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Audrey S. Bachman, Student

Dr. Donald Helme, Major Professor

Dr. Bobi Ivanov, Director of Graduate Studies

ADOLESCENT PERCEPTIONS OF NUTRITION: IDENTIFYING MEMORABLE  
MESSAGES

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THESIS

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A thesis submitted in partial fulfillment of the requirements for the degree of Master of  
Arts in the College of Communications and Information Studies at the University of  
Kentucky

By

Audrey Smith Bachman

Lexington, Kentucky

Director: Dr. Donald Helme, Associate Professor of Communication

Lexington, Kentucky

2015

## Abstract of Thesis

Research is necessary to uncover ways to improve adolescent nutrition and reduce obesity rates, particularly in the Appalachian region, which has high rates of food insecurity and adolescent obesity. The current study examines rural cultural norms about food, memorable messages adolescents received about nutrition, and the sources of identified memorable messages. Adolescents shared memorable messages during comprehensive, semi-structured, small group interviews in which participants revealed their individual experiences. Thematic framework analysis is used to present the range and nature of memorable messages about nutrition and to develop strategies for future health campaigns and interventions. This qualitative method of sequential inductive analysis provides transparency of data and resulting interpretations through thematic identification and indexing. Analysis revealed themes of messages that featured critical pieces of the rule-structure of memorable messages – specifically, adherence and consequence regarding nutritional behaviors. Prominent memorable messages of adherence included topics of balance (e.g., MyPlate), type (e.g., junk food), and timing (e.g., “don’t eat after 7 p.m.”). Messages with elements of consequence included communication of short-term (e.g., “breakfast gets your blood flowing) and long-term consequence (e.g., obesity, etc.). Adolescents identified family members, educators, and media as salient sources of memorable messages.

Keywords: Health Communication, Memorable Messages, Nutrition, Appalachia, Adolescence, Health Outcomes

Audrey Smith Bachman

April 1<sup>st</sup>, 2015

ADOLESCENT PERCEPTIONS OF NUTRITION: IDENTIFYING MEMORABLE  
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This work is dedicated to those who have influenced my academic career (in no particular order): Dr. Elisia Cohen, Dr. Brandi Frisby, Dr. Don Helme, Dr. Jennifer Fairchild, Dr. Jayne Violette, and Dr. Eric Meiners.

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## CHAPTER ONE

### **Introduction**

The communication of memorable messages, which may be recalled after extended time frames and may make a difference in an individual's behavior (Stohl, 1986), have the potential to affect adolescents as they make nutritional decisions each day. These messages have been studied through a variety of frameworks (e.g., Keeley, 2004; Nazione, 2011; Smith, 2009), but lack investigation in the context of the communication of nutritional information to adolescents. As the childhood obesity epidemic continues, research is necessary to uncover factors that influence both healthy and unhealthy diet behaviors among adolescents. By applying the memorable message framework in this context, it may be possible to identify the messages about nutrition that matter to adolescents, the sources that communicate these messages, and how talk about nutrition and diet influences adolescents' choices now and in the future.

Memorable messages about nutrition communicated to adolescents may vary by locale; the focus of the current study is rural adolescents, particularly Appalachian Kentucky. Health disparities are commonly researched in the Appalachian population (Behringer & Friedell, 2006; Head & Cohen, 2012). The region is composed of 420 counties that span thirteen states including Kentucky, West Virginia, Virginia, Tennessee and North Carolina (Appalachian Regional Commission, 2015). According to the United States Census Bureau (2012), the amount of Appalachian families in Kentucky in poverty with children ages five to seventeen is upwards of 57%. In this economically distressed

U.S. region, more than one third of adults and almost 17% of children and adolescents are obese, and research also shows that five of the twelve states in the Appalachian region have obesity rates greater than or equal to 30% (CDC 2012; Ogden et al., 2012).

Furthermore, the prevalence of obesity among 12 to 19-year-olds has increased from 5% to 18% in the last 30 years, which surpasses smoking as the leading avoidable cause of morbidity and mortality in the United States (Fryar, Carroll, & Ogden, 2012; Jia & Lubetkin, 2010; Suchindran, Popkin, & Gordon-Larsen, 2010).

Obese children are more likely to live in rural areas, characterized by the lack of local health services, low adherence to physical activity, low health literacy, lack of coordination among health providers, socioeconomic disadvantage, geographic isolation, and lack of transportation (Reed, Patterson, & Wasserman, 2011). Geographic isolation may lead to additional issues that contribute to the prevalence of obesity in rural areas. Counties in states like Kentucky are often characterized as food deserts, which are marked by the lack of accessible supermarkets or warehouse stores. Swanson, Schoenberg, Davis, Wright, & Dollarhide (2013) report issues of cost of and access to healthy foods are identified by adolescents as barriers to healthy eating in Appalachian Kentucky. The Community & Economic Development Initiative of Kentucky (2014) report that total households with no located more than 1 mile from a grocery store in the state is 3.3%, compared to the U.S. average of 1.9%. Some Kentucky counties are well above both the national and state averages; 9.9% of Clay County residents experience food access issues (CEDIK, 2014).

A prominent health disparity affecting the food culture in rural areas like Appalachia is food insecurity. According to the World Health Organization (2015), food security occurs “when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life”. WHO (2015) identifies three dimensions of food security including (1) food availability, or the assurance of consistent, adequate quantity of food, (2) food access, or the resources to obtain nutritious food, and (2) food use based on accurate nutritional knowledge. According to the United States Department of Agriculture Economic Research Service (2015), the food insecurity rate is highest in the southern United States (15.7%). The national average of food insecurity is 14.6% – Appalachian residents in Kentucky experience rates as high as 16.4%. Food insecurity may lead to the purchase of food less nutrient dense because it tends to be inexpensive. In an area plagued by poverty, choosing the cheapest food option is a fact of life. This fact may lead to communication perpetuating social norms of acceptance of purchasing nutrient deficient foods among the region’s residents regardless of the level of nutrition knowledge.

In addition to the aforementioned factors, researchers postulate that the food culture in Appalachia may be a prominent factor affecting health behaviors (Denham, Manoogian, & Schuster, 2007). This culture includes eating high fat foods and frequently engaging in food consumption during social gatherings of family and friends. Beyond structural and socioeconomic factors, it is possible that cultural communication patterns contribute to obesity. An Appalachian based study focusing on family support of individuals with Type 2 diabetes found that family food traditions had considerable

effects on participants' ability to manage their diets (Denham et al., 2007). Further, Denham et al. (2007) found that even with a wide variety of information sources available, participants widely relied upon family or community members as resources for support. Cultural communication patterns such as these may contribute to the knowledge and perceptions of nutrition among adolescents in Appalachia; however, other confounding factors may be present in a region plagued by health disparities.

