI lay health advisors to deliver in-home education resulting in differing effects between the groups

regarding cervical cancer knowledge and willingness to have a pap smear²⁶. A later qualitative, retrospective study showed factors such as program messages about remaining healthy to care for others and use of lay health advisors had benefited the intervention²⁶. However, community resources which were “not well utilized” and cultural beliefs about seeking care when not sick were two of the factors which hindered the intervention^{26 (p.560)}.

A comment by Byers in a review of studies concerning nutrition and cancer risks for AIs highlights the potential for cultural factors to beneficially influence AI health behaviors “... those with higher regard for historical cultural traditions, such as many American Indians and Alaska Natives, may be well prepared to integrate past principles of the value of good foods and physical activity to achieve future nutritional improvements...”^{56 (p. 1615)}. Thus, culture can be integrated into plans for effective health communication to AIs.

A review by Kreuter and McClure of health communication articles included the Messer study with Cherokee and Lumbee women in NC^{26,57}. Like Byers, Kreuter and McClure’s comments support the value of culturally framed health information while proposing the potentially positive effect of doing so “... to help eliminate health disparities”^{57 (p. 450)}.

There are issues that can serve as limiting factors for healthy behavior change by AIs. Interestingly, a study in Oklahoma showed AI women are unwilling to choose healthy foods which conflict with family preferences⁵⁸. Additionally, socioeconomic factors such as food cost and income may limit AI women’s ability to choose healthy foods⁵³.

F. The Effectiveness of Targeted and Tailored Health Communications

The review of health communication literature indicates that communication of health information can differ by audience size and degree of message specificity⁵⁹. Mass

communications are generally prepared and delivered to large, diverse audiences while targeted communications are designed and delivered for audiences segmented along some characteristic(s) of interest⁵⁹⁻⁶⁰. Tailored health communications are designed specifically for individuals⁵⁹⁻⁶⁰.

General messages for large, diverse audiences are usually less expensive to prepare and deliver than tailored or targeted communications⁶⁰⁻⁶¹. However, when communicating to groups with key characteristics which could impact receptiveness or outcome, it can be beneficial to incur additional cost for customized messages⁶⁰. For example, a meta-analysis of health communication messaging tactics and characteristics of intention to change behavior found women are more likely to alter behavior(s) when presented messages which reflect health effects for individuals important to them⁶². Time constraints for AA women, including those with advanced degrees and income, have been reported as a major barrier to healthy food selection and home-cooked family meals⁶³. Thus, messages directed toward women generally and women along certain characteristics of interests may require additional costs to effectively direct them toward factors that are important.

Researchers agree it is important to develop messages that reflect the beliefs and outcomes valued by the target audience⁶⁴⁻⁶⁵. However, findings vary for effectiveness and application of tailored and targeted health communications. According to Kreuter and Wray it is unclear whether either approach has greater message or cost effectiveness⁶⁵. Noar et al suggests tailoring is useful in research but cannot be fully applied in real-world settings⁶⁶. Rimer and Glassman's review of tailored print information showed "... tailored letters can change dietary behavior, although the results were more consistent for dietary fat intake than fruit and vegetable consumption"⁶⁷ (p. 142). Finally, a study of print materials with AA women in Missouri "... found

no evidence of effectiveness for cancer prevention and screening messages that were tailored on cultural constructs alone... Only when culturally relevant tailoring was combined with behavioral construct tailoring did it emerge as effective”^{68 (p. 60)}. Thus, audiences are clearly important, but these studies show the effectiveness of tailoring and targeting of information is unclear.

G. Culture as a Basis for Successful Health Communications

Concerns for ensuring that health communications reflect culture is based on the belief that when we know important characteristics about message recipient(s) we can develop and deliver information which impacts acceptance and/or behavior outcome^{57, 59}. The Institute of Medicine recommends an increase in efforts to learn about populations prior to developing population-specific interventions⁵⁹. Fishbein and Cappella said, “... one must understand the behavior from the perspective of the population for whom interventions are being developed. Once understood in this way, these beliefs can serve as the basis for messages and other interventions that can have an impact on the target behavior through the mediating mechanisms”^{64 (p. S4)}. All of which is supported by results of a study by Uskul and Oyserman which suggests that connecting messages to culture can increase message persuasiveness⁶⁹.

The Health Disparities Strategic Plan for 2009-2013 by the National Institutes of Health (NIH) includes an objective for targeting programs for groups such as racial and ethnic populations who experience significant disease burdens⁴. Researchers such as Kreuter et al have advised that disparity reduction goals should continue the focus on efforts which value culture⁷⁰. Yet, despite agreement that culture is an important factor in communication, an evaluation of the US Department of Agriculture’s MyPyramid website (<http://MyPyramid.gov>) shows the site was

written above the proposed seventh grade reading level and did not meet criteria for easy use ⁷¹. Moreover, the site had no messages or visual cues targeting racial or ethnic groups ⁷¹. The website was replaced in 2011 by ChooseMyPlate.gov ⁷².

However, there is evidence that AI culture has been considered by the NIH. The booklet, *Your Choice for Change! Honoring the Gift of Heart Health for American Indians*, uses a fictional AI family to inform readers about the importance of reducing heart disease and associated risk factors ⁷³.

Researchers have attempted to culturally influence interventions. The results show that successful culturally sensitive communication considers important differences among group members ⁷⁴. Talking Circles and stories were used to communicate the need for pap smears and follow-up on abnormal results to AI women recruited at rural and urban sites in California ⁷⁵. The study participants indicated that Talking Circles were "...an acceptable way to overcome communication and cultural barriers..." ^{75 (p.1596)}. Researchers reported stories in the study served "...as both an educational and cultural nurturing tool" ^{75 (p.1596)}. Likewise, Fleischhacker et al successfully used Talking Circles among NC AI tribes to develop partnerships and strategies that influence food access and affordability ⁷⁶. In contrast, a discussion by Michielutte et al shows that a fictional story planned for Lumbee and EBCI women was not equally acceptable to participants ⁷⁷.

Campbell and Quintilani state that "Targeting to relevant cultural, spiritual, and community factors appears to increase the salience of tailored communications, especially for minority populations" ^{74 (p. 790)}. James' findings with AAs in Florida that traditional foods are viewed as comforting and that foods are intended for specific meals or times supports this

assertion⁶³. For example, study participants reported avoiding consumption of fruit at night due to the belief that it will cause gastrointestinal discomfort⁶³. Thus, the need to effect behavior change for racial and ethnic minorities requires customized health communication directed toward factors which increase the likelihood of reaching the audience and achieving desired outcomes^{69, 74}.

H. Summary of Literature

The literature reviewed provides interesting points relative to Lumbee women, nutrition, and health communication. Members of cultural groups can have key characteristics which influence the effectiveness of health communications^{26, 74}. Variation among audiences and individuals within targeted audiences can require additional work to prepare and deliver health information and interventions however effectiveness of the customized materials is not clearly supported by all researchers or their findings^{65, 68, 74}.

The literature gives insight for messages that appeal to women and even which stage in life may bring greater likelihood for women to adopt dietary changes⁴⁵. Additionally, there is information regarding generally acceptable messages for minorities and factors that hinder or support AI women's interest in dietary changes^{53, 58, 74}. Still, the most applicable summary of the literature is that the target audience is the best source for learning how information should be communicated to them⁶⁴.

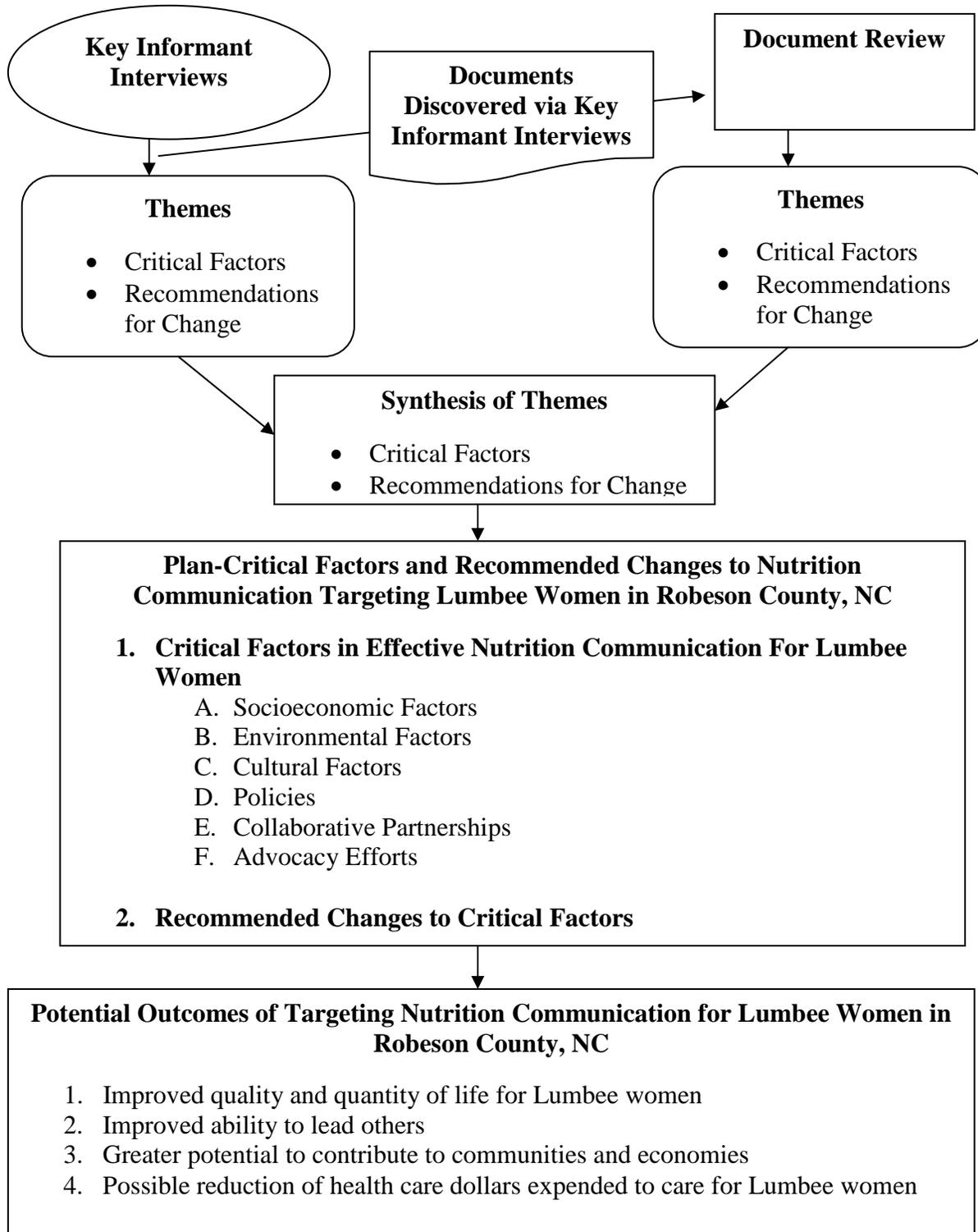
Regarding Lumbee women, the literature shows there has been little nutritional research with this group¹¹. No research has considered what Lumbee women feel is important, or what needs to change about nutrition communications that affect Lumbee women. This study will add

to the body of research focused on Lumbee women by addressing gaps present in the literature concerning communication of nutrition information to Lumbee women.

Chapter 3: Input/Output Diagram

A diagram showing the relationships between the inputs and outputs of this study is included on the following page. The diagram shows inputs in the form of Key Informant Interviews with Lumbee women and Document Review of grey literature relevant to the research. These inputs support the anticipated outcome that is a Plan useful for understanding Critical Factors Targeting Nutrition Communication for Lumbee Women and Recommended Changes related to those Critical Factors.

Figure 1- Diagram for Determination of Plan With Critical Factors and Recommended Changes Targeting Nutrition Communication for Lumbee Women



The Institute of Medicine commented as follows concerning the application of behavioral science theories to health communication: “In health communication intervention programs, behavioral theories provide a framework for identifying the critical factors underlying the performance (or non-performance) of specific health-related behaviors. The more one knows about the determinants of a given behavior, the more likely it is that one can develop an effective communication intervention to reinforce or change that behavior”^{59 (p. 28)}. Target audience characteristics can influence interventions and communication effectiveness²⁶. The IOM comments highlight the need for planners, researchers, and policy makers to incorporate audience specifics into communications to increase the likelihood that health behaviors will positively change⁵⁹.

The input/output diagram for this research provides a framework for input information collected from key informant interviews and review of documents specific to Lumbee women and their nutrition communication needs. Inputs are synthesized into outcomes in the form of critical factors with needed changes related to communication of nutrition information to Lumbee women. The value of these critical factors and proposed changes is that Lumbee women, experts on their own nutrition communication needs, are a key information source.

Recommended changes to critical nutrition communication factors are dependent on findings in interview and document analyses. Potential changes could include the need to address socioeconomic and environmental factors. Policy changes may require new or altered policies for the Lumbee Tribe and other agencies. New collaborations may be required or existing ones expanded. These changes in partnerships and actions by partners can involve the Lumbee Tribe and other agencies or agencies/institutions outside the Lumbee Tribe. Finally,

new or expanded advocacy needs for nutrition communications to effectively target Lumbee women could be required.

The importance of this research is the development of a plan useful for guiding the Lumbee Tribe organization and others in forming collaborations, advocacy efforts, and plans that affect policy, intervention, and ultimately nutrition behaviors engaged in by Lumbee women. The strength of this plan is its reliance on input by the women who are the target audience for the proposed plan.

Chapter 4: Study Design and Methods

This study is a qualitative, descriptive, non-experimental investigation. Using key informant interviews and document review, information was collected to answer two sub-questions that together address the over-arching research question.

Research Question: How should critical factors related to communication of nutrition information to Lumbee women be altered to enable Lumbee women in Robeson County, NC to consume nutritious foods?

Sub-Questions: Firstly, what are the critical factors related to communication of nutrition information to Lumbee women in Robeson County, NC? Secondly, which factors need to change and how should those changes occur?

Table 2- Definitions

Definition Term	Definitions/Source
Lumbee woman	A woman may have a membership card implying descent from persons listed on Lumbee source documents ⁷⁸⁻⁷⁹ . Appendix D is the list of Source Documents. A Lumbee membership card is not required for this research.
Health Communication	“... The crafting and delivery of messages and strategies, based on consumer research, to promote the health of individuals and communities” ^{80 (p. 181)} .
Mass Communication	The same message is delivered to large groups ⁶⁰ .
Targeted Communication	Audiences are separated by key factors but receive the same message ⁶⁰ .
Tailored Communication	Message(s) are designed for an individual ⁶⁰ .
Segmentation	Separating audiences into groups based on shared characteristics ⁶⁰ .
Culture	Culture has been defined in multiple ways with a summary as truths, norms, and interactions shared by a particular group ⁵⁹ .
Culturally Sensitive	“... Targeted health solutions to cultural communities based on the most relevant cultural characteristics of the communities” ^{81 (p. 309)} .
Health Disparity Population	“... Disparity in the overall rate of disease incidence, prevalence, morbidity, mortality, or survival rates in the population as compared to the health status of the general population” ^{82 (p.10)} .

A. Selection of Key Informants

Purposeful selection guided the development of a list of key informants drawn from the population of Lumbee women eighteen years of age or older living in Robeson County ⁸³. Creswell indicates purposeful selection should yield participants who can “... best help the researcher understand the problem and the research question” and “... does not necessarily suggest random sampling or selection of a large number of participants” ^{83 (p. 178)}.

The list of potential key informants was prepared by review of websites and print documents associated with the Lumbee Tribe for names of women who serve or have served in leadership positions or as representatives for the Lumbee Tribe such as pageant contestants,

Lumbee Tribal Council members, or employees of the Lumbee Tribe. There were reviews of websites sponsored by organizations important to Lumbee women in Robeson County including educational institutions, county and local governments, and Robeson County Health Department (RCHD) (<http://publichealth.southernregionalahec.org/robeson/>). Likewise, there was review of the Lumbee Regional Development Association (LRDA) (<http://www.lumbee.org/>) which represented the Lumbee Tribe prior to development of the current Lumbee Tribe organization⁸⁴. The webpage for the AI Women of Proud Nations (AIPWN) (<http://www.aiwpm.org/>) organization that supports AI women's interest and actions for healthy living, strong relationships, and growth of AI women leaders was reviewed⁸⁵. Additionally, the website for Burnt Swamp Baptist Association (BSBA) (www.burntswamp.org) was reviewed⁸⁶. This site also includes information for The Healing Lodge (THL)⁸⁶. THL was established to assist Robeson County inhabitants with issues such as substance abuse⁸⁶. BSBA has seventy churches located mostly in southeastern NC with membership in the churches totaling more than ten thousand⁸⁶. BSBA's members are largely AI and affiliated with NC tribes including the Lumbee⁸⁶. Further, names were added to the list of potential informants based on the researcher's past knowledge of Lumbee women leaders in key positions and organizations in Robeson County including health organizations.

Selection of participants with diverse characteristics such as age, employment/retirement or student status, and leadership affiliations was intended to ensure data would reflect the range of Lumbee women's nutrition communication needs in Robeson County. Additionally, this strategy reduced the risk that the researcher's ideas would bias results⁸⁷. This approach is supported by Patton who recommends triangulation to collect and analyze data to yield "... different aspects of empirical reality"⁸⁷ (p. 1192).

Approximately fifteen interviews were planned after at least three pilot test interviews. Thus, a list of potential informants beyond the target number to allow for those who would decline, prove unreachable, or otherwise be unable to participate was developed. The final list of potential informants held the names of forty-four Lumbee women leaders in Robeson County.

Using this list, the researcher contacted the women to discuss their willingness to participate as key informants in the research. As the researcher progressed down the list of forty-four names, affiliations were repeatedly reviewed and participation commitments sought to ensure the target number of Lumbee women with similar distribution among tribal, lay, and health circles was reached. Also, a broad range of ages was sought using employment, retirement, and student status as a general guide since ages were not known when developing the list nor were ages collected when interviewing participants.

A total of twenty-two women agreed to participate in the research. The first three interviews were used to pilot-test the interview guide. Fifteen other women interviewed and their responses are represented in the results. The remaining four who agreed to participate included one woman who was sick the day of the interview and did not return calls to reschedule. The other three proved to be unable to schedule an interview due to ongoing illness or employment responsibilities.

Eleven other women were contacted or contact was attempted. (Four women declined to be interviewed. Four did not return phone calls or asked on at least three occasions for a call at a later date to discuss the research. The final three women were unreachable due to no working number or no answer at the number listed for them.) Eleven women on the list were not contacted for an interview because the target number of research participants had been reached

prior to calling them. Since phone contact was essential to the recruiting process for this study, women without access to a working phone were not included. The tables below summarize this discussion of potential participants.

I am a Lumbee woman over eighteen years of age living in Robeson County where I am employed as a physician assistant. I realize my insights are valuable to this research, so I include narrative self-reflection when appropriate and clearly note these inclusions as my ideas ⁸³.

Lumbee women live across NC and other areas of the US. In an effort to complete the proposed research in a timely manner and reduce travel requirements for participants, women living in Robeson County were the target audience.

The tables below summarize this discussion of potential participants.