There are many factors that may affect communication about food in Appalachia. Recent research in Appalachia identified attitudes and perceptions of regional youth regarding nutrition and physical activity (Swanson et al., 2013). The young participants in the study did not attribute poor health decision making to a lack of education; the adolescents blamed other confounding factors. Female participants in the study described the nutritional influences of personal food preferences and barriers such as cost and convenience to healthy nutrition. Swanson et al. (2013) also indicated that the traditional Appalachian practices of gardening, food preservation, and bartering were rarely mentioned in focus groups. Additionally, Swanson et al. (2013) speculate female participants' lack of knowledge of these traditional practices may be influenced by their mothers' communication about nutrition beliefs and behaviors.

Interpersonal communication in the context of nutrition creates potential for memorable messages, which are messages that are remembered for long periods of time and have considerable influence on an individual's communication and behaviors (Stohl, 1986). In order to explore options for future health interventions and campaigns, formative research of memorable messages in the context of nutrition is crucial. The

identification of memorable messages and the sources of these messages ascertained by adolescents may help to create more targeted platforms for nutritional message delivery. This may include practices such as message targeting or message tailoring.

Adapting message content for a particular group is a practice referred to as message targeting (Kreuter, Strecher, & Glassman, 1999). Audience segmentation, which uses targeting for homogenous groups, assumes that message preferences among segmented groups are similar to one another, which is shown to be effective in the design of campaign messages (Atkin, 2001; Slater, 1996). A message design approach targeted to an audience segment is likely to be effective as this approach is central to developing creative messages. Designing messages in this way is likely to initiate interpersonal discussions by persuading individuals that may influence the target audience (Noar, 2006). Research of messages about nutrition that are memorable to adolescents is essential to developing and designing targeted campaign messages. Knowledge of the sources of these messages allows campaign messages to be strategically positioned within channels widely viewed by the target audience (Noar, 2006). Memorable messages gleaned from research may also uncover other audiences to target, such as family members or healthcare providers.

The current study is exploratory and investigates how memorable messages about food and their sources are connected to nutritional perceptions among adolescents. This thesis includes an overview of memorable messages and attends to the potential sources of these messages. Two main questions are investigated: what message topics about

nutrition adolescents report as memorable and what main source categories of memorable messages exist among adolescents.



## CHAPTER TWO

### **Literature Review**

Adolescents have specific nutritional needs. The Mayo Clinic (2014) details the nutrition basics for both adolescent girls and boys based on the 2010 Dietary Guidelines for Americans. Choosing nutrient dense foods among the categories of proteins, vegetables, fruits, grains, and dairy is recommended for adolescents. Limiting solid fats and sugar is also suggested. The recommended amount of these foods and caloric intake varies by both sex and age of children. According to the American Academy of Pediatrics (2014), the early adolescent body demands more calories than at any other time of life. Boys require about 2,800 calories per day, while girls require about 2,200 calories per day.

The aforementioned recommendations are basic needs; the information about types of food, vitamins, minerals, etc. is abundant among many channels (e.g., face-to-face communication, online, television, etc.). Information seeking and resulting communication produces a considerable amount of talk about nutrition – so what sticks out? Are there characteristics of certain messages about nutrition that make some more memorable than others? One way of investigating salient messages about nutrition recalled by adolescents is through the memorable message framework. This framework identifies characteristics of messages that may not only stand out among myriad messages, but also have an impact on individual's lives. This framework provides a way to parse out messages about nutrition that may follow adolescents into adulthood and serve as scripts for nutritional decision-making.

### *Memorable Messages*

As exchanges are made between communicators, some messages are more notable than others. Stohl (1986) asserts that a “memorable” message is characterized by an individual’s ability to recall the message after extended time periods and the influence of the message on his or her life. Several studies have found that individuals are able to recall memorable messages more easily and confidently (Barge & Schlueter, 2004; Holladay, 2002; Stohl, 1986). The initial investigation of memorable messages conducted by Knapp, Stohl, and Reardon (1981) revealed that brevity and personal relevance are characteristics of memorable messages. Moreover, the memorable nature of a message is typically governed by a four-part rule structure including (1) an indication of context, (2) words and phrases that indicate obligation, (3) suggestion of adherence, and (4) desired consequences of the suggested behavior (Knapp et al., 1981). This rule structure is the basis of many studies and is often described as rules of conduct (Holladay, 2002; Keeley, 2004; Smith, 2001; & Stohl, 1986).

According to Knapp et al. (1981), indication of context presents a situation or interaction wherein the rule regarding behavior is applicable. Specifically, this context refers to a condition that must be something that may be repeated in future behaviors if this condition is to become a rule. Words and phrases that indicate obligation may also include preference of behavior or prohibit some type of behavior. Word and phrases such as “should”, “should not”, and “have to” are commonly used as an arbitrary device serving to drive the obligation, preference, or suggested behavioral limitation. Adherence within the memorable message framework is defined as “an indication of the behavioral

act which ought to, may, or must be performed to comply with the rule” (Knapp et al., 1981, p. 31). Consequence is explicated as “an indication of the desired consequences of behaving in the prescribed manner” (p. 31). All of these elements constitute a rule-structured memorable message. For example, Stohl (1986) cited the message, “if you have nothing to do, you should never do nothing or you’ll be a nothing” as having all four components of the rule structure (p. 235).

In order to be classified as rule-structured, a memorable message requires the aforementioned characteristics; however, the components do not have to be explicitly stated within the identified messages (Knapp et al., 1981). Regulative rules such as context may be present among several responses during interviews. For example, Knapp et al. (1981) identified the message, “In order to understand us, you must first dust our shelves” (p. 31). This message is a statement made by a participant to the researcher in the context of the interview being conducted – he was referring to what should be done prior to doing research.

Stohl (1986) indicates memorable messages are used for interpreting future communication, piloting new situations, and providing a “shared reality” (p. 248). Cognitive and behavioral growth during adolescence may be affected by these messages. Memorable messages have also been shown to provide a mental road map for acceptable behaviors (Holladay, 2002). Advances in autonomy, development of information processing capacity, and thinking abstractly is central to adolescence (Keating, 1990; Steinberg, 2005). Memorable messages about nutrition are crucial during adolescence

and are potentially used to navigate and/or proliferate future behaviors that may continue through adulthood.

Given the aforementioned criteria, memorable messages are likely in the context of talk about nutrition during adolescence. First, absent of health education courses, many messages conveyed to adolescents may often be brief and potentially communicated in passing from a variety of potential sources. Second, suggestions regarding diet expectations to a recipient intuitively convey personal relevance. The current study seeks to identify messages shared by sources close to participants such as family members, friends, and teachers. Third, common nutritional messages (e.g., “drink more water”, “eat more vegetables”) are often consumption-centered and suggest a prescribed action or behavior. Nutritional messages tend to convey various benefits and/or consequences as well (e.g., “drinking milk gives you strong bones”). Of the innumerable nutritional messages buzzing around in our society, what stands out? The question remains as to what memorable messages regarding nutrition adolescents consider significant and how much information they are able to recall from the messages they have received:

*RQ1: What message topics about nutrition do adolescents report as memorable?*

Another distinguishing characteristic of a memorable message is the recipient’s regard for the message source and the belief that the sender has compassionate intentions (Knapp et al., 1981). It has also been found that memorable messages are commonly shared in private settings (Barge & Schlueter, 2004; Knapp et al., 1981). Do these characteristics ring true to memorable messages about nutrition recalled by adolescents?

### *Sources of Memorable Messages*

The source of a message has an effect on whether the recipient regards the message as memorable. A memorable message is often “taken to heart” and communicated by a person the individual holds to great esteem (Knapp et al., 1981, p. 39). Studies have shown that the interpersonal sources of memorable messages are most often an authority figure that is older (Knapp et al., 1981; Stohl, 1986); however, research also shows that memorable message sources may include family members, friends, media, religious figures, and medical sources (Heisler & Ellis, 2008). Examination of messages among young adults regarding navigating college life revealed that family members and educators were the most frequent sources of memorable messages (Nazione et al., 2011). Family communication is central to the collectivistic culture in Appalachia, which unfortunately may often perpetuate the distrust of institutions outside of the family such as schools and government organizations (Montemayor, Adams, & Gullota, 2000). This is important from a memorable message perspective, as communication about nutrition from family members may be more memorable by nature.

In addition to family, peers have been shown to influence the health behavior of adolescents due to their prominent roles in the lives of youth, although family socialization influences the adolescents’ peer relationships (Brown, 1990; Steinberg & Sheffield Morris, 2001). Peer influence may be positive or negative and mainly occurs because of mutual admiration and respect, which is a fundamental element of the memorable message construct (Steinberg & Sheffield Morris, 2001; Susman et al., 1994). Friendships in early adolescence are characterized by heightened loyalty and intimacy,

which leads to an increase in self-disclosure (Steinberg & Sheffield Morris, 2001). This self-disclosure may include memorable communication about nutrition and diet as relationships develop. Varying levels of intimacy may produce different types of messages to emerge during peer-to-peer communication. Messages may pertain to issues such as obesity as it relates to body image or food-insecurity at home.

Many adolescents and their peers develop relationships while attending school. During their education, they are often exposed to many nutrition-related messages. Educators in the public school system are central to many school-based nutrition programs. Teachers have been shown provide considerable informational support in the lives of adolescents (Reid, Landesman, Treder, & Jaccard, 1989), yet many researchers maintain school-based programs targeting nutritional literacy are ineffective due to the inability to combat adolescent obesity rates in Appalachia (Smith, 2011; Swanson et al., 2013). Although cited as ineffective in the fight against obesity, are the programs effective in producing memorable messages for children? In transitioning from adolescence to adulthood, it is possible that some messages are internalized and have lasting influence on the individual, whether positive or negative. In addition, it may not be feasible to rely on school-based programs alone in combatting the childhood obesity epidemic. Other messages sources may play a considerable role in influencing adolescents.

In a media-saturated society, children have more access to television and electronics than ever. Adolescents' lifestyles have changed dramatically within recent years as use of television, video games, and computers have increased considerably

(Rideout, Foehr, & Roberts, 2010). Eleven to eighteen-year-olds consume more media than younger counterparts, totaling almost twelve hours per day (Rideout, Foehr, & Roberts, 2010). Clearly, much of the time spent outside of the school setting involves engagement with media. Although researchers show time spent watching television, playing video games, or using computers is unrelated to BMI (Bickham, Blood, Walls, Shrier, & Rich, 2013), the potential for messages about nutrition and diet to be gleaned from these outlets remains.

Messages about food saturate media outlets, and with increasing exposure to television, adolescents are inundated with commercials, programs, and public service announcements. In the face of the childhood obesity epidemic, many agencies have chosen these outlets for positive messages about nutrition. Campaigns such as the *We Can!*® multimedia public service announcement (PSA), created in collaboration with the Department of Health and Human Services (HHS) and the Ad Council, is a potential source of memorable messages. This campaign, which is visible through television and web banners, uses message targeting to encourage parents and caregivers to help children maintain a healthy weight by talking to them about the benefits of physical activity and eating healthy in exciting and engaging ways. Campaigns like *We Can!*® may directly influence adolescents' or influence their family members or caregivers with messages like, "knowing how much is too much can make you and your child healthier" (NIH, 2013). Discovering media sources of memorable messages will aid in developing message targeted or tailored campaigns, and may also uncover middlemen of these messages such as parents or peers.

Potential memorable message may originate during communication with family members, peers, educators, and other sources. Any number of these sources create potential for formation of nutritional perceptions and/or behaviors among adolescents. Additionally, messages communicated by these sources may speak to their credibility in communicating accurate information. The current study seeks to examine the sources of memorable messages in the context of nutrition that are reported by adolescents. Thus, the following research question is posed:

*RQ2: What are the main sources of memorable messages about nutrition among Appalachian adolescents?*

This thesis addresses nutrition-related memorable messages and their possible sources, and how these messages may affect Appalachian adolescents. The ongoing issues of obesity and food insecurity in this region beckon further investigation of memorable messages and their sources that may uncover ways to improve adolescents' health behaviors. By examining these messages and their relationship to nutritional perceptions, future campaigns and interventions focusing on nutrition may take a culturally centered approach. Additionally, identification of memorable messages may uncover potential problems associated with information adolescents receive about nutrition. Discovery of any issues related to dissemination of information about nutrition may help to shape nutritional programs currently in use among area schools. The next section will advance a methodology that seeks to answer the aforementioned research questions.



## CHAPTER THREE

### **Methods**

Data was collected in small, focus group interviews to gather information concerning adolescents' perceptions of nutrition in Appalachian Kentucky. This focus group method was used to reveal memorable messages about nutrition and message source that participants recalled. Following the call for future research presented by Medved, Brogan, McClanahan, Morris, and Shepherd (2006), this method of data collection provides a complement to the methodology of memorable messages that aids in contextualizing and interpreting the meanings of memorable messages. The focus group interview method is shown to capture group effects that expose shared experiences and complementary interactions that uncover consensus of memorable message topics and sources (Lindlof & Taylor, 2010). Small group interviews were used to create an intimate environment that made participants feel comfortable discussing their ideas and communication about nutrition. In the small group interview, questioning does not have to end when a child does not respond, which may reduce pressure for the individual to respond to a question that was not understood or pertaining to a context that has not been experienced (Lewis, 1992). According to Heary and Hennessy (2002), the group setting presents a familiar setting as many adolescent behaviors occur within group environments. School facilities (e.g., classroom, library) were utilized to provide adolescents with a recognizable, neutral environment. Interviews consisted up to 5 participants and included female, male, and mixed groups.