Table 3- Profile of Potential Informants by Affiliation

Affiliation	Number	Percent
Tribal	19	43
Lay	11	25
Health	14	32

Table 4- Profile of Potential Informants by Employment Status

Employment Status	Number	Percent
Employed	29	66
Retired	9	21
Student	1	2

Unknown	5	11
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Table 5- Profile of Potential Informants by Marital Status

Marital Status	Number	Percent
Married	22	50
Single	4	9
Widow	2	5
Unkown	16	36

Table 6- Profile of Potential Informants by Motherhood Status

Motherhood Status	Number	Percent
Children	32	73
No Children	2	5
Unknown	10	23

Table 7- Profile of Potential Informants by Interview Status

Interview Status	Number	Percent
Interviewed	15 (& 3 Pilot Test)	41
Agreed-Not Scheduled	4	9
Declined	4	9
No Decision	4	9

No Phone Number	3	7
Not Contacted	11	25

B. Selection of Documents for Review

To add scope and depth to the systematic review conducted with peer-reviewed sources, a review of grey literature was added. Documents both published and unpublished with relevance to the research topic were reviewed. Potential documents included articles by researchers who have studied Lumbee tribal members. Additionally, there was a search for relevant documents associated with health conditions such as cardiovascular disease. Also, documents identified during interviews with key informants were considered. Examples of program documents reviewed are *The American Indian Healty Eating Project* at UNC Chapel Hill (UNC-CH), *The Native Proverbs 31 Health Project* by the Maya Angelou Center for Health Equity at Wake Forest School of Medicine (WFSM), and *Native Foodways* events held at UNC-Pembroke (UNCP) ⁸⁸⁻⁹³.

C. Data Collections

1. Key Informant Interviews

Data were collected via interviews conducted with fifteen Lumbee key informants. Interviews were held at sites which were convenient for informants and allowed for private discussions. With the agreement of key informants, interviews were audio recorded ⁹⁴. Each session was transcribed using smooth verbatim (included all words except those such as “um” or “ah”) by a hired transcriptionist ⁹⁴⁻⁹⁵. After receiving the transcribed interviews, each audio-taped interview was compared to its associated document to verify transcription accuracy.

Additionally, field notes were taken for back up ⁹⁴. Transcripts were read, looking for patterns and the findings were organized by themes using MAXQDA 11 analysis software produced in Berlin, Germany ⁹⁶.

Key informants were interviewed using an interview guide containing open-ended questions with probes ⁹⁴. The guide was pilot tested after IRB approval with a plan to modify if indicated ⁹⁴. It was noted after pilot testing with three informants purposefully selected from women similar to the target population that questions were understandable, yielded informative answers, and the interview guide could be completed in the allotted time. Thus, no changes were made to the interview guide ⁸³.

There were few past studies with Lumbee women related to nutrition or communication. Yet, the existent literature reviewed at the onset of this research was helpful in developing questions for the interview guide. The paucity of nutrition communication research with Lumbee women prompted development of questions to understand informants' past experiences with nutrition communication. A previous study with Lumbee and EBCI tribes pointed to the potential for culture to influence research ²⁶. Thus, interview questions were included to understand what is needed for Lumbee women to feel nutrition communications are culturally appropriate and targeted toward them. Due to the report that tribal leaders are important supportive factors for AI women interested in changing health behaviors, questions were included to understand which organizations are most important to effectiveness and how they should be involved in nutrition communications for Lumbee women ⁵³. The literature also showed that socioeconomic issues are necessary considerations for effective health communication and nutrition behavior changes therefore questions were included to understand these aspects of nutrition communication for Lumbee women ⁶³. Finally, informants were asked

to share published and unpublished documents they have written related to this research. A copy of the interview guide is included as Appendix C.

During an initial telephone call to potential informants, the researcher was introduced as a doctoral student at UNC-CH. With their permission, the information sheet outlining the proposed research was read to them verbatim. The information sheet is included in the appendices as Appendix A and titled, “*Description and Telephone Contact Regarding Research with Lumbee Women about Critical Factors in Nutrition Communication*”. Potential informants were told they had been contacted because they have information considered valuable to this research; identities would be kept confidential by the researcher; and that interviews would last approximately 45 minutes⁹⁴. Potential informant questions were answered and they were asked their willingness to participate as key informants in the research.

If a woman chose to participate, a date and site conveniently located and also affording confidential interviewing was agreed upon. Participants were advised to expect a reminder call within three days of the planned interview. If a woman chose not to participate, she was thanked for her time and no further contact was made related to the proposed research.

Prior to beginning each interview, participants read or had the researcher read to them a description of the research which they signed to attest informed consent and agreement to participate⁹⁴. A copy of this form noted as Appendix B is included in the appendices.

When the dissertation is complete and accepted by the UNC Graduate School, audio recordings will be destroyed within six months. Prior to that time they will be stored in a locked container in the researcher’s home.

2. Document Review

Data were collected from literature review of published and unpublished documents (grey literature) such as articles, reports, studies, and program materials with pertinence to the research question and sub-questions.

D. Inclusion/Exclusion Criteria

Only women who identified themselves as Lumbee tribal members 18 years of age or older living in Robeson County were included in the research. The researcher personally contacted potential participants by phone. Thus, women without phones were not included as participants in this research. Likewise, if a woman indicated in the initial phone contact that she was not interested in discussing the planned research or if she indicated that she was not willing to participate in the research after it was explained to her, then she was excluded from any future contact concerning the research.

E. Costs

Participants were asked to attend interviews in a setting where discussions could remain confidential. A site convenient for each interviewee was chosen. Still, there were potential participant costs such as those related to time and transportation. Informants were not compensated for potential costs related to study participation.

F. Analysis Plan

Transcripts of informant interviews and documents found as part of the grey literature search were reviewed for themes. Themes were determined based on repetition and degree to which a comment or point provided valuable understanding of the research topic⁹⁴. Krueger

cautions that the insight provided by a comment or the value it holds is not reflected by the number of times it is mentioned by participants⁹⁴.

Once themes in interviews and documents were determined, they were compared for similarities and differences. If contradictions were found, there were attempts to reconcile them. If reconciliation of contradiction(s) was not possible, comments regarding the contradiction were included in the final write up of findings. Narratives and tables were prepared indicating themes. The final plan reflects a synthesis of themes from interviews and documents.

G. IRB, Informed Consent, Confidentiality, Ethics

An application was submitted to the UNC Institutional Review Board. A representative of the Lumbee Tribal government indicated a separate IRB application is not required for tribal approval. However, the Lumbee Tribal Council was informed of the plan to conduct research focusing on nutrition communication with key informants from the Lumbee Tribe. Research began after approval was received from the UNC Institutional Review Board. Prior to conducting each interview, potential participants read or the researcher read to them an Informed Consent form which each participant signed indicating their voluntary agreement to participate. Participants' identities remain confidential.

Chapter 5: Findings

This chapter presents findings for the review of key informant interviews and documents found in sources (grey literature) other than peer reviewed journals. The findings are presented as they relate to the research question and sub-questions for this study.

A. Key Informant Interview Descriptive Analysis

Informants in this research represent leaders among Lumbee women in Robeson County. They have characteristics that range from single, university student to women who are married with children and women who are retired. One informant was a widow at the time of this research. It is expected that the participants' personal insight paired with their leadership experiences will provide valuable understanding of needed changes to encourage Lumbee women to consume nutritious foods. Informants were similarly divided among tribal, lay, and health affiliations. Most of the participants were married but two were single and one was widowed. The majority of interviewees were currently employed with a small number having retired and one enrolled as a university student. The majority of the participants were mothers. Tables 8-11 provide profiles for informant characteristics. These tables do not represent pilot test participants.

Table 8- Key Informant Profile by Affiliation

Affiliation	Number	Percent
Tribal	6	40
Lay	4	27
Health	5	33

Table 9- Key Informant Profile by Employment Status

Employment Status	Number	Percent
Employed	10	67
Retired	4	26
Student	1	7

Table 10- Key Informant Profile by Marital Status

Marital Status	Number	Percent
Married	12	80
Single	2	13
Widow	1	7

Table 11- Key Informant Profile by Motherhood Status

Motherhood Status	Number	Percent
Children	13	87
No Children	2	13

B. Emergent Themes

Analyses of key informant transcripts were organized into themes. These themes are important to understanding the critical factors and necessary changes regarding effective nutrition communication measures for Lumbee women. The themes and descriptions are listed in Table 12.

Table 12- Themes in Key Informant Interviews

Themes	Description
Need for Nutrition Communication Change Exists	Lumbee women say changes are needed for effective nutrition communications.
There are Critical Factors that Influence Nutrition Communication for Lumbee Women	Lumbee women say there are critical factors that will encourage them to consume nutritious foods.
Lumbee Women are Leaders Who Need Formal Leadership and Nutrition Communication Training	Lumbee women report leadership and nutrition trainings will encourage them to fully engage in nutrition communication changes. These trainings will involve women across levels of leadership experience.
Local Church and Family are Important	Lumbee women's value for family and the local church can support or challenge effective nutrition communication.
The Lumbee Tribe Organization Should Lead Nutrition Communication Change Efforts.	Lumbee women say the Lumbee Tribe organization should serve as the lead agency for nutrition communication change efforts.
Collaborations Are Valued by Lumbee Women	Informants say collaboration is important for effective changes in nutrition communication.
Socioeconomic and Contextual Changes are Needed	The Lumbee Tribe organization should seek contextual and socioeconomic changes to critical nutrition communication factors.
Lumbee Culture is Important for Effective Nutrition Communication	It is important to communicate nutrition information in a culturally relevant manner and setting via trusted sources.

Policies in Work Environment are Important	Employers can aid policy change for effective communication of nutrition information.
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Themes are organized into a discussion that addresses the sub-questions and over-arching question in this study. Thus, results are directed toward understanding factors that are critical for effective communication of nutrition information to Lumbee women; whether factors need to change; and how recommended changes should occur. Comments by key informants are included to emphasize key points. Finally, since I am a Lumbee woman residing in Robeson County and a member of the targeted informant group, I will share my insights as a participant observer⁹⁷.

C. Key Findings for Informant Interviews

Key Findings 1: Lumbee women issue a powerful call for changes regarding critical factors that promote effective communication of nutrition information to Lumbee women in Robeson County.

Lumbee women are the experts when considering the effectiveness of the current state of nutrition communications intended to influence dietary behaviors of Lumbee women. They report few past experiences with agencies interested in communicating nutrition information to Lumbee women. In fact, one informant reports she has no past knowledge of agencies communicating nutrition information to Lumbee women. Collectively, Lumbee informants issue an urgent call for nutrition communication changes. They report concerns for the growing burden of diet-related chronic diseases as motivating reasons to develop effective nutrition communication policies, plans, and interventions. Study informants' call for change is a strong voice indicating the existent state of nutrition communication is not effective in their experience.

Lumbee women also suggest corrective measures that will require their participation. These two points are insightful because these informants point to shortcomings while indicating their willingness to become involved in effective change efforts. Given this advice flows from the target audience, it can be viewed as culturally relevant and useful.

Well, nobody has ever specifically communicated, as far as I know, to Lumbee women about nutrition. (Key Informant-Lay Person)

We need to start working with families and working with elders and saying okay listen, our heart – we need to get that information out of the types of diseases and what type of affect it's having on our community, especially the food that we prepare and ingest and serve to our families. I think that's something that people need to really work on. I don't know how we're going to do it but I think it's something that needs to be done. (Key Informant -Tribal Affiliation)

Key Finding 2: There are critical factors that influence the effectiveness of nutrition communications aimed at Lumbee women.

Analysis of interviews shows an agreement by Lumbee women that there are critical factors that impact the effectiveness of nutrition communications. These factors include the need for collaborators, agencies, and individuals to demonstrate value for Lumbee culture. This demonstration would include traditional foods and language in nutrition communication, while considering family dynamics and the role of the church.

Lumbee women are reportedly valued as information sources by other Lumbee women. Thus, informants advise Lumbee women should serve as communicators of nutrition information to Lumbee women. However, there is a reported need for Lumbee women to bolster their leadership skills and understanding of nutrition through training opportunities. Participation in trainings and in nutrition communication change efforts by Lumbee women could signal to others that change efforts are important and measures should be applied.

The Lumbee Tribe organization is indicated as the most appropriate agency to lead nutrition change efforts. These efforts should reportedly include promotion of collaborative approaches to contextual and socioeconomic issues affecting nutrition communication effectiveness for Lumbee women. Further, informants say leaders in the Lumbee Tribe organization and local churches should model support of nutrition communication change measures.

Lumbee women connect with Lumbee women... (Key Informant-Tribal Affiliation)

Policy should be in our areas of heart disease, diabetes centers. When they hand out materials to Lumbee ladies, those materials should be relevant. It shouldn't be the mass materials because they're not helpful. Plus, there should be policies that when a nutritionist gives information to patients in hospitals or diabetes centers that they explain this information in a one on one because it will not change until we reach the most uneducated person... (Key Informant-Medical Affiliation)

Table 13- Key Informant Report of Factors for Effective Nutrition Communications

Critical Factor	Informant Reasons for Factor	Supporting Comments by Lumbee Informants
Involvement of Lumbee Women	Lumbee women's insights are valuable for planning, policy-making, and implementation. Lumbee women are viewed as trusted communicators.	<i>Lumbee women connect with Lumbee women...</i>
Value Lumbee Culture	Language incorporation Traditional foods included Family dynamics considered Church role considered	<i>...Come into our community and see the foods that we eat, and then give us some examples of how to eat that food.</i>
Involvement of the Lumbee Tribe organization	Lead change efforts Collaborate Role model	<i>The tribe should be, of course, at the forefront...</i>
Key Partners Collaboratively Address Issues	Key agencies collaborate Address issues Lumbee Tribe organization leads collaborations	<i>...So if we can get our nutritionists at the hospital, our cooperative extension, our diabetes community center,</i>

		<i>our Lumbee tribe, if we can all collaboratively come up with material or write some material that are indigenous to Lumbee Indians, it would be so beneficial in 20 years down the road because it would change our eating habits.</i>
Involvement of the Local Church	Collaborate Supportive church policies Leaders model change	<i>They may have a dinner and some of their foods may taste a little different than what it typically tasted like. People are going to ask questions – well what did you do differently? I think that that’s a way to spread the information out and then if you get your church leaders involved, our people really respect those church leaders.</i>
Socioeconomic Issues	Jobs creation Improved wages	<i>...Everybody needs an education but once they get that education, where are they going to go? They’re going to have to go somewhere else to live a better life or they could just stay here and take a lower paying job.</i>
Contextual Issues	Restaurant sign, menu changes Grocery store price, shelving changes Farmers Markets Locally grown foods	<i>I think every restaurant should have the calorie content. This thing where they just put a little feather for light and whatever, that’s not enough information. They need to know the exact calories. Education is knowledge, and knowledge is power.</i>

Key Finding 3: Lumbee women are leaders who need leadership and nutrition communication training that empowers them to lead nutrition communication change efforts directed toward Lumbee women.

Lumbee women hold positions of leadership in families and other organizations according to key informants in this study. However, Lumbee women report they need to strengthen their leadership skills and broaden their understanding of nutritious food choices and healthy food preparation methods. Informants collectively say these goals can be achieved through leadership training sessions and nutrition and healthy cooking programs. Likewise, an organized program that identifies Lumbee women who possess leadership experience and insight for successful navigation of nutrition communication obstacles is proposed. These women would serve as mentors for other Lumbee women.

Women say issues related to family dynamics must be addressed. Examples of family challenges include children's preferences, extended family peer pressure for traditionally prepared foods, and anticipated objections to changes from male family members. A suggested measure to overcome challenging family dynamics is training sessions that specifically target this issue. These sessions would include opportunities for women to anticipate objections then discuss and plan their own potentially effective reactions. It was suggested that Lumbee women be equipped with strategies which guide them to draw family members into decision-making regarding changes to family food policies, recipe alteration, and reduction or discontinuance of fast food consumption.

... We need to prepare women when they get this information and want to go home and they want to do it and they want to cook healthy and they want to, you know, they need to be able to know how they're going to respond. (Key Informant-Tribal Affiliation)

I've noticed that Lumbee people are quiet, and they're fearful, well not fearful, but they just don't want to speak out, and a lot of times they're very reserved, but if you put them

in with someone or partner them with an individual that they feel comfortable with, I think they could help actually write the materials with you. (Key Informant-Medical Affiliation)

Key Finding 4: Lumbee women’s high regard for family and the local church supports or challenges changes for effective nutrition communication measures.

Multiple interviewees indicate the family unit is very important to Lumbee women.

Informants mentioned the word “family” frequently across all survey questions.

...For some reason we always put everybody else first. (Key Informant-Tribal Affiliation)

Informants report Lumbee women’s ability to apply nutrition-related changes in the home can be tempered by family resistance. Multiple informants report that nutrition communications directed toward Lumbee women should connect to their tendency to focus on family’s needs and preferences. Thus, informants suggest message points regarding family health will attract Lumbee women’s attention and willingness to apply and communicate nutrition information.

They get involved if it’s impacting their family. (Key Informant-Tribal Affiliation)

...A child that I was responsible for, made the difference... I really did follow those guidelines...(Key Informant-Tribal Affiliation)

Multiple informants say there is a need for cookbooks that include healthy versions of traditional recipes with Lumbee-specific language and images. A few women propose these cookbooks as strategies for dealing with family objections to food changes.

Informants indicate older Lumbee women are key proponents of nutrition communication change since family members highly esteem matriarchal advice. Older Lumbee women are leaders in family groups due to their positions as role models and mentors. Reportedly,

matriarchal support of change can promote willingness by other women to partner in nutrition communication changes. Further, older women's matriarchal authority may overcome opposition from male family members. The cautionary point was made that without older Lumbee women's support, nutrition communication change will be a challenging venture.

...Nutrition, it needs to be something I think that women will respond to and I think the way that they will respond to that is through our elders, through our women. (Key Informant-Tribal Affiliation)

Church was reported by a majority of informants as an important element in the lives of Lumbee women. When discussing which agencies should be involved and how to communicate nutrition information to Lumbee women, the local church was a resounding element in informant answers.

Informants report Lumbee women have busy lives organized more for the benefit of their family and church than for themselves. Informants say church attendance is highly regarded and a common activity for many Lumbee women. Church attendance draws them to an appointed place and time. Reportedly, this frequent gathering designates local churches as a critical factor for effective nutrition communication changes. Further, local churches have pre-existing media outlets and organized groups that can incorporate and lead nutrition communication changes.

The churches if they use some outside organizations to bring in nutritional classes, they could impact because you've got large congregations of Lumbee women that go to traditional Lumbee churches and you have a meeting place. You have people that are familiar with each other and then they could mentor each other if they were in a group. (Key Informant-Lay Person)

I mean, if you're there on Sunday and Wednesday night and other events then it's a frequent event in your life, and food is always a frequent event. (Key Informant –Tribal Affiliation)

Informants advise that support by local church leaders is critically important to encouraging Lumbee women to lead changes regarding nutrition communication. Church leaders are viewed as spiritual authorities who relay information that is true and valued. Thus, church leaders' support for effective changes in nutrition communication can promote acceptance by those who may otherwise display opposition. Likewise, there is concern that Lumbee women may feel guilty due to unhealthy dietary behaviors. It is suggested that messages and actions of church leaders are key to allaying potentially negative feelings.

We do activities all the time that's geared around healthy lifestyles at church because I think there's something to be said about if we live healthy and we worship healthy....
(Key Informant-Tribal Affiliation)

They may have a dinner and some of their foods may taste a little different than what it typically tasted like. People are going to ask questions – well what did you do differently? I think that that's a way to spread the information out and then if you get your church leaders involved, our people really respect those church leaders. (Key Informant-Tribal Affiliation)

And I think we should learn to eat without guilt because I think when we eat stuff we shouldn't be eating or we overeat, I think a lot of guilt comes with it and that stresses us into eating even more so we need to eat more comfort food...and I think a lot of that's because of the churches and that whole idea of not being taught moderation. (Key Informant-Tribal Affiliation)

Key Finding 5: The Lumbee Tribe organization should lead efforts to develop, promote, and model effective changes in nutrition communication for Lumbee women.

When asked who should be involved in communicating nutrition information to Lumbee women, most interviewees named the Lumbee Tribe organization.

The tribe should be, of course, at the forefront. (Key Informant-Tribal Affiliation)

Informants' reasons the Lumbee Tribe organization should lead nutrition communication change efforts include experience as a collaborative partner in efforts to improve health metrics for tribal members. Likewise, informants advise the tribal offices in Pembroke with its administrative leaders and support staff provides organizational resources that can be leveraged to aid nutrition communication measures for Lumbee women. Another asset of the Lumbee Tribe organization per interviewees is the Tribal Council and its committees. Specifically, the Tribal Council's health committee is recommended as useful for policy development regarding nutrition communication.

The Lumbee Tribe organization reportedly has the capability to target specific audiences of Lumbees using automated calling and newsletters. Informants report these communication delivery systems afford the Lumbee Tribe organization the ability to develop and implement strategies that reduce nutrition communication obstacles.

The need to encourage data collection by health systems in NC, which identifies AI women by Tribe, was not frequently mentioned but is an important proposed initiative for the Lumbee Tribe organization. These data per informant report can prove helpful for understanding health trends of AI women in NC.

As a participant observer, I agree there is a need for health agencies to enter tribal membership into electronic health records⁹⁷. Including tribal affiliation in records with diagnoses codes would aid researchers, planners, and others interested in NC AI statistics for diagnoses and outcomes related to nutrition. This information would afford a clearer picture of nutrition-related health care costs for this group that includes Lumbee women. Further, collecting tribal data in health records shows differences among tribes regarding disease

occurrence, progression, and outcomes. Finally, knowing the diseases afflicting AIs in NC and associated costs focuses attention and planning toward effective nutrition communication for AIs in NC that will in turn affect Lumbee women in Robeson County.

Key Finding 6: Collaborations are potentially important effectors of change for nutrition communications targeting Lumbee women.

Lumbee women informants say collaborations among key partners are critical factors in effective nutrition communication. Informants report important collaborative partners are willing and able to cooperate to render effective nutrition communication change efforts directed toward Lumbee women in Robeson County. Lumbee informants named multiple agencies with which to partner. The proposed agencies represent many aspects of Lumbee women’s lives. The agencies and sectors they represent are included in Table 14. The agencies are: the Lumbee Tribe organization, LRDA, UNCP, local churches and associations, THL, NC Cooperative Extension-Robeson County, area hospitals, local healthcare providers, RCHD, Robeson HealthCare Corporation (RCHCC), Robeson County Department of Social Services (RCDSS), community colleges, local restaurants and grocery stores, UNC-CH, WFSM, NC Office of Minority Health and Health Disparities, and the NC Commission on Indian Affairs.

Table 14- Agencies Important for Effective Nutrition Communication to Lumbee Women

Sector	Informant Report of Agencies
Tribe	Lumbee Tribe organization LRDA NC Commission on Indian Affairs
Faith	THL Local churches and associations
Education	UNCP Community colleges UNC-CH

	WFSM
Health Public & Private	RCHD NC Office of Minority Health Local health providers Area hospitals RHCC
Public Services	RCDSS NC Office of Cooperative Extension-Robeson County
Food Industry	Local restaurants Local grocery stores

In discussions of actions agencies can undertake for nutrition communication efforts, informants repeatedly said there is a need for commitment to dissemination of culturally relevant and understandable information. One informant suggested a Lumbee-specific cookbook. Another informant noted the potential for collaboratively prepared materials to influence Lumbee women’s future dietary behaviors.

Maybe develop a little cookbook that’s just for our culture, for our recipes and things that we do that we probably eat a lot of maybe that we could make more healthier and they’ve been tried and tested and more than a few people like it. (Key Informant-Medical Affiliation)

...So if we can get our nutritionists at the hospital, our cooperative extension, our diabetes community center, our Lumbee tribe, if we can all collaboratively come up with material or write some material that are indigenous to Lumbee Indians, it would be so beneficial in 20 years down the road because it would change our eating habits. (Key Informant-Medical Affiliation)

Key Findings 7: The Lumbee Tribe organization should partner and collaborate with towns, local businesses, and policy makers with the goal of influencing contextual and socioeconomic changes for effective nutrition communication.

A majority of Lumbee women advise that the Lumbee Tribe organization should partner with grocery stores and local restaurants to influence policy changes by local food industry members. Most informants report grocery stores need policies that result in coding and shelving

which clearly and quickly guides Lumbee women as they scan shelves and displays for healthy foods. They suggest color codes or stars that designate potential choices by degree of health benefit. Shelving should allow patrons to view product information at eye-level. They call for signage indicating the origin of foods, which draws attention to locally grown healthy foods. Further, informants report local grocery stores should support their desire to consume healthy foods by sponsoring promotional sales or developing ways to reduce the cost of healthy food choices. Likewise, they request opportunities to taste test healthy foods prior to purchase.

...Samples of things of how things can be cooked and cooking and how you can make it taste better, what herbs you can use versus just using salt. (Key Informant-Medical Affiliation)

...If they had it posted, say they had it posted near where the price is at on the outside of the aisle or on the outside where the price is located...they had a little insert or something that you can visibly see so when you're looking and you're comparing prices, why not compare nutritional value? I could do that. I would do that... (Key Informant-Tribal Affiliation)

Another routine effect that informants say the Lumbee Tribe organization can enact via collaboration and encouragement of policy-setting by business owners is labeling and menu changes in local restaurants. Nearly all informants report local restaurants need to clearly communicate the nutritional content of items on menus and signs, regardless of whether it is a sit-down or drive-through venue. They advise this information will empower Lumbee women to choose healthy items for themselves. Further, they report these menus and signs would provide information they can use to influence the food choices of others. Lumbee women informants say menus need multiple healthy options clearly noted, complete ingredient lists, amounts of fat/sugar/sodium, and portion size information.

I really wish that the requirement was that the calories or the fat grams was out there on that monitor because you go through the drive through to get your food and you have no idea how many calories, how many fat grams. (Key Informant-Tribal Affiliation)

We can get restaurants to stop smoking inside of a restaurant because it's unhealthy. I think they should put the information on whatever they're serving. (Key Informant Tribal Affiliation)

I think every restaurant should have the calorie content. This thing where they just put a little feather for light and whatever, that's not enough information. They need to know the exact calories. Education is knowledge, and knowledge is power. (Key Informant-Medical Affiliation)

Nearly half of informants report that using modes of communication that are routine elements in Lumbee women's lives are the best ways to disseminate messages for effective nutrition communication. A number of the proposed communication channels involve the Lumbee Tribe organization directly. Informants say the Lumbee Tribe organization can aid information dissemination through its automated calling system, tribal newsletters, and public service announcements during local television programs. Other proposed communication channels include use of social media, church newsletters, and local newspapers.

It would be nice if somebody could write a weekly little thing to go in the newspaper...(Key Informant-Lay Person)

Identifying vehicles that are already there that are already present that's reaching our Indian women so that no one has to recreate the wheel and those women would be more inclined to respond. (Key Informant-Lay Person)

Critical socioeconomic changes that impact effectiveness of nutrition communication for Lumbee women include the creation of jobs and increased wages. Many informants say cost of healthy foods is an obstacle for Lumbee women and families. They say the Lumbee Tribe organization should actively seek partnerships that address these issues. Informants report that

more jobs, better paying jobs, and nutrition training can influence willingness and ability to incur the greater costs associated with healthy foods.

I mean if you can't afford lean, healthy meats, what other options do you have? You've got to think about the economics of the people. (Key Informant-Medical Affiliation)

...Everybody needs an education but once they get that education, where are they going to go? They're going to have to go somewhere else to live a better life or they could just stay here and take a lower paying job. (Key Informant-Tribal Affiliation)

Multiple women discussed the need for accessible, locally grown fruits and vegetables. They felt the Lumbee Tribe organization can lead policy change and collaborative efforts resulting in built infrastructure by towns and agencies to locate farmers markets near venues that Lumbee women frequent. Proposed sites for farmers markets are the Robeson County Department of Social Services (RCDSS) in Lumberton, NC and the most traveled areas of Pembroke.

Further, there is a call for improved sidewalks and parking in towns to increase accessibility to farmers markets. Lumbee women say that improved accessibility and increased availability of farmers markets will encourage others to purchase locally grown fruits and vegetables. Informants report that increase of opportunities to sell locally grown products will spur a return to gardening as food sources for families and as supplemental income streams.

If we had a farmers market sitting here in Pembroke, it would do well. (Key Informant-Tribal Affiliation)

Informants said the Lumbee Tribe organization is an entity able to lead contextual and socioeconomic changes that promote effective nutrition communication efforts directed at Lumbee women. According to informants this could require collaboration(s) between the

Lumbee Tribe organization and policy makers in towns, local business owners, and church leaders.

As a participant observer, I agree that collaboration between the Lumbee Tribe organization and the local food industry is critically important⁹⁷. A point that should encourage the Lumbee Tribe organization to seek these collaborative ventures is the opportunity to establish the Lumbee Tribe as a role model for other AI tribes interested in effective changes to public health issues⁹⁸.

Key Findings 8: Lumbee women report it is important to communicate nutrition information to Lumbee women in a culturally relevant manner and setting via trusted sources.

Lumbee women informants indicate communications regarding nutrition need to be delivered by or in settings connected to the Lumbee Tribe. Examples of communicators and settings are Lumbee women, family members, tribally sponsored events, or non-tribal events promoted or supported by the Lumbee Tribe organization. Informants also say communication materials should include images of Lumbee women and information relayed with speech patterns that directly reflect most Lumbee women.

We would have to have a local person or local people to disseminate this information in a public way. (Key Informant-Lay Person)

...Like to have that kind of opportunity in a group experience to learn about cooking, maybe learning to read more and understand about what the nutritional label means...(Key Informant-Medical Affiliation)

I think as a Lumbee women it would take somebody that knows more about our culture, the things that we're eating on a daily basis, the things that we prepare...(Key Informant-Medical Affiliation)

Lumbee women informants report cultural events are potentially useful sites for nutrition communication efforts. However, informants also repeatedly note the need for policies that require food vendors to offer healthy foods at cultural events. This policy would reportedly require that event vendors offer fruit, vegetables, water, and healthy versions of traditional recipes. Further, vendors would promote healthy options in appealing manners to potential patrons. Informants say this tribal event policy would lead the Lumbee Tribe organization to develop measures that ensure that communications about nutrition are mainstays at events.

...The tribe could make sure that it had a booth that they could pass out flyers on nutritious foods...(Key Informant-Tribal Affiliation)

It would be interesting to have an available salad bar or something like that...(Key Informant-Medical Affiliation)

Have some of the farmers to go in and maybe be able to sell some of their produce...(Key Informant-Medical Affiliation)

There's nothing healthy at these cultural Indian events. We need to teach them to create something that's not only nutritionally valuable, but it tastes good so that people will want to prepare it and sell it, and you can do that. (Key Informant-Medical Affiliation)

Further, Lumbee women informants say the Lumbee Tribe organization should develop policies that require tribal administrators and staff to model healthy dietary behaviors when serving as tribal representatives.

...If we want to really, really make a difference, we've got to practice what we're attempting to preach. (Key Informant-Tribal Affiliation)

A final point concerning cultural relevance was previously discussed. Informants strongly feel changes are needed but traditional foods must remain a valued part of proposed changes. Many informants report a key point for effective changes is for others to observe usual

food selections and become familiar with Lumbee traditional recipes before recommending dietary changes to Lumbee women.

...Come into our community and see the foods that we eat, and then give us some examples of how to eat that food. (Key Informant-Medical Affiliation)

Key Finding 9: Employers are important supporters of policy change for effective communication of nutrition information to Lumbee women.

Informants report employers can institute vending policies that include healthy food such as fresh fruit. In fact, vending is the most cited needed change in work place conditions. A few informants said work places should ban unhealthy foods in work place environments.

Informants provide suggestions that work places could use to promote nutrition communication. These suggestions include provision of healthy foods at reduced costs and incentives for eating healthy foods.

...Healthy options in those vending machines...(Key Informant Tribal Affiliation)

...A lot of places are banning cigarette smoking and things like that. Why not ban unhealthy foods? (Key Informant-Tribal Affiliation)

Nutrition is not thought about. I like, and that's across the board, vending machines, anything that is in the area that is food related should have some type of health message. (Key Informant-Medical Affiliation)

D. The Necessity for Realizable Change

It is important to understand critical factors and develop policies for realizable changes to nutrition communications for Lumbee women. There is an urgent need for collaborations that have valuable insight into Lumbee women's nutritional choices. Most critical in these collaborations is inclusion of the Lumbee Tribe organization and Lumbee women. Lumbee

women can inform collaborations and policy-makers about the paucity of present efforts, lack of Lumbee-specific materials, and need for further Lumbee-specific nutrition communication research. Lumbee women and the Lumbee Tribe organization can instigate agency partnerships to bring resources and power to bear upon infrastructure and policy needs as suggested by informants.

E. Descriptive Analysis of Documents

The search for documents began with review of the Lumbee tribal website and meetings with tribal government representatives to discuss the research and need for relevant documents. This was followed with an online review of agencies, programs, and interventions listed on the tribal website and in tribal print materials. Examples of agencies and programs reviewed include RHCC, the American Indian Healthy Eating Project (AIHE) sponsored by UNC-CH⁹¹, and Healthy Native North Carolinians⁹⁹. National and NC sites like the Centers for Disease Control and Eat Smart Move More NC decrease the risk of inadvertently omitting documents.

There were emails, phone calls, and in-person discussions with agency representatives to learn of potentially useful documents. Examples of contacts include administrative members of Southeastern Health (area hospital), a cardiologist and a cardiovascular/thoracic surgeon with Duke Cardiology and Cardiovascular Surgery of Lumberton. There was a meeting with an LRDA representative. Select researchers whose studies included Lumbee tribal members and a health administrator for a private non-profit federally qualified health center in the county were also contacted. Additionally, during interviews, informants were asked if they were aware of relevant documents.

Eighteen documents were accepted into this review of grey literature. Table 15 provides a summary of potential document sources. Table 16 lists researchers and experts contacted while Table 17 indicates the number of accepted documents by sector. The media sector includes a cookbook authored by a tribal member and recommended by an informant. No documents were found for public services, health (public or private), or faith sectors. However, multiple accepted documents had relevance to other sectors. For example, the Native Proverbs 31 Health Project documents referenced THL and a tribal newsletter quoted a local church leader^{93, 100}.

Table 15- Sources Reviewed for Potential Documents

Sectors	Agency
Tribe	Lumbee Tribe organization LRDA NC Commission on Indian Affairs NC AI Health Board AIWPN
Faith	THL Local church associations
Education	UNCP (News, AI Studies, School of Nursing, Native American Resource Center) Community colleges UNC-CH (AI Center, Center for Health Promotion/Disease Prev, Center for Diabetes Translational Research) Appalachian State University-The Lumbee Indians Annotated Bibliography ¹⁰¹ WFSM-Maya Angelou Center for Health Equity
Health (Public & Private)	RCHD NC Office of Minority Health Southeastern Health RHCC Duke Clinical Research Institute Mayo Clinic (Spirit of Eagles) Robert Wood Johnson Foundation Eat Smart Move More NC NC Dept Health and Human Services NC Prevention Partners Centers for Disease Control

Public Services	RCDSS NC Office of Cooperative Extension-Robeson County Robeson County website Town of Pembroke website
Media	Local newspaper archives Books by local AI authors

Table 16- Experts Contacted for Potential Documents

Activity	Expert
Researcher	Dr Ronny Bell (WFSM, Director, Maya Angelou Center for Health Equity) - Serves as Advisor for this study
Researcher	Dr. Cherry Beasley (UNCP School of Nursing)
Administrator	Dr. Thomas Maynor (RHCC)
Physician	Dr. Terry Lowry (Duke Heart Center, Southeastern Health)
Researcher	Dr. Sheila Fleischhacker (NIH/Led AIHE UNC-CH)

Table 17- Documents Useful for Study

Sectors	# of Articles	Agency
Tribe	6	Lumbee Tribe organization LRDA
Education	10	UNCP (News) UNC-CH (AIHE) WFSM-Maya Angelou Center for Health Equity
Media	2	Book by tribal member Magazine by tribal member

F. Emergent Themes

The documents selected into the review were analyzed for themes then organized into findings to address the research and sub-questions for this study. The discussion of document findings points to critical nutrition communication factors with needed changes and proposed change efforts that encourage Lumbee women to consume nutritious foods. Table 18 lists themes that emerged in the analyses of documents.

Table 18- Emergent Themes in Documents

Themes	Description
There are key agencies for effective nutrition communication aimed at Lumbee women ^{9, 84}	The Lumbee Tribe LRDA Faith Community
The Lumbee Tribe organization and non-tribal agencies are concerned about the health of Lumbee tribal members ^{91, 102}	Lumbee Tribe organization and other agencies are interested in Lumbee tribal members’ health.
The local church has partnered to support health innovations in the past ¹⁰⁰	The local church has supported health change efforts with positive results.
There are methods of communication useful for nutrition communication targeting Lumbee tribal members ^{100, 103-104}	The Lumbee Tribe organization and other agencies communicate with tribal members utilizing materials designed for Lumbee tribal members.
Lumbee Women are Leaders ^{88, 100}	Lumbee women are leaders and key to effective nutrition communication changes.

G. Key Document Findings

Key Finding 1: The Lumbee Tribe organization and LRDA are key agencies with a history of collaboration and representation of Lumbee tribal members.

A review of documents reveals there are two key entities which collaborate, disseminate information, and are keenly interested in the health of Lumbee people ^{9, 84}. The Lumbee Tribe

organization leads efforts to gain federal recognition for the Lumbee Tribe which would bring health and other benefits not currently available for tribal members (as a state recognized tribe the Lumbee do not qualify for federal benefits)⁹. The Lumbee Tribe organization has a history of collaboration and partnership with other agencies to reduce the incidence of conditions/diseases including obesity and cancer¹⁰⁵. Available documents reveal the Lumbee Tribe organization has collaborated in the past with agencies/institutions which include UNCP, NC Cooperative Extension-Robeson County, other NC tribes, the NC Commission on Indian Affairs, UNC-CH, NC Department of Health and Human Services, and the NC Office of Minority Health and Health Disparities^{88, 92, 100, 105}.

As was earlier indicated, the LRDA represented the Lumbee Tribe prior to development of the above discussed Lumbee Tribe organization⁸⁴. LRDA's mission statement indicates a continued interest in the well-being of Lumbee tribal members⁸⁴.

Key Finding 2: The Lumbee Tribe organization and non-tribal agencies have demonstrated interest in the health of tribal members.

The Lumbee Tribe organization has demonstrated interest in the health of tribal members in a number of ways. The Lumbee Tribe organization's interest in healthy eating initiatives is apparent by their participation in the AIHE project which proposed strategies to reduce food costs, increase accessibility of fruits/vegetables/farmers markets, include healthy foods at cultural events, collaborate with local grocery stores and restaurants, and promote healthy eating at work places⁹². Another example of the Lumbee Tribe organization's interest in nutrition is its suggestion that the Town of Pembroke include healthy vending at recreational events⁹⁹. Further, the Lumbee Tribe organization compiled a tribal cookbook with healthy recipes that was published in 2013¹⁰³. The cookbook includes a letter from the Tribal Chairman encouraging

tribal members to adopt healthy eating behaviors ¹⁰³. In 2009 UNCP, a non-tribal institution, organized and hosted a collaborative meeting of organizations and agencies to discuss health issues impacting Lumbee tribal members which I attended ¹⁰².