## **Participants and Recruitment**

With the support of regional health educators and teachers, students were recruited to participate in interview sessions exploring adolescent perceptions of nutrition and the memorable messages and sources of messages that drive these perceptions. Networking connections were made through county school principals and health educators employed at county health departments. One county elementary school principal allowed access to children in 4<sup>th</sup>, 5<sup>th</sup>, and 6<sup>th</sup> grades. A health educator at a county health department introduced the primary researcher to a county middle school health education teacher. This teacher provided access to children in 7<sup>th</sup> and 8<sup>th</sup> grades. The present study included a convenience sample of adolescent participants ( $N = 18$ ), consisting of 5 males (28%) and 13 females (72%). All participants were Caucasian and spoke English as their primary language. Study participants ranged in age from 11 to 14 years, with a median age of 12 ( $M = 12.3$ ,  $SD = 1.07$ ).

Adolescents were recruited from county elementary and middle schools. Students were eligible to participate if they were 11-15 years old, provided parent/guardian consent, spoke English, and currently resided in one of eight eastern Kentucky counties (Bell, Clay, Harlan, Jackson, Knox, Laurel, Rockcastle, Whitley, Knott, Lee, Leslie, Letcher, Owsley, Perry and/or Wolfe counties). From August 2014 to November 2014, adolescents were recruited for small group interviews using direct contact with school and health department administration. Fliers were distributed to students and posted in common areas at county elementary and middle schools.

The university institutional review board and university public relations approved all recruitment strategies. The recruitment messages generally included the request that adolescents aged 11-15 years participate in a research study aimed at better understanding nutritional perceptions of adolescents. The flier distributed included eligibility qualifications, indicated that participants needed parental consent, and asked that interested individuals contact the primary researcher by telephone or email.

### **Procedure**

Before beginning the research session, all participants provided parental consent forms, and signed an assent form approved by the university's institutional review board. Parental consent forms were sent in a packet with recruitment fliers to the schools where teachers willing to participate had been recruited. Teachers placed the fliers in their classrooms and other locations in the schools. Teachers distributed the parental consent forms to children who showed interest in participating in the research study. Within a 30-day time frame, follow-up contact was made with teachers to identify how many students had returned the parental consent forms. Once the number of children had been identified, days and times were scheduled with the teachers to arrive at the school and conduct interviews.

Upon arrival at the participating institutions, teachers divided students into groups of three to five children. This process was implemented to ensure students did not miss instructional time. One teacher provided her classroom to conduct the interview sessions, while the other teacher arranged for the interviews to take place in the school library. Both environments provided were relatively quiet and free of distractions.

Before beginning the small group interviews, an assent form was presented to each participant. The assent form was read aloud to the children. Additionally, participants were given time to read over the assent form individually. All participants recruited signed the assent form and participated in the interview process. One participant who provided a parental consent form was not present at school the day of the interview and was unable to participate. The parental consent form provided by the student's teacher was placed into University of Kentucky confidential material recycling for appropriate disposal. Consent and assent forms provided by all participating adolescents were placed in a secure location.

Each of the five small group interviews lasted between 20 and 35 minutes. Timing varied based upon participant dialogue with one another and time frames presented by the students' teachers. Again, this timing was determined by individual teachers to ensure that students did not miss crucial instructional time. Sessions were audio recorded using two devices to avoid data loss. An Olympus Digital Voice Recorder and an iPhone were used for recording the sessions. Data was then synced to the primary researcher's computer and backed up using Dropbox cloud service. All devices are password protected and stored in secure locations. Audio recordings collected were then transcribed using Express Scribe software and a transcription foot pedal. Pseudonyms were used to facilitate the identification of participant quotations.

### **Protocol**

A semi-structured group interview protocol was designed for this project, and the primary researcher served as the moderator. The goal of this approach was to gain

insight into the memorable messages and sources of messages that affect adolescent perceptions of nutrition. The protocol (see Appendix A) was designed to investigate the research questions posed, and was established using extant literature exploring memorable messages. Additionally, the protocol was panel reviewed by the researcher's thesis committee. Each interview started by asking general demographic questions of age, sex, and grade in school. Participants were then given an explanation of the memorable message construct. The students were informed that the research study was interested in memorable messages about nutrition and their sources. Following the interview protocol of Wang (2014), questions were structured by possible sources of memorable messages including parents, peers, and media. Participants were asked to describe and recall the best they could the situation and/or context in which they heard a particular message. Other questions included "who communicated the message?", "how was the message communicated to you (e.g. said, written, etc.)?", and "why is this message memorable for you?". Each adolescent in the small group interview was directed to answer each question. The adolescents often participated in dialogue with one another, usually agreeing or disagreeing with previous speakers' stories or offering counter narratives. Following the interviews, participants were provided with a University of Kentucky lanyard for their participation.

### **Data Analysis**

After all interviews were collected, the primary researcher listened to the audio of each small group interview to ensure sound quality would suffice for transcription. Subsequently, the audio recordings were transcribed using Express Scribe software and a

transcription food pedal. Any inaudible statements were noted within the transcripts. Once complete, the transcription documents were compared to the audio recordings to ensure accuracy of transcription.

The current study is exploratory; therefore, data was analyzed using a framework analysis methodology, which is a qualitative method of successive, inductive inquiry (Ritchie & Spencer, 2002). This type of analysis is often used in applied policy research (e.g., Head & Cohen, 2012), and “has a key role to play in providing insights, explanations and theories of social behaviour [sic]” (Ritchie & Spencer, 2002, p. 306). In this thesis, the ultimate objective is contextual in nature, seeking to discover the characteristics and landscape of the memorable messages that exist in this particular population. Additionally, these findings may serve a strategic purpose and identify new plans for campaigns and interventions targeting adolescents in rural areas like Appalachia. Given the contextual and strategic objectives of this study, the framework analysis methodology provided key features to dissect and explain the data collected.

The framework analysis methodology was specifically developed to serve many functions within qualitative data analysis including those central to this thesis. Primary goals of this research include discovering the nature of memorable messages about nutrition and their sources and developing strategies useful to creating campaigns targeting or tailoring to nutritional decision-making. Key features of the framework analysis methodology include (1) a generative nature driven by original accounts and observations, (2) a dynamic approach for analysis that is open to change throughout the process, (3) an allowance for full review of all material collected, (4) easy access to and

retrieval of original material, (5) an allowance for between-case and within-case analysis, and (6) easy access for others to view and judge interpretations made by the primary analyst (Ritchie & Spencer, 2002, p. 310). Data analysis followed the framework methodology with the following stages: familiarization, identification of a thematic framework, charting, and mapping and interpretation.

### **Familiarization**

The goal of familiarization is for the researcher to be immersed in the data. The immersion process began during moderation of the small group interviews. Additionally, the primary researcher engaged in listening to audio recordings, transcription of audio recordings, reading and re-reading interview transcripts, and studying notes made during the immersion process. Audio recordings were listened to twice. Transcriptions were completed over a three-day period. Once transcriptions were completed, they were read three times; the interview audio recordings accompanied the first read-through to ensure transcription accuracy. The second time was to gain a general outlook for the dialogue as a whole. The third read-through allowed for notation of emerging themes of memorable messages about nutrition and identification the sources of these messages.