Key Finding 3: The local church, an integral part of Lumbee women’s lives, has served as a venue for health change(s).

The local church is an important part of life for Lumbee tribal members ⁸⁴. For members of the Lumbee Tribe, church is a place for spiritual guidance, as well as, social interaction across family groups, age groups, and communities ¹⁰⁶. Further, Lumbee churches have served as conduits for delivery of health messages targeting Lumbee tribal members ¹⁰⁰.

A local church leader was quoted in a Lumbee tribal newsletter referencing the positive outcomes when the local church partners to address health needs ¹⁰⁰. His assertions are supported by documentation related to a WFSM initiative in Robeson County ⁹³.

The Native Proverbs 31 Health Project is an example of researchers partnering with women in the Lumbee faith community to reduce the risks for cardiovascular disease ^{93, 107}. This project was funded by the National Institute on Minority Health and Health Disparities and was directed by Dr. Ronny Bell, a Lumbee native of Robeson County and Professor at the WFSM. Results indicate the program influenced participants’ health behaviors ¹⁰⁷⁻¹⁰⁸. Examples include formation of a walking group and development of interest by other churches in healthy lifestyle issues ¹⁰⁷.

Key Finding 4: Precedence exists for utilization of AI specific media to communicate information to Lumbee tribal members.

Print media has been utilized in the past by the Lumbee Tribe organization and other agencies to distribute information to Lumbee tribal members. The Lumbee Tribe organization has a record of compilation and distribution of newsletters that inform tribal members about tribal news, events, and health grants like the “The Changing Lifestyles, Living Longer” program intended to reduce obesity incidence among Lumbee tribal members¹⁰⁵. Images in newsletters depict tribal members and tribal leaders^{100, 105}. The Lumbee and other tribes participating in the AIHE project chose newsletters as a preferred method to communicate project information with tribal members⁹².

The Maya Angelou Center for Health Equity produced *The Health Guide for American Indian Women* which targets female members of NC AI tribes¹⁰⁹. *The Health Guide for American Indian Women* includes fictional stories reflective of AI culture and intended to promote readers’ understanding of health topics¹⁰⁹. These fictional stories were written by me¹⁰⁹.

In addition to the cookbook compiled by the Lumbee Tribe organization, another tribal member authored a cookbook of traditional recipes^{103, 110}. A further avenue for sharing information with tribal members is the Native Visions Magazine which focuses on local and national AI issues¹⁰⁴.

Key Finding 5: Lumbee women are key leaders in changes supporting effective communication about nutrition.

Lumbee women are important players in communication about foods to others⁸⁸. UNCP hosts an annual Native Foodways event to showcase native foods and promote healthy versions

of culturally specific foods⁸⁸⁻⁹⁰. The Chair of the UNCP AI Studies Department commented when interviewed at the 2010 event:

We had a good turnout of elders who were very enthusiastic...Our idea is that if we show elders how to cook healthily, they will take that knowledge to their family events over the holidays...They are matriarchs, and they do the cooking for large family events...They set the example for their families^{88 (para 10-11)}.

H. Summary of Findings

Lumbee women report the need for changes to critically important nutrition communication factors. Effective nutrition communication changes will consider their high regard for the church, family, and Lumbee matriarchs. Further, changes will reflect Lumbee women's language and traditional foods.

Lumbee women are key agents for effective nutrition communication change⁸⁸. Lumbee informants report willingness to participate in nutrition communication change efforts. This support is vital to development of policies and change efforts that reflect Lumbee women's nutrition communication needs.

Collaborations between the Lumbee Tribe organization and agencies interested in the health of Lumbee women can positively influence their ability to adhere to health promoting guidelines^{91, 100, 102, 109}. The Lumbee Tribe organization is the key member in these collaborations⁹.

Chapter 6: Discussion and Conclusion

Discussion

The report that Lumbee women have significant risk factors for cardiac disease raised concern about the efficacy of current forms of nutrition communication for Lumbee women ⁶. This study sought to understand necessary changes to critical factors in nutrition communication targeted to Lumbee women. Based on findings, a plan using leadership principles proposes ways nutrition communication can become effective for Lumbee women. The research was guided by an overarching question: “How should critical factors related to communication of nutrition information to Lumbee women be altered to enable Lumbee women in Robeson County to consume nutritious foods?” The research was also assisted by two sub-questions:

1. What are the critical factors related to communication of nutrition information to Lumbee women in Robeson County, NC?
2. Which factors need to change? How should those changes occur?

Relevant documents and Lumbee women informants were the sources used to shed light on these questions. There was not a plethora of documents related to the research. Still, the documents found provide a general understanding of which agencies/groups are important and potential resources useful for communicating nutrition information to Lumbee women. Informants’ reports give a clearer understanding of critically important factors and needed

changes. Both documents and informants' insights are beneficial for realizing how leadership principles can be applied to bring effective nutrition communication measures for Lumbee women.

Lumbee women informants' answers to interview questions largely agree with information in the document analysis. However, points of disagreement between the two sources of information are evident. Document review includes a cookbook with healthy versions of culturally-specific foods while Lumbee informants report the need to develop such a cookbook¹⁰³. Likewise, informants say cooking demonstrations are needed while document review indicates demonstrations have been available during the Native Foodways events at UNCP⁸⁸⁻⁹⁰.

A discussion of information gathered from documents and informant interviews is presented below. It is organized around the sub-questions used in the research as a means to answer the over-arching question.

Sub-Question 1: What are the critical factors related to communication of nutrition information to Lumbee women in Robeson County, NC?

Analysis of documents and interviews show there are factors critically important for nutrition communication to benefit Lumbee women's eating behaviors. These factors include involvement of Lumbee women in all phases of nutrition communication, collaborations among key partners, cultural relevance, support by the local church, and socioeconomic and contextual change. Table 19 summarizes these critical factors.

Table 19- Critical Factors for Effective Nutrition Communication to Lumbee Women

Critical Factor	Description of Factors
Engagement of Lumbee women	Serve as information sources Participate in planning Participate in policy-making Participate in implementation of plans, policies, interventions Trusted communicators Serve as mentors
Cultural Relevance	Lumbee-specific materials <ul style="list-style-type: none"> • Include Lumbee language • Include images of Lumbee tribal members in materials • Preserve traditional foods (healthy versions) • Lumbee cookbook Information Dissemination <ul style="list-style-type: none"> • Events with tribal affiliation • Media with tribal affiliation • Tribal members/Persons w/tribal affiliation or tribal sponsorship Value the family Consider the role of the church
Role of Lumbee Tribe organization in Nutrition Communication	Lead change efforts <ul style="list-style-type: none"> • Develop collaborations • Develop tribal policies • Influence policies of other agencies • Seek socioeconomic and contextual changes • Use tribal resources to support nutrition communication changes Disseminate information <ul style="list-style-type: none"> • Automated calling • Tribal media • Cultural events Role Model
Collaborations	Lumbee Tribe organization serve as lead agency <ul style="list-style-type: none"> • Collaborations among key agencies • Influence policy making • Lead socioeconomic and contextual changes • Develop Lumbee-specific materials • Role model
Role of the Local Church	Support nutrition communication change efforts Message Content-Changes are valuable, Encourage positive emotions Collaborate Policy-making Role model

Socioeconomic Needs	Jobs creation Increased wages
Contextual Needs	Restaurant <ul style="list-style-type: none"> • Menus, signs informative Grocery store <ul style="list-style-type: none"> • Price reduction on nutritious foods • Shelve healthy foods at eye level & ends of rows for easy access • Signs, code system informative and easy to understand Farmers Markets <ul style="list-style-type: none"> • Increase accessibility • Site in highly trafficked areas • Signs indicate local foods Information dissemination <ul style="list-style-type: none"> • Local newspapers • Use media associated with tribal members

A. Lumbee Women are Important For Effective Nutrition Communication

Lumbee women are experts on how to communicate nutrition information that can benefit their eating behaviors. They are aware of barriers and can propose strategies that ameliorate those barriers. Thus, they are able to inform agencies and collaborations regarding critically important factors and needed changes to nutrition communications targeting Lumbee women.

Lumbee women have demonstrated leadership abilities that should prove helpful to planning, policy-making, and interventions for effective nutrition communication^{100, 105}. Informants report Lumbee women are leaders in their homes and communities. Documents include tribal newsletters with pictures of Lumbee women who serve on the Lumbee Tribal Council and a woman who has served as the Chair for the Lumbee Tribe^{100, 105}.

Other Lumbee women reportedly view Lumbee women as trusted communicators. Studies show women communicators from a target audience are valued sources of information²⁶.

⁵⁵. Thus, Lumbee women's participation in nutrition communications with other Lumbee women can increase the likelihood that messages are positively viewed and applied.

Lumbee informants report family members can serve as barriers to dietary change. This is also reported by another study with AI women ⁵⁸. Lumbee matriarchs' authority can reduce resistance to dietary changes and garner support by family members ⁸⁸.

B. Cultural Relevance Must be Evidenced in Nutrition Communications

Lumbee women expect cultural relevance in nutrition communication measures. Cultural relevance reportedly includes the incorporation of their language in print materials, healthier versions of traditional recipes, and information relayed by trusted sources with ties to the Lumbee Tribe. Further, their tendency to hold the family and church as their primary focus must be honored for change measures to be effective and successful ^{84, 93, 106}. Other studies indicate culturally relevant communications designed for an intended audience increases the likelihood that messages are positively viewed by the target audience ^{26, 74, 77}.

C. The Lumbee Tribe Organization is the Lead Agency for Effective Nutrition Communications

Lumbee women informants say the Lumbee Tribe organization should lead efforts to effectively target nutrition communication to Lumbee women. Documents show the LRDA is the lead organization for multiple tribal events which include food ¹¹¹. Lumbee women informants report the LRDA and the Lumbee Tribe organization should collaborate to develop food vending policies for cultural events. This recommendation is supported by the AIHE project ⁹². Collaborative partnership between the Lumbee Tribe organization and the LRDA to

address food vending policies at cultural events would evidence a cooperation between two Lumbee tribal agencies which value the health of Lumbee tribal members^{84, 100, 105}.

These two agencies have been tasked at separate times with leading the Lumbee Tribe's efforts to gain Federal Recognition which would provide health and other services for Lumbee tribal members^{9, 84}. Thus, each agency has documented commitment and concern for the Lumbee Tribe's best interests and should prove powerful and effective collaborators.

D. Collaborations Among Key Agencies Will Benefit Nutrition Communication

Collaboration across organizations is vital for effective communication of nutrition information to Lumbee women. Documents and informants indicate the Lumbee Tribe organization, LRDA, and the local faith community have resources, experiences, and levels of importance in the lives of Lumbee women that can prove synergistically effective for Lumbee women's nutrition communication benefit^{84, 100, 105-106, 111}. Informants and documents agree the Lumbee Tribe organization is equipped with administrators, staff, and an elected Tribal Council, and has collaborative experience locally and state-wide^{9, 91-92}. Finally, the faith community is a staple in Lumbee women's lives and has proven to be an avenue for researchers interested in Lumbee women's health^{93, 108}.

Other agencies which also have importance though they did not occur in informant reports or documents as frequently as the Lumbee Tribe organization, the LRDA, or the local church are: UNCP, WFSM-Maya Angelou Center for Health Equity, THL, and UNC-CH^{102, 43, 92-93, 108}.

E. The Church Has a Vital Role in Effective Nutrition Communication

The local church appeared in the document review but was most striking in its mention by Lumbee women in nearly all of the interviews^{84, 93, 100}. There were no questions that directly asked about church. Thus, findings in the document and interview analysis clearly agree that the local church is an important element in the lives of Lumbee women in Robeson County^{84, 93, 100, 106}. This evidence sets the local church as a critical partner in collaborations targeting Lumbee women¹⁰⁸. Further, local churches have experience with researchers and health interventions⁹³. Additionally, there are leaders in the local church who have voiced support for use of local churches as venues for relaying health messages¹⁰⁰. This fact is important since there are informant reports that the church is a needed source of support to reduce resistance to change.

...The Lumbee tribe would be a good source to assist in this but I think a bigger resource would be our churches... Churches play a very big role in our families and in our communities. (Key Informant-Tribal Affiliation)

F. Socioeconomic Issues are Important to Nutrition Communication

Lumbee women report that healthy food is expensive. This report was echoed in relevant documents including those related to the AIHE Project^{53, 91-92}. There is a reported interest in healthy foods but informants are concerned there are women and families unable to choose nutritious foods due to elevated costs and their limited financial resources.

G. Context is Important for Effective Nutrition Communication

Lumbee women informants report they have busy lives. The tendency to be busy is also a barrier to healthy eating behaviors for AAs⁶³. Lumbee informants emphasize they feel nutrition communication is important. However, they stress that policy, collaborative effects,

and other changes must fit in their routine lives. It is cautioned by informants that Lumbee women will attend to nutrition communication efforts more readily if there is correlation with family consideration, church going, grocery shopping, work environments, restaurant meals, and usual modes of communication. This report closely correlates with the conclusion of Campbell and Quintiliani that culture, community, and faith are valued by minorities⁷⁴. Usual communications reported by informants in this study with Lumbee women include newspapers, church newsletters, and social media.

Sub-Question 2: What factors need to change regarding nutrition communication to Lumbee women and how should those changes occur?

A. Changes Are Needed to Fully Engage Lumbee Women in Effective Nutrition Communication

Lumbee women are leaders^{88, 100, 105}. Yet, there is a reported need for training sessions that address barriers to their engagement as leaders in nutrition communication. Strengthening of leadership skills reportedly will reduce Lumbee women's hesitancy to assume the role of nutrition communication change agent. There are also recommendations by informants for training sessions that broaden their knowledge of nutritious foods and healthy food preparation methods including converting traditional recipes to healthy versions. Mentoring with Lumbee women leaders and group meetings to gain strategies for reducing family resistance to change are other suggested enablers for Lumbee women.

B. Changes Are Necessary for Nutrition Communication to Become Culturally Relevant

Information relayed by tribal members or via events/individuals sponsored by the Lumbee Tribe organization will likely be positively viewed by tribal members. Further, cultural

events such as PowWows and the annual Lumbee Homecoming events are opportunities to communicate nutrition information to Lumbee tribal members. Currently, this does not occur per informants.

Information sources (documents and informants) show consensus that cultural events should include healthy food vending⁹². Thus, there is a need for policies that require vendors to include healthy foods and healthy versions of traditional foods in their offerings at cultural events⁹². Interestingly, informants report the Lumbee Tribe organization should lead vendor food changes at cultural events. Yet, documents show the Lumbee Tribe organization has recommended the Town of Pembroke provide healthy vending choices⁹⁹. Thus, the Lumbee Tribe organization is aware of the need for healthy vending but per information sources has yet to influence offerings at cultural events.

There are tribally sponsored newsletters^{100, 105}. Still, the need for additional materials exists. These materials should include Lumbee language, healthy traditional recipes, and Lumbee relevant images. The Lumbee Tribe organization and other organizations, reported by informants as hospitals and diabetes centers, could utilize these materials to share nutrition information with Lumbee women. Reportedly, the incorporation of Lumbee language, traditional foods, and images is a sign of valuing Lumbee culture and will encourage recipients to highly regard the information.

C. The Lumbee Tribe Organization Should Assume the Lead Role in Nutrition Communication

The Lumbee Tribe organization should assume the role of lead agency for changes that will benefit nutrition communication for Lumbee women. Collaborations are needed and can

draw on the resources of agencies with strengths specific to nutrition communication issues. There is the need for partnerships with entities with policy-setting powers.

The Lumbee Tribe organization has developed a cookbook with healthy versions of traditional recipes¹⁰³. Lack of knowledge about this cookbook by informants suggests a need for the Lumbee Tribe to review and strengthen its publicity policies and to collaborate with partners to ensure Lumbee women in the future are aware of potentially helpful resources¹⁰³.

The Lumbee Tribe organization reportedly also should influence policy development with the goal of including tribal affiliation in health records. This inclusion would require the Lumbee Tribe organization to collaborate with health care agencies/institutions. There is also a need for collaboration with governmental agencies for support of policies which encourage health entities to include this information in electronic medical records.

Past studies with Lumbee tribal members show dietary behaviors associated with chronic health conditions^{11,40}. Other studies suggest the examples of the Lumbee Tribe organization's leaders can influence behaviors by tribal members^{51,53}. Role modeling of health promoting dietary behavior is reported by informants as an example of nutrition communication change which the Lumbee Tribe organization should lead.

D. Collaborative Partnership Will Address Nutrition Communication Issues

As has been discussed, there is a need to develop collaborations between the Lumbee Tribe organization and partners with resources useful for resolving Lumbee women's nutrition communication challenges. An example reported by informants is the need for collaborative partnerships that encourage governmental subsidies to reduce the cost of nutritious foods such as fruits and vegetables.

E. The Church Should Engage in Measures That Support Effective Nutrition Communication

The church holds an important position in the lives of Lumbee women⁹³. Thus, participation by church leaders in the form of role modeling and message sharing along with the development of beneficial church policies is critical. Positive intervention results among the EBCI support this assertion⁵¹.

F. Socioeconomic Issues Impacting Nutrition Communication Should be Addressed

Interestingly, a number of informants' recommendations for change can be categorized into the bottom two tiers of Frieden's Health Impact Pyramid (socioeconomic and contextual changes), which he indicates are most likely to bring broad impact on public health⁹⁸.

Cost of healthy foods is a factor which needs to be addressed according to documents and informants⁹². Food costs can discourage consumption of healthy foods⁵³. A proposal from informants is to elevate incomes by creating jobs and increasing the number of jobs that pay well. Again, Lumbee women report the Lumbee Tribe organization should seek partnerships with agents concerned with economic growth in Robeson County.

G. Contextual Issues Impacting Nutrition Communication Must be Resolved

Informants report they have busy schedules which require that nutrition communication be realistic, applicable, and contextual. An example of a contextual need that would aid their busy lives is availability of fresh, locally grown, nutritious foods at farmers markets. They recommend farmers markets be located near places Lumbee women frequent in Pembroke and near the RCDSS in Lumberton. Documents affirm that AI tribes' eating behaviors can benefit from the availability of farmers markets⁹². Currently, two farmers markets are located in

Robeson County ¹¹². However, both are located in Lumberton and neither is near the proposed RCDSS site ¹¹².

Despite the potential benefits of farmers markets and their interest in utilizing them, Lumbee women repeatedly draw attention to their lack of knowledge for existing local farmers markets. Those who said they are aware of local markets discussed the need for relocation to highly-trafficked areas, problems with sidewalks which discouraged walking to markets, and lack of adequate parking spaces. It was reported that the Lumbee Tribe organization should partner with towns to address infrastructure needs and establish accessible farmers markets. The fact that only a few Lumbee informants are aware of existing farmers markets also points to the need for the Lumbee Tribe organization and agencies that sponsor the markets to review their publicity policies and activities to better inform Lumbee women.

A majority of informants report the need for local restaurants, regardless of sit-down or drive-through, to provide a thorough list of ingredients and notations for healthy options in multiple sections of menus. Given the percentage of fast food venues in Robeson County this request by informants is critically important. In 2013 55% of Robeson County restaurants were fast food venues compared to 49% in NC ¹¹³.

Informants say grocery stores need informative signs and coding system(s) that quickly aid decision-making for nutritious food selections. Further, healthy foods should be shelved at eye-level and end of rows to aid shoppers. Work places reportedly need vending that includes healthy options. The AIHE materials support these requested changes by informants ⁹¹⁻⁹². AAs in Florida also indicate grocery store changes are needed to support their interest in healthy dietary behaviors ⁶³.

Changes (work vending, shopping aids which assist with food selection for home use, multiple healthy options and increases in helpful decision-making information on menus including drive-thru service) will benefit Lumbee women in their usual surroundings. How to bring about these changes was said by most Lumbee women informants, to rest on the need for partnerships and collaborative actions led by the Lumbee Tribe organization to influence policy setting by business owners and employers.

Conclusion

There has been a lack of focus on how to effectively communicate nutrition information to Lumbee women in Robeson County. Thus, there is little literature to understand critical factors and needed changes regarding effective nutrition communication for Lumbee women in Robeson County. Discussion with Lumbee women informants has elicited a powerful call that the current state of nutrition communication needs to change. This research began with the plan to apply leadership principles to critical changes that encourage Lumbee women to consume nutritious foods. Interestingly, much of the advice gained from interviews with Lumbee women informants readily pairs with leadership principles espoused by Kotter and Yukl regarding leading effective change ventures¹¹⁴⁻¹¹⁵. Policy development and collaborations led by resourceful and powerful partners were repeated points within informants' responses. Finally, there is clear insight that Lumbee women are the pivotal leaders across policy, collaboration, leadership training, and succession planning for effective nutrition communication to Lumbee women in Robeson County.

The lack of agreement between documents and informants for the existence of a Lumbee-specific cookbook with healthy versions of recipes and cooking demonstrations that also focus

on healthy recipe versions supports the conclusion that the current approach to communication of nutrition information to Lumbee women is ineffective. There is a need to know and alter critical changes so that Lumbee women are not only aware of existent resources but lead the way to using, improving, and developing resources including partnerships that bring effective focus on nutrition communication to Lumbee women in Robeson County. To this end a plan for change has been developed for effective communication of nutrition information to Lumbee women that the Lumbee Tribe organization may utilize.

Limitations/Potential Problems

The study specifically targeted Lumbee women living in Robeson County and thus results are not easily generalized to other populations including other AI tribes. Women without personal access to phones were not selected for participation in this study. This risked omitting thoughts specific to that subset of Lumbee women.

Analysis reflects discussions in interviews and information identified through literature review; thus, data not discussed by informants or found in literature regardless of pertinence will not be reflected in this study or its deliverables.

I am known in Robeson County as a member of the Lumbee Tribe, as a physician assistant since 1995, a writer, a public speaker to groups including women's groups, a church leader, and as past Director for Embrace Women's Ministries for BSBA. I bring past knowledge as a member of the target audience⁸³. Thus, I serve as a "participant observer" which poses a certain amount of bias due to familiarity to the topic and participants⁹⁷. The target audience is familiar with me thus participants brought past ideas about me to the proposed research. My membership in the target audience and familiarity to participants was potentially a source of bias

to the data ⁸⁷. According to Rubin, this bias is a result of involvement and it is difficult to know the extent of the bias ⁹⁷.

The potential for my background to influence data collection and analysis was mitigated with the use of triangulation of participant selection, repeated review of code definitions, and self-reflection narrative noted as my thoughts ^{83, 87}.

When the analysis was complete, I allowed myself time away from the data and results. Upon return, I reviewed the data, themes, and analyses to detect coding or interpretation that suggested influence by my familiarity with the research topic and/or participants.

Chapter 7 Plan for Change

Plan

To understand the current state of nutrition communication relative to Lumbee women including critically necessary factors and needed alterations, documents were reviewed and informants' insights gathered regarding the following question: "How should critical factors related to communication of nutrition information to Lumbee women be altered to enable Lumbee women in Robeson County to consume nutritious foods?" Findings were synthesized and are summarized into the four points listed in Table 20 below:

Table 20: Summarized Research Findings

Summarized Research Findings
1. The current state of nutrition communication does not effectively encourage Lumbee women to consume nutritious foods.
2. There are critical factors that must to be considered for nutrition communication to benefit Lumbee women.
3. The engagement of Lumbee women is critically necessary for nutrition communication to effectively influence the dietary behaviors of Lumbee women.
4. There are agencies with beneficial resources including decision-making and policy-setting power that can collaboratively address nutrition communication issues for Lumbee women in Robeson County, NC.

A plan for change based on proven leadership principles has been developed. In order to produce lasting change, the foci for the proposed plan are policies, collaborations, and leadership development. The plan will address findings in this research with the intention of yielding the greatest effect for Lumbee women's nutrition communication needs. According to Frieden, changes that have the greatest impact on public health address socioeconomic and contextual issues⁹⁸. Thus, the proposed plan will influence critically important factors including socioeconomic and contextual issues for effective nutrition communications aimed at Lumbee women in Robeson County.

The plan for change incorporates leadership principles drawn from resources such as Kotter's eight steps for effective organizational change and Yukl's discussions for leading organizational change¹¹⁴⁻¹¹⁵. Kotter's steps for successful change are: 1) create a sense of urgency that change must occur, 2) form a coalition with the power to lead change, 3) set a vision for change that is easily understood, appeals to key stakeholders, and goes beyond short-term gains, 4) communicate the vision in an ongoing manner, 5) empower implementation of the vision by others, 6) plan for short-term successes that support a continued sense that change is necessary and progress is occurring, 7) continue change efforts despite resistance from people or competing issues, and 8) plan for succession¹¹⁴.

Kotter cautions that successful change occurs over time¹¹⁴. Likewise, success requires careful navigation through a series of steps in the change process¹¹⁴. Thus, faltering at any stage will impact the final success of the change effort¹¹⁴. The proposed plan for change incorporates Kotter's steps for transformation beginning with the need for urgency¹¹⁴. The actions for change in this plan will require careful implementation to ensure the likelihood of overall success which

in this case is nutrition communication that effectively encourages Lumbee women to consume nutritious foods.

The plan will consider the key stakeholders in this research which are Lumbee women. Given their high regard for church and family, affecting nutrition communication issues for Lumbee women will reach to the tribe as a whole and local churches^{84, 93}. Further, if informants' recommendations to address socioeconomic and contextual needs are followed, nutrition communication changes will influence employers, food industry members, as well as planners and policy-makers for towns. Finally, with the hoped for result of nutritious eating behavior, nutrition communication measures will impact health insurers and health care agencies. Thus, leading change that effectively addresses nutrition communication needs for Lumbee women will have far-reaching effects.

Findings show the Lumbee Tribe organization should collaboratively initiate and lead efforts for effective nutrition communication changes. Thus, the plan for change emphasizes the actions that should be undertaken by the Lumbee Tribe organization to initiate and perpetuate ongoing efforts regarding critically important factors related to Lumbee women's nutrition communication needs. These actions will include issuing a call for urgent change, developing and leading a powerful coalition, modeling healthy behaviors, and policy setting by the Lumbee Tribe organization.

The proposed plan includes actions I will employ as a change agent to support Lumbee women, the Lumbee Tribe organization, and the coalition that should be formed to address critical factors for effective nutrition communication. As a Lumbee woman, I have insight regarding the necessary actions by those interested in Lumbee women's nutrition communication

needs. Likewise, as the study researcher, I am aware of the critically important issues that must be addressed. Finally, as a leader, I am committed to collaborating, mentoring, lobbying for policy change, and advocating for support of change efforts by Lumbee women, tribal members, and agencies that are key influencers of nutrition communication change.

Table 21 displays the components of the plan for change. Included are proposed leadership actions matched to the summarized findings of this research listed in Table 20.

Table 21-Plan for Change with Leadership Action Matched to Summarized Findings

Plan for Change	Action	Change Agent(s)	Goal of Leadership Action	Finding Addressed
Step 1: Sense of Urgency	Spread the need for communication about nutrition ¹¹⁴⁻¹¹⁵	Women, tribal, and local church leaders are highly regarded role models	Create a sense of urgency to encourage women, agencies, and community to become involved in nutrition communication changes ¹¹⁴⁻¹¹⁵	Change current state of nutrition communication
Documents	Showed there is precedence for directing communication ^{9, 100, 103-105}	Tribal agency and community partners can disseminate messages		Lumbee women must be fully engaged
Interviews	Showed women are leaders in disseminating information	Showed women have ideas for collaboration with the community and are highly regarded as mentors and communicators		Collaborate with resourceful agencies
Step 2: Build Powerful Coalition	Powerful, resourceful agencies/individuals partner to address issues ¹¹⁴⁻¹¹⁵	Past collaborators serve as potential partners with tribal agency, community, and women for nutrition	Leverage the insights of Lumbee women with resources and experiences of Lumbee Tribe organization and	Change current state of nutrition communication Lumbee women must

		communication change	other agencies to understand issues, develop policy, plan, and implement change efforts ¹¹⁴⁻¹¹⁵	be fully engaged Collaborate with resourceful agencies
Documents	Showed agencies have partnered to address health issues ^{9, 43, 100, 102, 105}	Partners (Tribal, community, and other agencies) addressed health		
Interviews	Showed women feel collaborations are key in nutrition communication	Women need to be involved with Lumbee Tribe organization and other partners.		
Step 3: Set a Vision	Create coalition vision for effective nutrition communication ¹¹⁴⁻¹¹⁵	Women and Lumbee Tribe organization are key in vision setting with community partners aiding dissemination	Create excitement and willingness to join change efforts ¹¹⁴⁻¹¹⁵	Change current state of nutrition communication Lumbee women must be fully engaged
Documents	Showed leaders have participated in vision setting in past ⁹²	Lumbee Tribe organization and community are important to setting and sharing vision		Collaborate with resourceful agencies
Interviews	Showed women feel there is potential to improve health with effective nutrition communication	Women envision positive outcomes with effective nutrition communication		
Step 4: Build Support for Effective Changes	Decrease obstacles and build interest and support for change ¹¹⁴⁻¹¹⁵	Lumbee Tribe organization and partners have promoted health.	Reduce resistance to change while encouraging acceptance and support of change measures ¹¹⁴⁻¹¹⁵	Change current state of nutrition communication
Documents	Showed a precedence exists to use collaborations and leaders to address Lumbee health ⁹²	Lumbee Tribe organization, with women and local church leaders are important communicators and collaborators		Address critical factors to benefit nutrition communication Lumbee

Interviews	Shown women have ideas for strategies which remove/reduce obstacles and build support	Lumbee Tribe organization, older women, and the local church are important supporters for success.		women must be fully engaged Collaborate with resourceful agencies
Step 5: Engage and Develop Leaders	Engage leaders and support growth of leadership skills ¹¹⁴	Lumbee Tribe organization and women leaders with other resourceful agencies develop leadership and mentor programs	Develop training opportunities for women and other leaders to strengthen their leadership skills and provide opportunities for leaders across levels of experience to serve in nutrition communication change measures ¹¹⁴	Change current state of nutrition communication Address critical factors to benefit nutrition communication Lumbee women must be fully engaged
Documents	Shown women serve as tribal leaders ^{100, 105}	Women serve in key leadership positions in the Lumbee Tribe organization		Lumbee women must be fully engaged
Interviews	Shown women are leaders but need additional training to feel they are fully engaged	Shown women propose strategies which aid their engagement		Collaborate with resourceful agencies
Step 6: Plan and Implement Change	Address needed changes to critical factors for effective nutrition communication ¹¹⁴	Lumbee Tribe organization , women, and coalition members	Plan and implement changes to critical factors necessary for effective nutrition communication ¹¹⁴	Change current state of nutrition communication Address critical factors to benefit nutrition communication
Documents	There is precedence for change ¹⁰³	Lumbee Tribe organization has led dietary change efforts		Lumbee women must be fully engaged
Interviews	Shown there are critical factors which need to change	Women report needed changes and propose strategies to achieve effective change including partners for change		Collaborate with resourceful agencies

Step 7: Succession Planning	Continued growth of a cadre of leaders who support effective nutrition communication ¹¹⁴	Coalition concern for continual growth of leaders and replacement of leaders who leave the coalition.	Ensure there are ongoing actions which maintain an effective body of leaders ¹¹⁴	Change current state of nutrition communication
Documents	Showed there is precedence for leader participation in training opportunities ⁴³	Lumbee Tribe organization includes leaders concerned about health of tribal members	Replace outgoing leaders with those who support the coalition vision ¹¹⁵	Address critical factors to benefit nutrition communication
Interviews	Showed there is interest by women for growth of leaders	Lumbee women are leaders interested in strengthening their leadership skills		Lumbee women must be fully engaged
				Collaborate with resourceful agencies

The following steps outline the plan that can be used to bring effectiveness to nutrition communications for Lumbee women in Robeson County.

Step 1: Call to Action-The First Step Toward Effective Nutrition Communications for Lumbee Women ¹¹⁴⁻¹¹⁵

The findings in this research show the current state of nutrition communication does not effectively encourage Lumbee women in Robeson County to consume nutritious foods. Moreover, informants issue an urgent call to change present nutrition communication measures. They are concerned that without effective nutrition communication, they will continue to suffer the occurrence and ill effects of diet-related diseases.

The following shows that Lumbee women's fear of ongoing illness due to eating behaviors is realistic. Lumbee women have significant risk factors for cardiovascular disease⁶. Southeastern Health (SH) in Lumberton included the tendency for AI deaths due to cardiac disease and the large AI population in Robeson County as reasons to increase its cardiac catheterization space²². Clearly, there is a desperate need to address nutrition communication issues for Lumbee women in Robeson County.

The Lumbee Tribe organization and Lumbee women are key agents in this call to action for change in the current state of nutrition communication^{9, 100, 105}. There is evidence that the tribal leadership are experienced collaborators locally, across NC, and nationally^{100, 105}. This collaborative experience will strengthen the Lumbee Tribe organization's ability to network with key change agents such as Lumbee women and faith-based organizations to promote a sense of urgency regarding nutrition communication changes for Lumbee women.

Action for Change: I will forward an electronic Executive Summary of the research findings and associated plan for effective nutrition communication change efforts to the Lumbee Tribe organization. Further, through a series of meetings with tribal representatives, I will discuss the research results and plan in detail with an intention to foster a sense of urgency that nutrition communication directed toward Lumbee women must change. I will work through ongoing meetings and discussions to enlist support for nutrition communication changes by tribal representatives with power to develop and implement needed policies. Tribal representatives with power to influence policy-setting include the Tribal Chairperson and Tribal Council⁹.

I will recommend to the Tribal Chairperson and Tribal Council that Lumbee tribal representatives commit to change actions that convey support and commitment for effective

nutrition communications. Recommended actions will include public calls by the Tribal Chairperson and Tribal Council that foster a sense of urgency by tribal members for nutrition communication changes. Also, these public messages will communicate the need for Lumbee women, families, and communities to support nutrition communication change efforts.

Additionally, I will advise the Tribal Chairperson and Tribal Council to set meetings with key change agents such as groups of Lumbee women leaders, leaders in local faith organizations, representatives of businesses which employ Lumbee women, members of the local food industry, planners and policy-makers for towns in Robeson County, and local grocery store owners. These meetings will include discussions regarding the ineffective state of nutrition communication for Lumbee women, resulting negative effects on Lumbee women's health, critically important factors and needed changes found in this research, and the need for lasting change that encourages healthy dietary behaviors by Lumbee women. The intent will be to foster a sense of urgency for change and commitment by key agents to actively support change efforts. An example of support will be commitment to partner as a coalition member.

Further, I will lobby for development and implementation of policies that are critically important for effective nutrition communication change. Thus, I will urge the Tribal Chairperson and Tribal Council to set a policy requiring that tribal representatives model healthy dietary behavior when representing Lumbee tribal members. Additionally, I will encourage development and implementation of a policy requiring that tribal events include healthy food options.

I will support these policy recommendations with findings in this research that Lumbee women feel these measures are needed. Further, I will emphasize that these two policies would

serve as strong examples of the Lumbee Tribe organization's sense that there is an urgent need for effective nutrition communication measures. Likewise, I will point that the responsiveness of the Tribal Chairperson and Tribal Council to Lumbee women's call for change in nutrition communication efforts and need for new policies will demonstrate willingness by the tribal leadership to highly esteem tribal members' concerns.

Policies requiring that tribal representatives model healthy dietary behavior and that tribal events include healthy food options have the potential to influence Lumbee women, their families, and communities. Tribal events such as Lumbee Homecoming are recurring; thus, policies requiring healthy food choices will have ongoing impact.

Local churches have health collaborative experience^{93, 108}. Further, there is evidence for church representative support for health interventions in faith settings¹⁰⁰. Likewise, positive results have been reported for interventions in AI churches^{51, 107}. Thus, the Lumbee Tribe organization can partner with local churches to communicate the urgent need to effectively address nutrition communication issues.

Action for Change: Since I have served as a leader in local and state-wide faith-based organizations, I will meet with local church leaders to discuss the research findings. During these meetings, I will emphasize key points such as Lumbee women's concern that nutrition communication shortcomings must be addressed to reduce the incidence of chronic disease for tribal women. Further, I will advocate for local faith leaders to demonstrate support of nutrition communication changes by extending the call for urgent nutrition changes to church congregations.

Lumbee women report they view other Lumbee women as trusted communicators. Lumbee women in leadership positions including faith-based organizations can initiate discussions with tribal women about the urgent need to improve the state of nutrition communication. In addition to extending the call for urgent change, women leaders can encourage listeners to share the call for change with other Lumbee women. This network will perpetuate information about the need for nutrition communication changes across tribal women. Lumbee women leaders may use their leadership positions as springboards to champion the need for nutrition communication changes. As Lumbee women leaders call for urgent change in an ongoing manner, it is likely that other women and tribal members will join the conversation and lend support to the idea for establishing nutrition communication change efforts.

Action for Change: Thus, I will meet with Lumbee women leaders including those in local faith-based women's groups such as BSBA's women's ministry programs. These meetings will include discussions regarding Lumbee women's valuable role in drawing attention to the need for nutrition communication changes. Through these meetings, I will foster a sense of urgency that nutrition communication must become effective for Lumbee women. Likewise, I will advocate that Lumbee women leaders' share this need for urgent change with other Lumbee women.

Step 2: Build a Powerful Coalition- A Powerful Coalition Led by the Lumbee Tribe Organization Is Necessary for Effective Nutrition Communication Targeted to Lumbee Women¹¹⁴⁻¹¹⁵

Documents and informants agree the Lumbee Tribe organization has resources and experiences that position it as the agency to lead nutrition communication changes^{9, 100, 105}. Thus, the Lumbee Tribe organization with other agencies and individuals can form a tribally-led

coalition to address nutrition communication needs for Lumbee women. Past collaborators with the Lumbee Tribe organization are potential coalition partners along with Lumbee women. Kotter's leadership principles show that a powerful coalition is necessary to effect change ¹¹⁴. Yukl advises there is a need to include coalition members who have sufficient power to support change and ability to influence those able to hinder change efforts ¹¹⁵. Kotter points that the most successful coalitions are composed of "powerful" enough partners "...in terms of titles, information and expertise, reputations and relationships" ¹¹⁵ (p. 62). The Lumbee Tribe organization, Lumbee women, and many of the past collaborators with the Lumbee Tribe organization should prove powerful enough to bring about effective nutrition communication changes for Lumbee women.

Action for Change: When this research is accepted by the UNC Graduate School, I will begin ongoing meetings with representatives of the Lumbee Tribe organization to advocate for formation of collaborative partnerships that address the nutrition communication needs of Lumbee women. Further, I will initiate a partnership with the Lumbee Tribe organization regarding Lumbee women's nutrition communication needs. This partnership will serve as a step toward establishing a coalition of partners focused on nutrition communication issues for Lumbee women.