### **Identification of a Thematic Framework**

Following primary notation of initial thoughts and impressions, the researcher began to identify a thematic framework to classify participant responses based on the memorable message construct. During identification of the framework and index, a priori issues informed by memorable message research served as a guide. Messages were

identified based upon the aforementioned elements of memorable messages; specifically, messages participants indicated had impact on their attitudes, behaviors, and decisions about nutrition. Gleaning from the seminal memorable message research, messages were identified based upon the rule-structure that memorable messages include a specific context, directory words and phrases, and suggestions of adherence and consequence (Knapp et al., 1981). The context of the identified messages, if not included within the actual message, was discovered in other parts of the interview data. Because the framework analysis methodology allows for a full review of all data, the primary researcher and two independent reviewers, both scholars affiliated with the University of Kentucky, were able to arrive at consensus of the implied context. The same was true for the identification of directory words and phrases.

Constructing the framework and index began with identifying a topic guide. Development of this topic guide was a result of the familiarization stage of data analysis. Two overarching themes emerged during immersion and shaped the topic guide. These themes are “adherence” and “consequence”, which is verbiage gleaned from the seminal memorable message research (see Figure 1, p. 22).

Recall that adherence refers to “an indication of the behavioral act which ought to, may, or must be performed to comply with the rule”, and consequence is “an indication of the desired consequences of behaving in the prescribed manner” (Knapp et al., 1981, p. 31). These themes were separated because some messages contained either elements of adherence or consequence, while others contained both elements of adherence and consequence simultaneously.



### **Topic Guide**

Adherence – an indication of the behavioral act, which ought to, may, or must be performed to comply with the rule

1. Balance – proportion of food
2. Type – description of food that should be consumed
3. Time – timing of food consumption

Consequence – an indication of the desired consequences of behaving in the prescribed manner

4. Short-term – applying to the present or immediate future
5. Long-term – applying to the distant future (i.e., adulthood)

*Figure 1. Thematic framework topic guide*

Once these overarching themes were discovered, an index was constructed (see Figure 2, p. 23).

<b>Index</b>
1.1 Calories/items on plate
1.2 Eating too much
1.3 Eating enough
2.1 Fruits
2.2 Vegetables
2.3 New foods
2.4 Healthy/unhealthy foods or beverages
3.1 Meals (e.g., breakfast)
3.2 Timing directives
4.1 Positive
4.2 Negative
5.1 Positive
5.2 Negative

*Figure 2. Thematic framework index*

According to Ritchie and Spencer (2002), indexing is “the process whereby the thematic framework or index is systematically applied to the data and their textual form” (p. 316). This method has been used for both individual and group interviews and involves using a numerical system to make references on the margins of each interview transcript. This numerical system allows both the researcher and reviewer to link back to the index and its subject headings.

Ritchie and Spencer (2002) assert “indexes provide a mechanism for labeling data in manageable ‘bites’ for subsequent retrieval and exploration” (p. 314). Five major subject headings were identified among the overarching themes of adherence and consequence. Adherence subject headings include balance (1), type (2), and time (3);

balance refers to proportion of food, type refers to description of food or beverages that should/should not be consumed, and time refers to timing of food consumption.

Consequence subject headings include short-term (4) and long-term (5). Short-term consequence for the purpose of the current study is defined as referring to the present or immediate future. Long-term consequence is defined as referring to the distant future (i.e., adulthood).

Thirteen categories emerged within the five major subject headings. Messages with elements of adherence included a few topics. Within the subject heading of balance (1), categories included calories/items on plate (1.1), eating too much (1.2), and eating enough (1.3). The subject heading of type included categories of fruits (2.1), vegetables (2.2), new foods (2.3), and “healthy”/“unhealthy” foods and beverages (2.4). The subject heading of time (3) included meals (3.1) and timing directives (3.2).

Messages with elements of consequence were more condensed as they contained short-term (4) and long-term consequence (5). Both short-term and long-term consequence subject headings were divided into positive and negative categories. Specifically, the index included short-term (4) positive (4.1) and negative (4.2) consequences and long-term (5) positive (5.1) and negative (5.2) consequences.

The indexing of data involves making decisions about the meaning and significance of the data. This was not a perfunctory procedure – interpretations of the data are central to the primary researcher; however, by providing a system for which to annotate the data, it is possible to foster greater visibility of the data and create the opportunity for others to test the fit of the framework.

## **Charting**

In order to paint a picture of the data as a whole, charting was used to lift data from their primary context and arrange to the applicable thematic reference. Microsoft Excel was used to design the charts. The charts are designed with headings and subheadings and are delineated for each fundamental subject area. Five charts are designed for the overarching themes of adherence and consequence. Specifically, these charts are labeled to correspond with the topic guide and index. Charts are labeled as follows: (A) adherence-balance, (B) adherence-type, (C) adherence-time, (D) consequence-short-term, and (E) consequence-long-term.

Each theme was applied across all respondents as each of the five charts is designed for each of the small group interview sessions; specifically, the charts have numbers corresponding to the interview group (i.e., 1, 2, 3, etc.). This is to ensure that implications of context are not lost in charting and others may easily review the data set in its entirety.

Each passage of text annotated using the thematic framework index was examined and condensed into a conspectus of the participants' indications of memorable messages about nutrition. Charted annotations are partial phrases and quotes pulled directly from the interview transcripts. Transcript page numbers are provided for each of the passages in the charts to affirm reviewers may reference original text effectively and efficiently.

## **Mapping and Interpretation**

The mapping and interpretation component of thematic framework analysis is used to “pull together key characteristics of the data, and to map and interpret the data set

as a whole” (Ritchie & Spencer, 2002, p. 320). Recall that the goals of this thesis include discovery of the characteristics and landscape of the memorable messages and identifying new plans for campaigns and interventions targeting adolescents in rural areas. Mapping and interpretation are used in order to identify the noteworthy memorable messages of nutrition and form a structure for the narratives provided by participants.

Mapping and interpretation is a four-part process. This process includes (1) review of the charts and annotation from notes, (2) juxtaposition of perceived messages, (3) searching for patterns and connections, and (4) seeking explanation of the aforementioned elements (Ritchie & Spencer, 2002, p. 321). This part of the process brings researcher interpretation to life, as it allows for meaning to be assigned to the data collected. Information gleaned from this process is elucidated and illustrated in the results and discussion sections of this thesis.

### **Identifying Message Sources**

The discovery of memorable message sources was guided by the interview protocol. This protocol included asking participants about nutritional messages received from family members, educators, peers, and the media. Participants were also asked whether or not they could recall any message sources other than the aforementioned sources. Message sources were identified in the interview transcripts by simply noting from whom the participant indicated heard the message shared. Message source codes included family members (FA), educators, (ED), media (ME), peers (PE), healthcare workers (HC), coaches (CO), and others (OT) (see Figure 3, p. 27). The code OT is used to identify other sources not covered by prior codes or those sources that were not

explicitly indicated by study participants. Indexed categories were divided by the indicated source of each of the messages during the charting process.