During meetings with tribal representatives, I will report my intent to also meet with key community partners such as faith-based organizations, UNCP, and SH to discuss these research findings. I will inform the organizations that I have partnered with the Lumbee Tribe organization and recommend that the organizations likewise develop collaborative partnerships with the Lumbee Tribe organization regarding Lumbee women's nutrition communication needs.

I plan to continue in-person meetings with tribal representatives such as the Tribal Chairperson to monitor progress toward development of this coalition. If progress wanes, I will use in-person meetings, phone calls, and emails to draw the attention of the Lumbee Tribe organization and coalition partners to the need for renewed efforts.

Step 3: Vision-Setting and Communication are vital to success¹¹⁴

With effective communication of nutrition information to Lumbee women in Robeson County there is potential to decrease risk factors and incidence of chronic disease. These reductions can result in improved quality and quantity of life for Lumbee women. Improved quality and quantity of living will equate to improved ability to lead others, greater potential to contribute to communities and economies, and possible reduction of health care dollars expended to care for Lumbee women. Lumbee women's tendency to lead food-based decision-making in their homes can mean improved health metrics and quality of life for their families.

The coalition led by the Lumbee Tribe organization with Lumbee women should discuss and develop a guiding vision for the coalition. Inclusion of coalition partners, Lumbee Tribe organization, and tribal women in thoughtful discussions should result in a vision which is easily explained, easily understood, and clearly applicable for Lumbee women¹¹⁴.

Once the vision is set, it should be communicated to Lumbee women since their buy-in is crucial. Lumbee women coalition members and community leaders can serve as communicators to other women. Informants advise that necessary changes should be connected to family and church to increase the likelihood that Lumbee women will be attentive.

Action for Change: In meetings with tribal representatives such as the Tribal Chairperson, I will recommend that the Lumbee Tribe organization's media resources such as the

newsletter and automated calling be used to communicate the vision for nutrition communication change(s) to Lumbee women^{9, 100, 105}. The report that Lumbee women value information received from sources associated with the Lumbee Tribe organization will support this recommendation. Further, I will advise that the tribal administrative and support staff be versed in communication of the vision for change and provided strategies that exemplify commitment to the vision when representing the Lumbee Tribe in the community. This aspect of sharing the vision for change is supported by Yukl's advice to employ the actions of individuals and agencies which are "... competent change agents" willing to make "... dramatic, symbolic changes,"¹¹⁵ (pp. 321-322).

To support dissemination of the vision, I will collaborate with the Lumbee Tribe organization and other coalition members regarding the development of a training program for effective communication. This may require the services of communication experts not involved in the coalition.

Step 4: Build Support for Nutrition Communication Change Measures¹¹⁴⁻¹¹⁵

It is important to build support for nutrition communication change measures by impacting factors that are critically important to Lumbee women. These factors include utilization of Lumbee women as change agents, dissemination of information through their preferred media outlets, and consideration for their value of church.

Informants report that Lumbee women are key agents whose inclusion in efforts to address nutrition communication can reduce hesitancy by Lumbee women to accept proposed changes. Also, their participation will increase the likelihood that changes are viewed as culturally targeted to Lumbee women. Yukl's advice to recognize sources of opposition and

support agree with informant's reasons for including Lumbee women in change efforts ¹¹⁵.

Since Lumbee women are the experts, their inclusion as coalition members and change agents will lend credibility that change measures, including policy issues, are appropriate for Lumbee women's needs.

Older Lumbee women are highly regarded among tribal members ⁸⁸. Further, older women's willingness to address resistance through modeled behaviors, communicating nutrition information to others, and exerting their matriarchal authority is invaluable to building support for nutrition communication change.

Action for Change: I will lobby for presentations and cooking demonstrations, aligned with nutrition communication change efforts, by older Lumbee women at AIWPN events. As a past AIWPN presenter, I am viewed as a peer by event organizers. Thus, it is a matter of meeting with AIWPN organizers, who include Lumbee women leaders, to discuss research findings and foster a sense of urgency for needed change. Additionally, the AIWPN organizers may request that I support the organization through service as a committee member. This would provide an ongoing opportunity to promote healthy nutritional behavior by Lumbee women and to build support for nutrition communication change efforts through the AIWPN venue.

As previously noted, the Lumbee Tribe has media resources useful for disseminating information to tribal members ^{9, 100, 105}. These media resources are also useful for building support of nutrition communication change efforts.

Action for Change: In meetings with the Tribal Chairperson and Tribal Council, I will advocate for the development and implementation of a policy requiring use of tribal media resources to disseminate nutrition communication change information at set intervals. The

Lumbee Tribe has media resources (newsletter, website, automated calling) useful for informing Lumbee women and other tribal members about the progress of nutrition communication change efforts^{9, 100, 105, 114-115}. Further, there are local media outlets owned by tribal members which serve as potential collaborative partners in sharing successes, ongoing challenges, and upcoming plans for nutrition communication¹⁰⁴. The desired effects of ongoing nutrition communication updates is firstly to signal commitment to change efforts by the Lumbee Tribe organization and coalition members¹¹⁴. Secondly, ongoing updates can promote acceptance of change by Lumbee women and other tribal members¹¹⁴.

Church attendance is important to Lumbee women's lives and church leaders are favorably viewed⁸⁴. Lumbee informants advise that church leaders can develop messages and policies that support change and reduce resistance to nutrition changes within families. Delivery of health messages in church settings has proven successful for other AIs⁵¹.

Action for Change: I will meet with the Director of Missions (DOM) for BSBA⁸⁶. Since these church congregants are mostly AI, it is important to garner support by this local faith-based organization⁸⁶. In the past, I served as Director for Embrace Women's Ministry for BSBA.

In the meeting with the DOM, I will discuss the research and foster support by the BSBA for effective nutrition communication changes. Likewise, I will encourage the DOM to publicly commit the BSBA as a partner with the Lumbee Tribe organization regarding nutrition communication change efforts for Lumbee women. Further, I will urge the DOM to call for local association and non-association churches to also publicly commit their support for nutrition communication change efforts.

With the support of the DOM, I will speak at a meeting of local BSBA church pastors. I will discuss the research findings, the need for nutrition communication changes, and outline strategies for local churches and church leaders to effectively partner with the Lumbee Tribe organization and Lumbee women regarding effective nutrition communication. I will advise pastors of the need to set a policy for inclusion of healthy foods at all church-sponsored events. Finally, I will work to promote development of a collaborative partnership between the BSBA and affiliate churches, the Lumbee Tribe organization, and other key coalition partners. This will require ongoing meetings and correspondence with the BSBA, the Lumbee Tribe organization, and coalition partners.

Step 5: Develop and Engage Leaders for Effective Nutrition Communication Change¹¹⁴

Informants report they need leadership and mentoring programs. Reportedly, this will strengthen Lumbee women's leadership skills and increase their willingness to assume nutrition communication leadership roles. The coalition may review partner organizations and community entities for programs that meet these reported needs or develop new programs.

Action for Change: I will volunteer to serve as Chair of a coalition committee to develop a mentoring program for Lumbee women. Actions of the committee will include identification of a successful mentoring program designed for AI women which can be customized for Lumbee women in Robeson County. This could require collaboration with developers of the mentoring program used as a model. The developers' insights in the form of lessons learned when designing the program for AI women would prove beneficial. If a program is not identified then one would be developed. Likewise, the committee would seek the input of

Lumbee women to learn what Lumbee women feel is necessary for an effective mentoring program.

I will need to ensure that effective communication occurs across members in this process. Ongoing committee member engagement will also be necessary. Thus, I will need to monitor meeting attendance and completion of commitments for trends of waning engagement. This will require flexibility and priority setting to establish a sense of approachability and availability for committee member effectiveness issues. I will maintain an environment of respect for committee members' inputs. This will reduce the potential for negativity among committee members. If negative attitudes or behaviors become evident among the committee, I will quickly work for resolutions. This could require me to mediate among committee members.

I will work with the committee and coalition to identify Lumbee women leaders to serve as role models. Identification of Lumbee women leaders will be aided by review of organizations important to Lumbee women. Lumbee women who serve or have served on the Lumbee Tribal Council and those with positions in faith-based organizations are examples of women who can be viewed as potential role models.

Action for Change: I will urge the coalition to ensure there are opportunities for coalition partners and tribal representatives to participate in leadership skill building. Participation in these trainings can be positively viewed as a sign of commitment; as willingness to role model needed actions; or as developing leaders who can effectively lead necessary changes¹¹⁴⁻¹¹⁵. To this end, I will collaboratively participate in identification of leadership training opportunities. Scheduling and attending for training will require the coalition to

prioritize issues. I will advocate that the coalition set a policy requiring members to participate in leadership building.

Action for Change: Further, I will work to ensure that the coalition empowers tribal women, tribal representatives, community partners, and coalition members to implement and lead change ¹¹⁵. Opportunities should be matched to the skills of the leader. This opportunity will provide valuable experience for new leaders which can aid succession ¹¹⁴. Empowerment of leaders may be in the form of committee appointments.

Step 6: Plan and Implement Necessary Changes for Effective Nutrition Communication Targeted to Lumbee women ¹¹⁴⁻¹¹⁵

The coalition will plan and implement changes to factors that are critically necessary for nutrition communication which benefits Lumbee women's dietary behaviors. These factors appeared in a detailed version in Table 19.

Periodically the coalition should evaluate change efforts which will provide valuable feedback for needed adjustments and stories of success which can be shared with the community to build support ¹¹⁴.

Action for Change: I will draw attention to the need for regular review of the nutrition communication efforts of the coalition. These reviews will determine effectiveness and shortcomings. I will volunteer to serve on a review committee of the coalition. These reviews will require honest consideration and reporting of the impact of nutrition communication efforts. Likewise, I will work to promote the understanding by the review committee and the coalition that positive and negative findings provide valuable feedback. As earlier noted, tribal media outlets is useful for informing tribal members regarding progress and the coalition plans

regarding change efforts^{9, 100, 105} Informing tribal members of impact is a valuable opportunity to share short-term wins which can promote support for change efforts¹¹⁴.

Step 7: Succession Planning

The coalition should intentionally develop a plan for succession¹¹⁴. A goal for this coalition is to develop leaders able to lead effective nutrition communication change and ensure a cadre of leaders willing to continue the coalition vision¹¹⁴⁻¹¹⁵. Key members in this group are Lumbee women. Empowering/developing Lumbee women's leadership interests can serve as a catalyst to ensure their ongoing commitment to effective nutrition communications¹¹⁴.

Action for Change: As already noted, I will work to ensure that coalition members participate in leadership training. To this end, as earlier stated, I will lobby the coalition to develop and implement a policy requiring members to participate in leadership training at regular intervals. Further, I will advocate that new leaders be given opportunities to actively lead efforts matched to their skill set. Thus, with leadership training and leadership experiences, newer coalition leaders strengthen their abilities to assume key coalition roles.

Since this is a stepped process initiated and perpetuated by development of a sense of urgent need for nutrition communication changes, implementation of the proposed plan will require commitment by an agent willing to maintain the call for change over the course of time¹¹⁴. Likewise, coalition members including Lumbee women and the Lumbee Tribe organization will need to commit to address obstacles including competing issues which become increasingly apparent as change efforts are undertaken¹¹⁴. In short, bringing effectiveness to nutrition communication for Lumbee women is possible and can be realized by change agents who are willing to work for effectiveness over a span of years. Finally, to prevent waning engagement or

a cry of victory that comes too early, there must be an understanding by Lumbee women, the Lumbee Tribe organization, the tribal community, and coalition members that nutrition communication effectiveness is not an end point but an ongoing goal requiring continual review of measures and growth of leaders ¹¹⁴.

In summary, there is an urgent need for nutrition communications that are valued and applied by Lumbee women in a consistent and ongoing manner. Effective nutrition communications will require Lumbee tribal women and the Lumbee Tribe organization to fully engage as agents for change. Lumbee Tribal women must serve as expert sources, role models, and collaborative partners who ensure the cultural relevance and applicability of change efforts. The Lumbee Tribe organization must establish itself as the lead agency in a collaboration of influential partners that direct nutrition communication policies and plans.

This research is an important foundation for understanding how to lead change that encourages healthful eating by Lumbee women. Future studies, policies, and plans that build upon this knowledge can augment Lumbee tribal women's abilities to live long and live well.

**APPENDIX A: DESCRIPTION AND TELEPHONE CONTACT REGARDING
RESEARCH WITH LUMBEE WOMEN ABOUT CRITICAL FACTORS IN
NUTRITION COMMUNICATION**

(Telephone Contact to Recruit Participants)

I am Lisa Huggins Oxendine. I'm a doctoral student at UNC Chapel Hill School of Global Public Health. May I tell you about my plans to conduct research involving Lumbee women? (If no, I will thank the woman for her time and end the conversation without further reference to the planned research. If she would like me to call at another time to discuss the research then a time for that call will be established.)

If yes, then I will continue here: For my dissertation, I will conduct research related to the question: "How should critical factors related to communication of nutrition information to Lumbee women be altered to enable Lumbee women in Robeson County, NC to consume nutritious foods?" I am interested in learning what is most important when communicating nutrition information to Lumbee women. I would like to know which important communication factors need to change and how to make those changes. Results will be based on interviews with Lumbee women and reviews of published and unpublished documents related to my research question. I plan to publish the research results.

I am about to read to you a description of the upcoming research project. You may stop me at any point, ask a question, or have me repeat a portion of the description.

1. This will be a research project with women who report they are members of the Lumbee tribe, are 18 years of age or older, and live in Robeson County, NC.
2. Participation in this research is voluntary and no payment is provided.

3. You have been contacted because you have knowledge valuable to this research.
4. I plan to conduct approximately fifteen face-to-face interviews. Information will also be collected by review of published and unpublished documents related to the research.
5. Interviews will include questions each woman can answer or not answer as she chooses.
6. Interviews will last about 45 minutes. A woman can choose to stop the interview at any time.
7. Interview locations will be convenient for the woman and allow for confidential discussion.
8. With the woman's permission, I will record the interview and make notes. Recordings will be transcribed, analyzed, and destroyed within six months of UNC Graduate School's accepting the dissertation.
9. Research results will be published. Participant names will not appear in research results.
10. Do you have questions about this research? (At this point I will answer questions then return to the form.)
11. Would you be willing to participate in this research?

If no, I will thank her for her time and explain that I will not contact her further about the research. Yes answer, I will confirm that the inclusion criteria are met: "Would you tell me whether you are a Lumbee woman aged 18 years or older who lives in Robeson County, NC?" If yes to all three, I will continue at the next item on the form otherwise I will thank her for her time and explain that I will not contact her further about this research.

12. Thank you for agreeing to participate in this research. At the interview before we begin discussion, I will ask you to read or have me read to you a description similar to the one you just

heard. You will be asked to sign it indicating you meet the criteria to participate and that you agree to participate in this research.

13. I look forward to the interview. What is a convenient time and location to meet with you?

14. As a reminder, I will call within three days of the meeting.

15. If you need to contact me my contact information is:

Home Number (910)843-8575, Cell Number (910)536-5149, Email lhoxendi@live.unc.edu

The discussion related to the research will end at this point.

APPENDIX B: CONSENT FORM

University of NC at Chapel Hill

Consent to Participate in a Research Study

Adult Participants Lumbee women living in Robeson County, NC

Consent Form Version Date: ____February 14, 2013_____

IRB Study # 13-1227

Title of Study: Critical Factors Related to Communication of Nutrition Information Targeting Lumbee Women in Robeson County, NC

Principal Investigator: Lisa Oxendine

Principal Investigator Department: Health Policy and Management

Principal Investigator Phone number: 9105365149

Principal Investigator Email Address: lhoxendi@live.unc.edu

Faculty Advisor: Suzanne Havala Hobbs

Faculty Advisor Contact Information: suzanne_havalahobbs@unc.edu

What are some general things you should know about research studies?

You are being asked to take part in a research study. To join the study is voluntary. You may refuse to join, or you may withdraw your consent to be in the study, for any reason, without penalty.

Research studies are designed to obtain new knowledge. This new information may help people in the future. You may not receive any direct benefit from being in the research study. There also may be risks to being in research studies.

Details about this study are discussed below. It is important that you understand this information so that you can make an informed choice about being in this research study.

You will be given a copy of this consent form. You should ask the researchers named above any questions you have about this study at any time.

What is the purpose of this study?

The purpose of this research study is to learn critical communication factors and needed alterations to develop a plan, directed toward the Lumbee Tribe and other agencies, which enables Lumbee women in Robeson County to consume nutritious foods. Determination of critical factors and necessary changes to nutrition communication targeting Lumbee women can result in important recommendations including policy development and collaborative efforts which positively influence the health of Lumbee women.

A review of the research literature shows there have been few studies of Lumbee women and those conducted have not focused on how to develop or communicate nutrition information to Lumbee women. This study will consider Lumbee women's thoughts related to nutrition and a review of existing documents to add to the body of knowledge concerning Lumbee women and nutrition.

You are asked to participate in this study because you are a Lumbee woman over 18 years of age living in Robeson County, NC and viewed as a leader able to discuss information important to this study.

Are there any reasons you should not be in this study?

You should not be in this study if you are not a Lumbee woman, not 18 years of age or older, or do not live in Robeson County, NC.

How many people will take part in this study?

There will be approximately fifteen people in this research study.

How long will your part in this study last?

Each participant will participate in one face-to-face, audiotaped interview which will last about 45 minutes. There are no follow-up meetings associated with this research.

What will happen if you take part in the study?

- **Overall design:**
 - This is a study where each Lumbee woman who chooses to participate will meet face-to-face with the researcher to discuss questions related to the research topic.
 - There will be only one meeting which will last about 45 minutes.
 - There will be no follow-up meetings.
 - Information will also be collected from document review.
- **Interview Data:**
 - If the woman agrees, the interview will be audiorecorded.
 - The interviewer will take notes during the interview.
 - Audio recordings will be transcribed, then stored in the researcher's home.
 - When the dissertation is accepted by UNC Graduate School, interview recordings will be destroyed within six months.

What are the possible benefits from being in this study?

Research is designed to benefit society by gaining new knowledge. There is little chance you will benefit from being in this research study. The only potential possibility that you will benefit from this study is if there is some benefit to Lumbee women generally which has a benefit for you individually.

What are the possible risks or discomforts involved from being in this study?

There are no known risks to you by participating in this study. There may be uncommon or previously unknown risks. You should report any problems to the researcher.

What if we learn about new findings or information during the study?

You will be given any new information gained during the course of the study that might affect your willingness to continue your participation.

How will information about you be protected?

No names or identifying information will be included in interview transcripts. Interview recordings will be stored in a locked container in the researcher's home until this research is accepted by the UNC Graduate School. Then, within about six months, the recordings will be destroyed. Interviews will be conducted in convenient locations which allow for confidential discussion. Only the researcher will know the identities of key informants. No identifying information will be included in the report(s) generated by this research.

Participants will not be identified in any report or publication about this study. Although every effort will be made to keep research records private, there may be times when federal or state law requires the disclosure of such records, including personal information. This is very unlikely, but if disclosure is ever required, UNC-Chapel Hill will take steps allowable by law to protect the privacy of personal information. In some cases, your information in this research study could be reviewed by representatives of the University, research sponsors, or government agencies (for example, the FDA) for purposes such as quality control or safety. The audio recordings and notes made by the researcher during the interview will help the researcher remember comments and impressions correctly. Audio recordings may be requested to be turned off.