<b>Source Codes</b>
<b>FA</b> – family members (e.g., parent, sibling, etc.)
<b>ED</b> – educators (e.g., teacher, health, school personnel)
<b>ME</b> – media (e.g., television, Internet, etc.)
<b>PE</b> – peers (11-15 years of age)
<b>HC</b> – healthcare worker (doctor, dentist, nurse, etc.)
<b>CO</b> – coaches (athletics, etc.)
<b>OT</b> – others not covered by prior codes, unknown

*Figure 3. Message source codes*

### **Transparency of Analysis**

Two individuals served as outside reviewers the thematic framework analysis. Both reviewers are scholars affiliated with the University of Kentucky. The primary researcher constructed the framework and found consensus with the other two reviewers of the topics included in the guide. The primary researcher and the two reviewers completed indexing separately and later met to discuss findings and discrepancies. Key constructs were clarified, and the annotated transcripts were reexamined to note unique findings. The primary researcher place in-vivo quotations or descriptive phrases from the interviews into the charts, and the outside reviewers reviewed the charting. Negotiation of the in-vivo quotations or descriptive phrases resulted in consensus about the primary

data-driven themes. The memorable message framework was revisited to distinguish novel associations between the concepts and generated themes regarding the memorable messages about nutrition identified by adolescents. Finally, the primary researcher and the two reviewers discussed and approved the framework, findings, and interpretation of the analysis. All parties agreed findings reflected the data collected.

The methods of participant recruitment, data collection, and data analysis explained in the previous section were designed to discover memorable message topics of nutrition and the sources of identified memorable messages. The next section includes the results of data analysis and provides discussion of researcher interpretation of exemplar quotes.

## CHAPTER FOUR

### **Results**

The results presented in this thesis are organized around two specific themes, which emerged from data analysis. These themes are “adherence” and “consequence”, which is language garnered from the original memorable message research. The theme adherence, which suggests a behavior that must be performed for compliance, has three subject headings including balance, type, and time. The theme consequence, which suggests a consequence for adhering to a prescribed behavior, has two subject headings of short-term and long-term. Many messages have overlapping themes, as they feature elements of both adherence and consequence. Through the thematic framework analysis of identifying a thematic framework, indexing data with topic guides, and mapping and interpretation of the data, the primary researcher was able to address both research questions.

### **Research Question 1**

What message topics about nutrition do adolescents report as memorable?

Analysis revealed many message topics in the context of nutrition. Messages recalled have elements of adherence and consequence, both of which are fundamental features of the rule-structure of memorable messages. In regard to adherence, messages of balance of consumption, types of food and beverages that should or should not be consumed, and timing of meals and consumption were reported. Memorable messages revealed contained elements of short-term and long-term consequence, both of which having either



positive or negative connotations. The following is a break down of each of the message topics and exemplar quotes that coincide with each. As many messages contained both elements of adherence and consequence simultaneously, some messages are duplicated within each topic section.

### **Adherence, Balance**

The overarching theme of adherence features messages concerning a “balanced” diet; the subject heading balance refers to food proportions or caloric content of food. Adolescents recalled messages about calorie content or items on their plate, eating or drinking too much, and/or not eating enough. In regard to items on their plate, many participants recalled MyPlate, which is visual aid developed by the United States Department of Agriculture to illustrate the five food groups that are the building blocks for a healthy diet using an image of a plate. One participant recalled “big charts that has protein, um dairy, fruit, and stuff like that”. Regarding having too much to drink, one child recalled the message “drinking a lot of pop can make you have a lot of problems if you drink too much of it.”

Messages of balance continued with the need to eat enough food. One participant reported restricted play if she didn’t eat enough saying, “he (family member) won’t let me get up or play with anybody until I eat all my food.”

Another participant recalled an experience eating lunch at school, stating, “if you don’t get enough things we have to get something else.” This statement was in reference to eating in the school cafeteria. In order to qualify for free lunch programs in the state, children are required receive a certain number of items on his or her lunch tray. This may

be a common memorable message for children who receive free or reduced price lunch based upon family income. The national average of children that are eligible for free or reduced priced lunch is 52.8%, while the average for children residing in the counties recruited for this study is considerably higher (CEDIK, 2014). The Clay County average is 70.7% and the Wolfe County average is 84.1% (CEDIK, 2014). There were no messages identified about the content of those items, which may reflect communication suggesting the behavior of eating enough, regardless of what type of food is offered.

### **Adherence, Type**

The theme of adherence contains messages referring to types of food. The subject heading of type refers to a description of food that should be consumed. Adolescents recalled messages referring to fruits, vegetables, new foods, and/or “healthy”/“unhealthy” foods or beverages. One participant recalled the message “fruit nourishes your body.” Another recalled, “vegetables give you muscles.” In regard to new foods, several adolescents stated that you should “try new foods.”

All small groups referenced “healthy” or “unhealthy” foods or beverages; soda was mentioned frequently. One participant stated, “we have to eat healthy and water is the best for us and especially when we play sports and that um Gatorade is bad, pop is bad, diet pop is worse.” “Unhealthy” foods were also mentioned frequently. Another participant shared the message “you shouldn’t put like eat like a whole bunch of bacon or something.”

## **Adherence, Time**

Lastly, the theme of adherence includes messages referring to the timing of food consumption. This subject heading refers to specific meals (e.g., breakfast) and timing directives (e.g., “don’t eat after 7 p.m.). Breakfast was referred to often, particularly the importance of the meal to having energy and focus. One participant stated, “breakfast started off your whole day and made it good if you ate a healthy breakfast.” Another participant stated, “breakfast is the most important”.

Messages about timing of meals were revealed in two of the small groups. One participant recalled a message of timing, stating “if I don’t stop eatin’ [sic] after 7 p.m. [...] I’m gonna [sic] gain weight overnight.” This message is of particular interest due to the inaccuracy of the information communicated. Typically considerable weight gain does not occur overnight but rather over a lengthier time period. The source of this message may be communicating this due to some type of personal experience of how this behavior affected him or her.

Another participant recalled a message stressing the importance of meal timing and sports, stating, “ we’re supposed to eat before games and stuff so you don’t like like [sic] get sick or get hungry before a game.” This message has interesting content. The participant did not mention what type of food was supposed to be consumed, or what getting “sick” meant. This message may be meant as a reminder to eat at home, where the particular source of this message serves as a middleman between the child and the provider of food. This message is also important because it may be indicative of levels of

food security, as it serves to communicate a level of responsibility to the child to obtain food to eat prior to the event.

All of the categories of adherence (balance, type, and time) are topics that would most likely be mentioned no matter the location of study; however, there are messages present with undertones that are specific to the region, such as that of messages about requirements of reduced price or free lunch.

### **Consequence, Short-term**

The overarching theme of consequence contains messages of short-term consequence. The messages of short-term consequence recalled by participants had both positive and negative connotations. Memorable messages of positive, short-term consequence included: “carrots help your eyes when you eat em [sic]” and “make sure you eat breakfast so [...] you’re like awake and stuff”.

All but one of the short-term consequences referred to personal outcomes that would affect the individual if they adhered to the prescribed behavior. The message, “make sure you eat breakfast so [...] you’re like awake and stuff” is interesting because of the social consequence implied. This particular message was in the context of being prepared for school, which may imply the educator sought a desired outcome other than personal nutrition benefits.

Memorable messages of negative, short-term consequence included “never eat a lot of candy and stuff because you’ll get a sweet tooth”. The term “sweet tooth” in this context does not indicate a craving or fondness for sweet foods but rather the development of cavities. This slang is typical among area residents.

Another message of negative, short-term consequence reflected both personal and social outcomes. The participant shared, “if I keep eating cookie dough blizzards every night then I’m gonna [sic] get fat.” This message is noteworthy because it deals with body image. If the participant did not adhere to the prescribed behavior, the communicator of this message not only insinuated the personal consequence of weight gain, but also the social consequence of putting on weight. This message reflects unacceptability of reaching a certain body weight. This message was communicated by a family member, which potentially reflects both familial and regional social norms.

### **Consequence, Long-term**

The overarching theme of consequence features messages of long-term consequence. All but one of the messages identified have negative connotations. Memorable messages with a negative consequence included: “drinking a lot of like pop can make you have a lot of problems if you drink too much of it” and “if you drink a lot of diet pop you could get cancer.” Some messages were more ambiguous in consequence such as “eating junk is bad for you”.

One participant communicated, “if you have too much salt [...] you can get high cholesterol and stuff like that.” This message is interesting due to the inaccuracy of the information. The participant indicated that a family member communicated this message. This person most likely experiences negative health effects of a high sodium diet. It is unclear whether the child remembered information conveyed inaccurately, or the communicator of the message is mistaken in sharing information of the negative effects of a high sodium diet.

Other negative consequences shared reflected the repercussions of eating certain types of food and how it may affect oral health. One participant shared the message, “eating that junk’s gonna make your teeth rot out.” This message is interesting because of the potential reflection of a region that struggles with poor dental health. Research shows that Appalachian adolescents suffer from considerable oral health disparities and have a lower recognition of need for dental treatment (Martin et al., 2008). This message regarding tooth decay may be a typical message communicated to adolescents regarding oral health in areas like Appalachia.

The only positive, long-term message that emerged from the data involved limiting soda intake to “influence(s) me to start getting in good habits now for later.” The participant who shared this message mentioned “good habits for later” multiple times during the interview. It may be possible that the communicator of this message was influenced by a health campaign such as *We Can!*®, which stresses that parents communicate about healthy habits with their children.

Messages shared regarding long-term consequences of certain behaviors were inherently negative. All of the messages regard the personal costs of non-adherence to the prescribed behaviors as these messages describe disastrous consequences to the adolescents’ physical health. Additionally, many of the messages shared reflect ambiguity and inaccuracy.

### **Adherence and Consequence**

Many memorable messages recalled by participants were similar in content as they contained elements of adherence and consequence; however, some messages

contained only elements of adherence or consequence. Specifically, some messages contained suggestions of adherence, yet no element of consequence. Messages possessing both elements were identified in the mapping process of data analysis (see Figures 4, 5, 6, & 7, pp. 36-39).

Adherence: Balance

Short-term Consequence: Negative	Long-term Consequence: Positive	Long-term Consequence: Negative
“he won’t let me get up or play with anybody until I eat all my food” (FA)	“I’m only allowed to have like one (soda) a week because he kinda [sic] like influences me to start getting in good habits now for later” (FA)	“if you drink a lot of diet pop you could get cancer” (FA)
“she only let me have a certain amount of pop [...] she said my kidneys would shut down” (FA)		“if you have uh too much salt that you can get high cholesterol and stuff like that” (FA)

*Figure 4. Memorable messages with balance adherence and consequence.*



Adherence: Type – Short-term  
Consequence

Short-term Consequence: Positive	Short-term Consequence: Negative
“water is the best for us and especially when we play sports” (ED)	“it (Gatorade) hypes you up or something” (ED)
“it’s (Gatorade) bad if you’re just sitting there drinking it, but if you’re playing sports its kinda [sic] good” (ED)	“if I keep eating cookie dough blizzards every night then I’m gonna [sic] get fat”
“Carrots help your eyes when you eat em [sic]” (FA, PE)	“Dentist says never eat a lot of candy and stuff because you’ll get a sweet tooth” (HC)
“Vegetables give you muscles” (ME)	“It’s better to have a garden then cuz [sic] when like you go to the store they have they put stuff in it to make it fresh or something like that” (FA)
“it (gardening) saves you money” (FA)	“Eating junk is bad for you” (FA)
“breakfast started off your whole day and made it good if you ate a healthy breakfast” (FA)	“Eating that junk’s gonna [sic] make your teeth rot out” (FA)
“fruit [...] nourishes your body” (FA)	“drinking a lot of like pop can make you have a lot of problems if you drink too much of it” (FA)
	“she only let me have a certain amount of pop [...] she said my kidneys would shut down” (FA)
	“too much salt that you can get high cholesterol and stuff like that” (FA)

Figure 5. Memorable messages with type adherence and short-term consequence.

Adherence: Type – Long-term Consequence

Long-term Consequence: Positive	Long-term Consequence: Negative
<p>“I’m only allowed to have like one (soda) a week because he kinda [sic] like influences me to start getting in good habits for later” (FA)</p>	<p>“you shouldn’t eat [...] like a whole bunch of bacon or something [...] cuz [sic] it stops up your arteries” (ED)</p>
	<p>“Eating junk is bad for you” (FA)</p>
	<p>“Eating that junk’s gonna [sic] make your teeth rot out” (FA)</p>
	<p>“drinking a lot of like pop can make you have a lot of problems if you drink too much of it” (FA)</p>
	<p>“if you drink a lot of diet pop you could get cancer” (FA)</p>
	<p>“she only let me have a certain amount of pop [...] she said my kidneys would shut down” (FA)</p>
	<p>“too much salt that you can get high cholesterol and stuff like that” (FA)</p>

Figure 6. Memorable messages with type adherence and long-term consequence.

Adherence: Time

Short-term Consequence: Positive	Short-term Consequence: Negative
“breakfast started off your whole day and made it good if you ate a healthy breakfast” (FA)	“if I don’t stop eatin’ [sic] after 7 p.m. that I’m gonna [sic] gain weight overnight” (FA)
“make sure you eat breakfast [...] so you’re not hungry” (ED)	“eat before games and stuff so you don’t like like [sic] get sick or get hungry before a game” (CO)
“make sure you eat breakfast [...] so you’re like awake and stuff” (ED)	

*Figure 7. Memorable messages with time adherence and consequence.*

Clearly, messages about the type of foods or beverages that should or should not be consumed were most salient among messages with all elements of the rule-structure of memorable messages.