Check the line that best matches your choice:

OK to audiorecord me during the study

Not OK to audiorecord me during the study

What if you want to stop before your part in the study is complete?

You can withdraw from this study at any time, without penalty. The investigators also have the right to stop your participation at any time. This could be because you have had an unexpected reaction, or have failed to follow instructions, or because the entire study has been stopped.

Will you receive anything for being in this study?

You will not receive anything for participating in this study.

Will it cost you anything to be in this study?

If you enroll in this study, you may incur transportation costs.

What if you have questions about this study?

You have the right to ask, and have answered, any questions you may have about this research. If you have questions about the study, complaints, concerns, or if a research-related injury occurs, you should contact the researchers listed on the first page of this form.

What if you have questions about your rights as a research participant?

All research on human volunteers is reviewed by a committee that works to protect your rights and welfare. If you have questions or concerns about your rights as a research subject, or if you would like to obtain information or offer input, you may contact the Institutional Review Board at 919-966-3113 or by email to IRB_subjects@unc.edu.

Participant's Agreement:

I have read the information provided above. I have asked all the questions I have at this time. I voluntarily agree to participate in this research study.

Signature of Research Participant _____ Date _____

Printed Name of Research Participant _____

Signature of Research Team Member Obtaining Consent _____ Date _____

Printed Name of Research Team Member Obtaining Consent _____

APPENDIX C: GUIDE FOR KEY INFORMANT INTERVIEWS

(Interview guide was pilot tested after IRB approval and prior to conduction of research with key informants.)

Introduction

As you know from our earlier telephone call and review of the participation form today, I am Lisa Huggins Oxendine. This interview will be one of about fifteen with Lumbee women in Robeson County as part of my doctoral dissertation research at UNC Chapel Hill School of Global Public Health. This interview will last approximately 45 minutes but you can stop the interview any time you wish. My goal is to learn which factors are most important when communicating nutrition information to Lumbee women. Also, I would like to know whether you feel any of those factors need to change and how you feel they should change. I will also collect information for this research by reviewing published and unpublished documents. I plan to publish results of this research but your name will not appear in the results. If you agree, I will record the interview so I can correctly remember your comments and will also take notes as we talk. The recordings will be destroyed within six months of the UNC Graduate School accepting the dissertation.

1. Do you have any questions about the research or the interview?
2. Do you agree for me to record this interview and take notes as we talk?

For this interview, please consider nutrition communications as an attempt by any agency, institution, or individual, including you, to share, receive, or apply information concerning nutrition. Also, communication of nutrition information can be explicit which means it is clearly shared or implicit where something is only suggested.

Overview Experience

To start, think about past communications of nutrition information whether it was clearly relayed or only suggested.

Question 1: As a Lumbee woman, tell me about your past experiences related to communication of information about nutrition?

Probe Question 1: This can include times you received, shared, or tried to apply information regarding nutrition.

(If the key informant indicates she has no experience as recipient or initiator with past attempts to communicate nutrition information will skip to Question 4.)

Question 2: What was important to the success of those past experiences regarding communicating nutrition information?

Probe Question 2: In the past, what helped you or other Lumbee women receive, share, and/or apply nutrition information?

Question 3: How should past attempts to share nutrition information with Lumbee women have been changed to help yourself or other Lumbee women receive or apply the information?

Probe Question 3: How should have past attempts been improved?

Culture

Now, think about Lumbee culture.

Question 4: What would make communications about nutrition culturally relevant for Lumbee women?

Probe Question 4: What would cause Lumbee women to feel they are the intended recipient of the communication?

Question 5: What obstacles need to change for Lumbee women to feel targeted by nutrition information?

Probe Question 5: What are barriers or challenges which need to be changed?

Question 6: How do changes need to be made to those obstacles so Lumbee women feel targeted by nutrition communications?

Probe Question 6: Who, what, how do changes need to be made for Lumbee women to feel culturally targeted?

Lumbee Tribe/Other Agencies/Lumbee Women Involvement

Question 7: Which agencies or institutions do you feel need to be involved in communication of nutrition information to Lumbee women?

Probe Question 7: This could include the Lumbee Tribe, institutions, and local, state, or federal agencies.

Question 8: Of the agencies you mentioned, what are ways you feel they should be involved in communication of nutrition information to Lumbee women?

Probe 8: How should the agencies you mentioned work in regard to communication of nutrition information?

Question 9: What would enable Lumbee women to take an active role, including a leadership role, in communicating nutrition information?

Probe Question 9: What would help Lumbee women act as leaders in communicating about nutrition?

Policies/Rules/Laws

Let's think about policies, rules, and laws in the context of communicating nutrition information to Lumbee women.

Question 10: What are policies, rules, or laws you feel should be in place regarding communicating nutrition information to Lumbee women?

Probe Question 10: This can be policies, rules, or laws established by the Lumbee Tribe and/or local, state, or federal agencies or institutions.

Socioeconomic

Think about social and economic issues which includes factors like level of educational achievement, poverty, access to food, employment, and occupation ⁹⁸.

Question 11: What changes need to be made to social and/or economic issues which affect nutrition communication for Lumbee women?

Probe Question 11: What social or economic changes are needed related to nutrition communication?

Question 12: How do these changes need to be made?

Probe Question 12: What is needed for the needed changes to occur?

Contextual

Now, think about contextual changes which are changes people experience as a routine part of living⁹⁸. An example related to oral health would be fluoride added to drinking water supplied to towns or cities⁹⁸. For this research, think about changes related to communication of nutrition information which would benefit Lumbee women as a routine part of living.

Question 13: What changes need to be made, related to communication of nutrition information, to benefit Lumbee women as a routine part of daily living?

Probe Question 13: What should change for Lumbee women to benefit from nutrition communication as a part of their usual day?

Question 14: What changes need to be made in practices of restaurants regarding communication of nutrition information?

Probe Question 14: What needs to be done differently related to restaurants?

Question 15: What changes need to be made in practices of grocery stores regarding communication of nutrition information?

Probe Question 15: What needs to be done differently related to grocery stores?

Question 16: What needs to be done differently related to places where Lumbee women work?

Probe Question 16: What changes need to be made by work places?

Question 17: What changes need to be made at cultural events?

Wrap-Up

Question 18: What are critical factors we haven't discussed regarding communication of nutrition information to Lumbee women?

Published/Unpublished Documents

Question 19: Have you written an article, book, or other document or materials related to Lumbee women's nutrition or communicating to Lumbee women?

Question 20: Are there published or unpublished documents you suggest I review as part of this research?

Conclusion

We have completed the questions on the interview guide. Do you have any final comments about what are the critical factors when communicating about nutrition to Lumbee women and how those factors should change?

**APPENDIX D: LIST OF SOURCE DOCUMENTS PER LUMBEE TRIBE
ENROLLMENT OFFICE**

Source documents are:

Persons enumerated as Indian on the:

1. 1900 and/or 1910 Federal Census of Robeson County, NC
2. 1900 and/or 1910 Federal Census of Bladen County, NC
3. 1900 and/or 1910 Federal Census of Richmond County, NC
4. 1900 and/or 1910 Federal Census of Cumberland County, NC
5. 1900 and/or 1910 Federal Census of Scotland County, NC
6. 1900 Federal Census of Marion County, SC
7. 1910 Federal Census of Dillon County, SC
8. Robeson County, NC Taxable Records from 1890 to 1910
9. Croatan School Attendance list of O.R. Sampson from 1891 to 1896
10. Croatan petitioners List of 1888
11. Croatan School Committee List of 1900
12. Deep Branch Church Roll of Ladies 1882 and the male members as mentioned in the minutes of the Deep Branch Church between December 1882-May 23, 1886, and
13. Minutes of the Lumbee Elders Review Committee 1985 to 1987

Source: Ruth Locklear

Tribal Clerk and Enrollment Director

Lumbee Tribe

Mon, June 18, 2012.

APPENDIX E: LITERATURE REVIEW SUMMARY

Keywords used to search PubMed, CINAHL, and Google Scholar

Lumbee	AND	Women		
Lumbee	AND	Women	AND	Nutrition
American	AND	Indian	AND	Women
American	AND	Indian	AND	Women, NC
Health	AND	Communication	AND	Tailoring, Population
Health	AND	Communication	AND	Culturally Sensitive

Lumbee Women

A PubMed search on “Lumbee Women” returned only twenty entries while CINAHL returned eight with seven as duplicates of the PubMed list. Five studies were accepted into this research from the PubMed/CINAHL list. One of the accepted studies was not available online but was received by contacting the author. The studies not selected focused on topics and target audiences including tobacco, health care, and high school students. A Google Scholar search resulted in 1,790 entries. The first 500 were reviewed with the PubMed articles found as duplicates. No additional studies were accepted. When the search string was expanded to “Lumbee Women Nutrition”, PubMed resulted in one duplicate article and no CINAHL findings. A Google Scholar search on the string resulted in 184 entries with seven new studies accepted and three additional articles were identified and included from an accepted article. Dr. Ronny Bell, Dr. Mark Dignan, Dr. Electra D. Paskett, and Dr. Sheila Fleischhacker have conducted studies focused on the Lumbee Tribe. Studies by each of these researchers were reviewed for relevance and an additional twelve studies were accepted.

A grand total of twenty-seven articles were included in this review of Lumbee women. Tables in the Appendices list articles used in this review of Lumbee women. The first twenty-seven listed indicate articles found through literature review and accepted into this study. The additional studies represent articles which supply background and supporting information. Of note the web page article titled, “Lumbee Native Americans Have Higher Cardiovascular Risk” was known to me prior to beginning the literature review.

Lumbee Women				
Database	Articles Returned	Relevant Articles	Articles Accepted	Notes
PubMed	20	5	5	
CINAHL	8	4	0	Duplicates to PubMed
Google Scholar	1790	0	0	
Lumbee Women Nutrition				
Database	Articles Returned	Relevant Articles	Articles Accepted	Notes
PubMed	1	1	0	Duplicate to Lumbee Women string
CINAHL	0	0	0	
Google Scholar	184	10	10	
Bell, Dignan, Paskett, Fleischhacker searches			12	

Title/Author	Year	Source	Population	Intent	Methods	Results	Limitations
Differences in Dietary Intake Between Smokers and Nonsmokers Among Lumbee Indian Women	1997	Am J Hlth Promot	One hundred twenty Lumbee tribal	Learn if assoc between smoking and diet	Convenience Sample with interview, food	Smokers less fruit/vegs, vits/minerals, same intake cholesterol,	Researchers note: Small Convenience Sample, No Smokeless tobacco evaluation, possible self report bias

in NC/Bell R, et al			women, Robeson Cty, NC	exists in Lumbee Women	frequency questionnaire, and food record.	more alcohol, eggs, butter, sugar, pork	⁴⁰
Dietary intake of Lumbee Indian women in Robeson County, NC/Bell R, et al	1995	J of the Am Diet Assoc	21-60 yr Lumbee women Robeson Cty, NC	Develop a nutrition education program ¹¹	Convenience Sample with interview, food record, food frequency questionnaire	Diets high in fat & low in fiber, calcium, and iron	Researchers Note: Sample size, Convenience sampling ¹¹
Estimated Nutrient Intakes from Food Generally Do Not Meet Dietary Reference Intakes among Adult Members of Pacific Northwest Tribal Nations/Fialkowski MK, et al	2010	J Nutr	Two hundred ninety-five women & 225 men in Pacific Northwest Tribes in 5year prospective study	Review nutrient intake Coastal tribes to NHANES '01-2, RDI by report plausibility	Food frequency Questionnaire, 1&2 day diet records	Low intakes of nutrients including vitamin C, folate, calcium.	Not generalizable to all AIs or to AIs not living in coastal areas. Memory recall could be faulty.
Early Detection of Cervical Cancer among Native American Women: A Qualitative Supplement to a Quantitative Study/Messer L, et al	1999	Health Educ Behav	>=18 yr NC women Lumbee, Cherokee	Explore cultural effects on results of quant. study	Interview	Church reduces health barriers. Women's value of project & Lay Health Advisors	Researchers note: Small sample Size, Retrospective ²⁶

						effect results.	
Geographic Variation in Cardiovascular Disease Risk Factors Among American Indians and Comparisons w/the Corresponding State Populations/ Levin S, et al	2002	Ethnicity & Health	Women >= 25 yrs Menominee in Wisconsin & Chippewa in Minnesota & Lumbee in Robeson Cty, NC	Compare self report data for CVD and risk factors to learn variation among AI tribes.	In person or phone interview using tribal	CVD risk factors vary among AI. Need more research to understand differences and to develop needed policies & interventions.	Researchers note: Self-Report Data ⁴¹
Cancer Screening among Native Americans in Eastern NC/Farmer D, et al	2005	J Hlth Care for the Poor and Under-served	40-91 yr Members Lumbee, Robeson Cty, NC, size was 333 men and 456 women.	Review Lumbee “cancer screening” & “cancer screening behaviors”	Review phone interview data	Participants had cancer risk factors including obesity.	Researchers note: Self-report data, doesn’t include participants w/out phone. Not easily generalized to other AIs ²⁵
Impact of Core and Secondary Foods on Nutritional Composition of Diets in NA Women/Taylor CA, et al	2005	J Am Diet Assoc	Seventy-one women from three Oklahoma tribes ages 18-65	Determine relatedness of foods to Food Guide Pyramid	Descriptive Study of food records	High fat diet, limited fruit, Need AI nutrition education prgms	Researchers note: Convenience Sample, ³³
Dietary Intake and Body Mass Index of Adults in 2 Ojibwe Communities/deGonza	1999	J Am Diet Assoc	One hundred and four Ojibwe	Examine foods and overweight in these	Cross-Sectional Survey-interview &	47% overweight, Women low in calcium, iron, zinc, vit	Researchers note: Sample Size ³¹

gueB, et al			adults randomly selected in Minn & Wisc Excluded pregnant & lactating women	AI tribal communities.	food frequency and sociocultural questionnaire	A, folate. Women ate 40% intake as fat. Need cultural nutri. prgms.	
The Role of Culture in Health Communication/Kreuter M, McClure S.	2004	Ann Review of Public Health	Public Health, Health Comm articles	Consider culture influence on health comm	Review	Need to research effect of culture on health information sharing to prove its value (Reviewed Messer, Et al Cherokee/Lumbee cervical cancer study)	Only Public Health, Health Comm articles reviewed
Nutrition and Cancer among American Indians and Alaska Natives/Byers T.	1996	Cancer	Review of cancer and nutrition articles and studies	Review articles @ nutr/cancer risk & consider relevance to AI	Review	AI diets high fat, low fruit and vegetables	Not representative of all AI.
Intake of Nutrients Related to	1997	Prev Med	Eight hundred	Learn relation of	24hr Diet recall vs.	Women, elderly more	Not all interviewers were from

Cardiovascular Disease Risk among Three Groups of American Indians: The Strong Heart Dietary Study/Zephier EM, et al			and ninety-two AI aged 45-74 (10 tribes in Ok, Az, ND, SD) drawn from Strong Heart Study	AI diets to CVD and chronic disease	Phase 1 NHANES & recc daily intake by Nat'l Research Council, AHA, Healthy People 2000	likely met sodium, cholesterol reccs. Most participants' diets pose risk for chronic disease. Elderly low fiber intake.	communities, Researchers note suspected participant underreporting and sample drawn from a sample of AI ³⁵
Dietary Patterns Among Members of the Catawba Indian Nation/Costacou T, et al	2000	J Am Diet Assoc	Six hundred forty-four men and women on tribal roll eligible for services at Catawba Clinic	Compare diet of Catawba with and w/put Diabetes to recc diet choices.	Cross-section. Phone & in-person interview at Catawba Clinic	Diet low in fruit/vegs. Doesn't meet recc guidelines.	One person all interviews, Researchers question validity food frequency questionnaire with individuals who have low education attainment. ³⁷
The Experience of Native Peer Facilitators in the Campaign Against Type 2 Diabetes/Struthers R, et al	2003	J Rural Hlth	Four AI women from Northern Plains Reservations	Study experience of Native peer facilitators	Interview	Success of intervention & facilitator experience based on AI background & facilitator training	Researchers did not note limitations but small number of participants limits generalization of findings.
An Epidemiologic Review of Dietary Intake Studies among American	1997	Ann of Epi	AI and Alaska Natives (AIAN)	Review AIAN nutrition studies for	Review of existing studies meeting	Ten studies found AIAN consume greater than	Review of small number of studies (twelve) conducted from 1959 to 1996.

Indians and Alaska Natives: Implications for Heart Disease and Cancer Risk/Bell R, et al				relation between diet and heart dz and cancer	inclusion criteria	recommended amounts of fat.	
NC Tribal Health Assessment Project	2009	NCOM HHD & NCDHHS		Review to determine tribal health needs and resources.		Lumbee Tribe has resources useful for addressing health issues.	
Comparison of the nutrient intakes of blacks, Siouan Indians, and whites in Columbus County, NC/Harland B, et al	1992	J Am Diet Assoc	One hundred-forty-six Black, 56 Siouan, 89 white men & women in Columbus Cty, NC aged 18-87 years.	Compare w/ Recc Daily Allowance & between racial groups. Determine whether diets promote health.	Diet questionnaire compared intake of three groups w/Recc Daily Allowance. Used local administrators.	All races reported excess fat & less fiber vs. RDA. Women 18-50 yrs old consumed adequate iron. All women less calcium. Only Siouan women reported less cholesterol vs RDA.	No attempt to match racial percentages of locale to survey participants.
Barriers to Nutritional Well-Being for Rural Elders: Community Experts'	1998	The Ger	Seventy-three comm. leaders &	Learn perceived nutrition barriers	Interviews	Barriers-rural locale, lack of knowledge @ services,	Cannot generalize to urban environments.

Perceptions/Arcury T, et al			elders in two rural counties in central, NC (one county w/AIs.)	for rural elders, ways service providers can impact rural elder nutrition.		poverty, transportation, & traditional diet includes excess fat. Service providers need to network.	
Nutritional Self-Management of Elderly Widows in Rural Communities/Quandt S, et al	2000	The Ger	Sixty-four widows aged 70-93 in two rural NC counties with large AI/AA populations . Participants approx. 30% AA, AI, or European American.	Learn affect of widowhood on women's diet behaviors.	Three year ethnographic study.	Diet change may begin w/husband's illness (eat out, change food prep). Diet affect after husband's death can be positive (no concern @ husband's preferences) or negative (no structure, return to unhealthy diet).	Cannot generalize to non-rural widows.
Vitamin and Mineral Supplement Use by Older Rural Adults/Vitolins M, et al	2000	The J Ger	One hundred-thirty men & women	Describe supplement use in NC rural	Interviews	More married persons & women took	Cannot generalize to non-rural elderly.

			aged 70 or older in two rural NC counties with large minority populations . Participants approx. 30% AA, AI, or European American.	elderly by gender, race, and adequacy of diet.		supplements, AI & European American greater tendency to supplement than AA. Zinc, iron, & Vitamin A least used. Vitamins E & C most used. Supplement users tended to have adequate diet vs RDA.	
Cherokee Choices: A Diabetes Prevention Program for American Indians/Bachar J, et al	2006	Prev Chron Dis	Eastern Band of Cherokee Indians (EBCI)	Culturally competent diabetes program w/EBCI input. Used work places, churches & schools. Employed social media.	Review of REACH 2010 Program design and outcomes.	Weight-loss occurred, coalitions developed, programs expanded to additional sites. Increase in role models.	Cannot generalize to all AI tribes but is useful as a model.

<p>Older Adults in the Rural South Are Not Meeting Healthful Eating Guidelines/Vitolins M, et al</p>	<p>2007</p>	<p>J Am Diet Assoc</p>	<p>One hundred-twenty-two men & women aged 65 or older from two rural NC counties with large minority populations . Participants approx. 30% AA, AI, or European American.</p>	<p>Determine diet quality of elderly vs Food Guide Pyramid & HEI scores.</p>	<p>24hr diet recalls.</p>	<p>Over 98% of participants' diets did not meet recomm guidelines. High in fat & sugar. Low in dairy, whole grain, vegs, & fruit.</p>	<p>Cannot generalize to non-rural elderly. Potential for limited memory recall.</p>
<p>Dietary Fat Reduction Behaviors Among African American, American Indian, and White Older Adults with Diabetes/Quandt S, et al</p>	<p>2009</p>	<p>J Nutr Elder</p>	<p>Six hundred-ninety-one Men and women (AA, AI, or Euro-American) aged 65 or older with diabetes in two rural NC</p>	<p>Determine fat intake & diet relevance to ADA-certified diabetes ed classes.</p>	<p>Interview. Used Fat and Fiber Behavior Questionaire (FFB)</p>	<p>Diabetics more likely to change food prep than to stop eating a food. AA/AI likely to persist in fat consumption.</p>	<p>Authors note FFB has limited past use with older, rural, minority adults.</p>

			counties with large minority populations				
Dietary Calcium Intake and Supplement Use Among Older African American, White, and Native American Women In a Rural Southeastern Community/Bell R, et al	2002	J Am Diet Assoc.	Two hundred-forty women in Robeson Cty, NC (79 AA, 81 White, 80 AI) aged 60 or older.	Determine dietary calcium & supplemental calcium & Vitamin D intake for elderly women in three racial groups.	Interview & use of Oregon Dairy Council Calcium Score Sheet	Few meet RDA for calcium. Women taking supplements consume more dairy than women not taking calcium or Vitamin D supplements. Authors recc. Culturally tailored nutrition messages.	Authors note that the Calcium Score Sheet could underestimate dairy consumption.
Quality of Diets Consumed by Older Rural Adults/Vitolins M, et al	2002	J Rural Hlth	One hundred-thirty men and women (AA, AI, and aged 70 or older in two rural NC counties	Determine and compare diet patterns of older, rural adults	Interview with DIETSYS analysis system to determine food groups.	No participants met Food Guide Pyramid recc's. All consumed excess fat and sugar. Over half	Authors point that sample size is small.

			with large minority populations			consumed adequate fruit, vegetables; most had inadequate grain consumption.	
Randomized Trial of an Intervention to Improve Mammography Utilization Among a Triracial Rural Population of Women/Paskett E, et al	2006	J Nat'l Cancer Inst	851 women in Rob Cty, NC (35% AA, 42% AI, 25% White). 433 LHA group, 418 comparison	Eval use of Lay Health Advisors to deliver mammogram to rural, low income women	Random assignment. LHA in-person, cultural, tailored ed, print materials, phone calls vs usual care w/compare group	Mammo for all races in LHA > than compare group. LHA barriers <	Cannot easily generalize to other groups ⁵⁴ .
Tools for Healthy Tribes Improving Access to Healthy Foods in Indian Country/Fleischhacker S, et al	2012	Am J Prev Med	Seven NC AI Tribes	Develop strategies that empower NC AI to access and afford healthy food	Multi-phase project which included Talking Circles, interviews	Important to engage tribal leaders, developed recd for entities interested in partnering with NC AI tribes regarding dietary change.	Potentially limited ability to generalize to AI tribes located outside of NC.

Engaging Tribal Leaders in an American Indian Healthy Eating Project Through Modified Talking Circles/Fleischhacker S, et al	2011	Fam Comm Health	NC AI tribes	Use modified Talking Circles to engage tribal leaders in healthy eating project	Talking Circles	Talking Circles are beneficial for engaging tribal leaders	Potentially limited ability to generalize to tribes outside of NC
Prevalence and Predictors of Tobacco Use Among Lumbee Indian Women in Robeson County, NC/Spangler JG, et al	1997	J of Comm Health	NC NA Cerv. Ca. Prevent. Prj. Random Sample 982 Lumbee women >=18yr old in Robeson Cty, NC	Study tobacco use in Lumbee women.	Evaluated Post-Test interviews. Study used Lumbee women research assistants.	Tobacco cessation interventions need to be developed for various forms of tobacco.	Researchers note: Some data based on memory recall ²⁷
Prevalence of Postpartum Depression in a Native American Population /Baker, et al	2005	Maternal & Child Health J	One hundred fifty-one women age 16-40 in rural OB clinic (60.9% Lumbee)	Study Postpartum Depression	The Postpartum Depression Screening Scale to Screen	High prevalence of depression indicated need to establish screening protocol for this population.	Researchers note: limited social data, Scale not previously used in NA ²⁸ .
Poverty as Context for the Parenting	2007	Neonatal	Five Lumbee	Study poverty	Case Study with	Implied resource	Small Sample Size

Experience of Low-Income Lumbee Indian Mothers with a Medically Fragile Infant/Docherty SL, et al		Network	women with medically fragile infants.	affect on Lumbee women's parenting	Secondary Data	needs of Lumbee women during and after pregnancy	
Cardiovascular Risk Factors and Events in the Lumbee Native Americans of NC	2006	J of Am Coll of Card (online version)	920 Lumbee vs 2763 non-Lumbee	Present Abstract of Lumbee pts w/CVD to Am Coll of Cards 3/06. One page summary available	Retrospective review Lumbee vs non-Lumbee	Lumbee >CVD risk factors, >rates non-fatal MI, younger, more often female. Need further study of Lumbee.	Lumbee identified by zip code and self report as AI.
Lumbee Native Americans Have Higher Cardiovascular Risk/Merritt R.	2006	Web Page Article	CVD pts @ DUMC Durham, NC			Lumbee women have significant CVD	
USDA Nutrition Guidelines 2005/Nappo-Dattoma L.	2005			Guidelines to influence nutrition			
Dietary Guidelines 2010/USDA	2010			Guidelines to influence nutrition			
Healthy People 2010/USDHHS USDA	2000			Goals to Improve Health			

NC Minority Health Facts 2010/NCDHHS	2010			Report NC Minority Health			
NC Minority Health Facts 2005/NCDHHS	2005			Report NC Minority Health			

American Indian Women

PubMed returned 1722 entries with first 500 reviewed for relevance. Two new studies were accepted and an additional study accepted from an unpublished study for total of three articles. CINAHL returned 297 studies with duplicates to other searches but no new studies accepted. Google Scholar yielded 1,990,000 studies. The first 500 were reviewed for relevance and two studies added to review. When the search string was changed to “American Indian women, NC” PubMed yielded seventy studies with no new studies accepted. CINAHL yielded nine studies but none were new to the review. Google Scholar yielded 239,000 studies with five relevant articles which were already in review so no new articles were added. The fact that no new articles were added for the American Indian women, NC search string indicates saturation had been reached. The total studies added for American Indian women and American Indian women, NC search strings were five.

American Indian Women				
Database	Articles Returned	Relevant Articles	Articles Accepted	Notes
PubMed	1722 (First 500 reviewed)	5	3	Two duplicates to other searches
CINAHL	297	2	0	Two duplicates to PubMed
Google Scholar	1,990,000 (First 500 reviewed)	2	2	
American Indian Women NC				
Database	Articles Returned	Relevant Articles	Articles Accepted	Notes
PubMed	70	7	0	Duplicates to other search strings
CINAHL	9	1	0	Duplicate to Lumbee women search
Google Scholar	239,000 (First 500 reviewed)	5	0	Five duplicates to other searches

Title/Author	Year	Source	Population	Intent	Methods	Results	Limitations
Formative Assessment Using Social Marketing Principles to Identify Health and Nutrition Perspectives of Native American Women Living within the Chickasaw Nation	2011	J Nutr Ed Behav	Forty-two AI mothers aged 22-50 yrs living w/in Chickasaw Nation boundaries	Determine effective communication needs, methods from view of AI.	Focus Group	Women experience barriers, AI ties and leaders key to info exchange, print material	Did not include women over fifty years old, women not receiving food assistance, women who were not mothers, or women outside Chickasaw Nation boundaries. These

Boundaries in Oklahoma/Parker S, et al			in Oklahoma & received SNAP-ED (Suppl Nutr Assist Ed Prgm) or FDPIR (Food Dist Prgm on Ind Reserve).			important	exclusions limit ability to generalize findings.
Changing Patterns in Health Behaviors and Risk Factors Related to Cardiovascular Disease Among American Indians and Alaska Natives/Jernigan V, et al	2010	Am J Pub Hlth	AI men & women in thirty-six states with Indian Health Services who participated in BRFSS surveys in 1995-96 (2,548 AI participants) and 2005-06 (11,104 AI participants)	Analyze ten year data for CVD risk & health behaviors.	Cross-sectional data BRFSS 1995-96 &2005-06	AIs consumed low amounts of fruit & vegetables. Increased occurrence of hypertension, obesity, DM, tobacco usage over ten years. Low levels of physical activity.	Did not include AIs outside of the thirty-six state Indian Health Service areas. Authors note data collection excluded people without home phone & those living in institutions. BRFSS is self-report thus author's had concern for recall bias.
Psychosocial Determinants of Food	2006	J Nutr Ed &	Two hundred	Describe patterns &	Face to face questionnair	Tended to buy high fat	Not easily generalized to other tribes.

Purchasing and Preparation in American Indian Households/ Gittelsohn J, et al		Behav	seventy randomly selected AI homes on two Arizona reservations. 95% female participant.	factors related to buying and preparing food.	e. Local Apache women assisted participant respondents.	& sugar food. Tended to fry food. Need for culturally sensitive nutrition information.	
Social and Cultural Barriers to Diabetes Prevention in Oklahoma American Indian Women/Taylor C, et al	2004	Prev Chron Dis	Eighty-one AI women in Oklahoma 18-65 years old.		Interview	Family & community sources of info, family outweighs personal needs, nutr/DM ed must include family,	Authors point potential bias introduced by local interviewers, transcript reviewers, selection of participants who willingly attend for care at local clinics.
Reducing Diabetes Risk in American Indian Women/Thompson J, et al	2008	Am J Prev Med	Two hundred AI women aged 18-40 years in a southwest city.	Evaluate effect of cultural intervention on AI at risk for DM in an urban setting.	Two year Random Control Trial. Random assign to intervention (five monthly group meetings) or control group	Intervention and control groups had weight loss by end of study. Both groups reduced sugar intake & tv time. Intervention group had increase in	Authors note potential bias sources: volunteers more likely motivated to change behavior, impact of dropouts on data.

					(delayed intervention). Each group had similar numbers of participants with impaired glucose values.	fruit intake over the study.	
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Health Communication

A PubMed search on “Health Communication, Tailoring, Population” returned 65 articles of which six proved relevant and were accepted into this review. CINAHL returned two articles and both were duplicates of the PubMed and Google Scholar lists. A Google Scholar search resulted in 79,200 entries of which the first 500 were reviewed for relevancy. Five of the relevant PubMed articles and both CINAHL articles were found as duplicates in the Google Scholar list. Nine additional articles were accepted into this review. A booklet was added by searching the NIH website. With the booklet addition a grand total of 16 unique articles were accepted to the review.

When the search string was changed to “Health Communication, Culturally Sensitive” PubMed resulted in 410 articles with one article having relevance to the study question. Reasons for not accepting articles included health care focus, lack of availability, and foreign studies. CINAHL had thirty articles but no articles were relevant to the study question. Reasons for not including articles included focus on patient care. A Google Scholar search resulted in 226,000 entries with the first 500 reviewed. Five studies had relevance but three of those studies were already in the review thus only two new studies were added. A total of three unique articles were accepted into this review.

Health Communication, Tailoring, Population				
Database	Articles Returned	Relevant Articles	Articles Accepted	Notes
PubMed	65	6	6	
CINAHL	2	2	0	Duplicates of PubMed
Google Scholar	79,200 (First 500 reviewed)	14	9	Five Duplicates to PubMed
NIH Website	1	1	1	
Health Communication, Culturally Sensitive				
Database	Articles Returned	Relevant Articles	Articles Accepted	Notes
PubMed	410	1	1	
CINAHL	30	0	0	
Google Scholar	226,000 (First 500 reviewed)	5	2	Three Duplicates to Tailoring Populations search string

Title/Author	Year	Source	Population	Intent	Methods	Results	Limitations
Is There a Use for Tailored Print Communications in Cancer Risk Communication?/Rimer B, Glassman B.	1999	J Nat'l Cancer Inst Mongrph	30 articles in MEDLINE, PsychInfo	Review Tailored Print Commun. Ca. Risk articles	Lit Review	Recc strategies. Found that articles about fat reduction more effective than fruit or vegetable	Reviewers note variation in studies reviewed
One Size Does Not Fit All: The Case for Tailoring Print Materials/Kreuter M, et al	1999	Ann Behav Med	Article	Discuss Tailored Print Comm, theories, materials	Discussion	Steps to dev/deliver Tailored Print Comm	Overview discussion.
Understanding Tailoring in Communicating About Health/Hawkins R, et al	2008	Hlth Edu Res	Review	White Paper to suggest future tailoring research	2x3 matrix-strategies/tactics matched to goals	Recc'd research tailoring-how works, impact, assessment's impact on outcome	Review of tailoring literature.
Tailored and Targeted Health Communication: Strategies for Enhancing Information Relevance/Kreuter M, Wray R.	2003	Am J Hlth Behav	Two hundred one overweight men and women	Evaluate tailoring vs nontailored information	Random trial	Tailoring can improve information relevance by effect on cognitive processing	Study focused on overweight so possible limits in generalization to other issues
Tailored Health		Am J	Review	Review lit	Review Lit	Potential for	Review of literature

Communications to Change Lifestyle Behaviors/Noar S, et al	010	Lifestyle Med		related to lifestyle (smoking, diet, exercise)		tailoring to effect lifestyle has not be reached	
The Role of Theory in Developing Effective Health Communications/Fishbein M, Cappella J.	2006	J Comm	Retrospect study of smokers	Show behavior theory aids health comm.	Apply behavior theory to realize smoker's beliefs	Must understand belief & behavior target population before can effect change.	Applied theory to one group of smokers thus ability to generalize could be limited.
The Role of Culture in Health Communication/ Kreuter M, McClure S.	2004	Annu Rev Public Hlth	Public Health, Health Comm articles	Consider culture influence on health comm	Review	Model for health comm., need cultural intervention	Only Public Hlth, Hlth Comm reviewed
Tailored Interventions in Public Health: Where Does Tailoring Fit In Interventions to Reduce Health Disparities?/Campbell MK, Quintiliani L.	2006	Am Behav Scientist	African Americans	Identify effective culturally relevant prgms	Review of studies	Tailored print materials effective with minorities. Unclear if focus group info represents entire group.	Researchers point that review might not represent most African Americans
Early Detection of Cervical Cancer among Native American Women:	1999	Health Educ Behav	>=18 yr NC women Lumbee,	Explore cultural effects on	Interview	Church reduces health	Researchers note: Small sample Size, Retrospective ²⁶

A Qualitative Supplement to a Quantitative Study/ Messer L, et al			Cherokee	results of quant. study		barriers. Women's value of project & Lay Health Advisors effect results.	
MyPyramid.gov: Assessment of Literacy, Cultural and Linguistic Factors in the USDA Food Pyramid Web Site/Neuhauser L.	2007	J Nutr Educ Behav	Analysis	Determine website consumer relevance & recc web site needs.	Readability software, usability assessment tool and investigator developed qualitative evaluation for cultural factors with English website.	Readability inconsistent and site not easy to use. No pictures, information, specific to race or ethnic group.	Reviewers note did not use standardized criteria and qualitative tools not tested for validity or reliability.
<i>Speaking of Health-</i> Institute of Medicine/Committee on Communication for Behavior Change in the 21 st Century	2006		Book	Focus on health comm. To diverse populations	Review theory & interventions	Recc'd exploratory exam for suitability of comm approaches before developing full scale campaigns	
When Message-Frame Fits Salient Cultural-Frame, Messages Feel More	2010	Psych & Hlth	Studies of women- 72 European	Tested cultural health	2x2 between subject design	Culture increases persuasivene	Focus on women thus unclear whether results can generalize to men.

Persuasive/Uskul AK, Oyserman D.			Americans, 48 East Asian	message persuasiveness after reminder of cultural membership		ss of culturally framed health information	
Achieving Cultural Appropriateness in Health Promotions Programs: Targeted and Tailored Approaches/Kreuter M, et al	2003	Hlth Ed & Behav	African American women in Missouri	Discuss cultural targeting and tailoring	Tailor materials for African American women	Example of tailored ca. info for a specific cultural group	Applied tailoring to one minority group
Healthy People 2010: Understanding and Improving Health/USDHHS	2000	USDHHS		Plan to improve the public's health			
Cultural Tailoring for Mammography and Fruit and Vegetable Intake Among Low-Income African-American Women in Urban Public Health Centers/Kreuter MW, et al	2005	Prevent M edicine	Twelve hundred twenty-seven African American women aged 18-39 or 40-65 in Missouri	Reviewing effect of tailoring among lower-income African American women.	RCT using magazines with behavioral construct tailoring, cultural relevant tailoring, or both	Behavioral construct with cultural relevance messages greater influence on mammogram uptake and eating fruit/vegetable	Researchers note self report and lack of generalization due to selection process.
Designing Effective Health Communications: A Meta-Analysis/Keller PA, Lehmann D.	2008	Am Market Assoc	Article	Note message tactics/individual	Meta-Analysis 60 hlth comm. studies	Need to tailor, emotional messages	Authors note absence of data and researcher judgments

				characteristics influence hlth compliance		effective for women ⁶²	
USDA Nutrition Guidelines 2005/Nappo-Dattoma L.	2005			Guidelines to influence nutrition			
Factors Influencing Food Choices, Dietary Intake, and Nutrition-Related Attitudes among African Americans: Application of a Culturally Sensitive Model/James DC.	2004	Eth & Hlth	Nineteen AA women & 21 AA men in north central Florida	Impact of culture & community on food-related behaviors and determine who/where to target programs	Focus groups with six to eight participants	Tradition food important, barriers-cost, family support, lack of info, barriers cross SES, busy lives is barrier, need environmental changes ie get grocery store involved	Potential for limitation when considering groups of AAs beyond north central Florida.
Your Choice for Change! Honoring the Gift of Heart Health for American Indians	2008	USDHHS		Booklet to inform AI about heart dz			
Cultural Issues in the Development of Cancer Control Programs for	1994	J Hlth Care for the Poor	Paper	Discuss cultural sensitivity	Review	Culturally sensitive materials	Review is focused largely on Lumbee and Cherokee cervical

American Indian Populations/Michielutte R, et al		and Underse rved		issues in health ed programs directed toward minorities. Includes discussion of NC Cervical Cancer Prevention Project (Lumbee, Cherokee women).		differ based on minority group. This was evident when cervical cancer project with two tribes required changes to achieve cultural sensitivity for each tribe.	cancer project which limits ability to generalize to other tribes.
American Indian Women's Talking Circle. A Cervical Cancer Screening and Prevention Project/Hodge FS, et al	1996	Cancer	Four hundred AI women in urban or rural Indian health clinics in California.	Use Talking Circles and stories to deliver cancer education.	Two hundred AI women in intervention group, 200 in control group (later receives a modified version of program).	Story telling successful, participants indicate culturally sensitive health information delivery is acceptable and followed.	Not easily generalized to other AIs.

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