## **Research Question 2**

Recall research question two seeks to identify the main sources of memorable messages about nutrition among Appalachian adolescents. Participants revealed messages from many sources, predominantly family, educator, and media sources.

Participants reported various family members as memorable message sources. Family members included parents, grandparents, siblings, and aunts. Many messages were directive, such as, “eat your vegetables” or “go eat a fruit instead of a junk”. Others communicated serious, long-term consequences such as “if you drink a lot of diet pop you could get cancer”. Several messages from family members were about soda, such as, “drinking a lot of pop can make you have a lot of problems if you drink too much of it”. One family member set limits on a participant’s soda intake and communicated fear of drinking too much; the participant stated, “she said my kidneys would shut down.”

Several participants recalled messages from educators, including health educators, physical education teachers, teachers, and other school employees. One participant recalled a message from a health teacher, saying, “we had a health class and my teacher showed us the food pyramid and how much stuff is healthy to eat. How much we need to be balanced.” Other participants reported messages such as, “it (Gatorade) is bad if you’re just sitting there drinking it, but if you’re playing sports it’s kinda [sic] good.” Other participants reported messages shared by physical education teachers regarding the

consequence of obesity, such as, “when you get older it’ll kill you” and “you’ll have a heart attack from being so chubby.”

Teachers were the biggest supporters of breakfast during what participants described as “testing”, which is the period where elementary school children take the Kentucky Core Content Test. Adolescents reported messages from teachers such as “make sure you eat breakfast [...] so you’re like awake and stuff” and “if you eat a good breakfast it gets your blood flowing.”

One memorable message from a sports coach was reported. One participant recalled a memorable message from her volleyball coach, saying, “we’re supposed to eat before games and stuff so you don’t like like [sic] get sick or get hungry before a game.”

One memorable message from a healthcare worker was reported. The participant stated, “dentist says never eat a lot of candy and stuff because you’ll get a sweet tooth and I have a sweet tooth right now.”

Memorable messages recalled from media sources include those from television and movies. One participant recalled a movie where a character said, “vegetables give you muscles.” Other participants recalled messages from television commercials including “you are what you eat” and “try new foods.” These messages were ambiguous, and the participants could not recall any additional details or what television channels these messages appeared on.

Two messages were shared that are categorized “other”. These messages were not identified as communication from a specific source. These messages are, “eating your fruits and vegetables is good for you and you should always have em [sic] at one

point in time” and “just eat right and know how to eat and how many calories that we should eat.” These messages were identified during clearinghouse questions of the protocol when asked if there was anything else the participants wanted to share about messages about nutrition.

## CHAPTER FIVE

### **Discussion**

This thesis examines memorable messages about nutrition from the adolescent perspective. The narratives gained from this project provide a look into the adolescent mind and what matters in his or her world. Adolescence is a time of cognitive and behavioral maturation; this study reveals effects of interpersonal communication through memorable messages on adolescents' attitudes about nutrition. Several inferences for improving communication about nutrition emerged from the themes discovered in this study. These findings open up a few avenues for discussion, and perhaps most importantly, suggest significant implications for health-communication campaign message design in the context of memorable messages about nutrition among adolescents.

The analysis of dialogue from small group interviews revealed interesting findings about messages adolescents perceived as memorable. The majority of messages communicated during data collection contained elements of adherence and consequence, which are central to the memorable message framework. Messages shared are all in the context of nutrition, and share various obligatory words or phrases, whether direct or implied within the context of the interviews. Memorable messages identified featured other dimensions of the framework, such as personal relevance, context, and brevity. All respondents seemed to recall the messages shared with confidence and ease, and sources of the messages revealed were either authority figures or held in esteem by the

participants. The aforementioned elements, which are essential to the memorable message framework, were salient in each small group interview.

Many memorable messages shared by participants contained reference to short-term consequences of adhering to the prescribed action. Mapping illustrates nearly an equal amount of messages with positive or negative short-term consequence. The fear appeal strategy may not be a solid winner in the realm of nutritional memorable messages with an element of short-term consequence; however, findings show that all but one message with long-term consequence are negative among all reported sources of memorable messages. This may mean that campaigns and interventions based on value-expectancy theories with dimensions of perceived threat may be effective among adolescents in this region.

Conversely, opportunities exist for campaigns to focus on positive, long-term consequence regarding adherence. The single memorable message revealed by the small group interviews regarded both adherence to balance of consumption and type of foods or beverages consumed. The participant shared a message from her father, stating, “I’m only allowed to have like one (soda) a week because he kinda [sic] like influences me to start getting in good habits for later”. The participant referred to “getting in good habits for later” many times throughout the small group interview. Another participant discussed both positive and negative consequences of growing a garden, which was communicated to him by his grandmother. The practice of growing a garden is central to historical Appalachian culture and may alleviate some of the stress of living in a food desert, which is common in this region. Practices like these may promote healthier



futures for adolescents living in Appalachia. Focusing on positive futures may be a fruitful avenue to explore with nutritional health message design. Messages targeted to adolescents that focus on his or her healthy future may support healthy transitions into adulthood.

There were clear differences in the identification of message sources. Although every focus group discussed family sources of memorable messages, these sources were identified least among older participants. This may mean that older adolescents hold family members to lower esteem than other message sources, or simply that messages from family members were not memorable. Research shows that in late adolescence peers serve as attachment figures to one another as they fulfill attachment functions that may have been previously provided by parents, which may explain lesser amounts of reported memorable messages (Nelis & Rae, 2006). Additionally, healthcare-sourced messages were only identified among younger participants, while coach-sourced messages were only identified among older participants. This finding may be due to sample size, yet it is possible that greater motivation and commitment to sports create a more amenable receiver to messages from coaches.

Perhaps the most striking evidence in this study is what is absent from the data. Peer communication was not identified as a major source of memorable messages about nutrition. Although research has uncovered that memorable messages often come from friends, the current study failed to reveal these messages (Heisler & Ellis, 2008). Only one participant referred to a peer as a memorable message source saying he was told, “carrots help your eyes when you eat em”; however, he recalled that his grandfather had

also shared this message. Participants in this study may not hold their peers in esteem, or may not perceive messages as memorable from sources that are not authority figures. It is also possible that questions from the interview protocol were not sufficient to glean this information from participants. Another possibility is that boundaries, such as not wanting to share peer-to-peer communication with adults, may be present to prevent disclosure of peer talk about nutrition. It is also possible that peers prefer to talk about other topics rather than nutrition, and may make nutritional decisions based upon seen behaviors or social norms.

Another interesting aspect of these findings is the lack of messages that convey food insecurity. In a region that is prone to food insecurity, it is improbable that adolescents do not share information about lack of food at home or with peers. One participant stated, “[m]ost people here don't care what we eat even if we get fat”. When asked to clarify who “most people” were, the participant changed the direction of the conversation among the small group interview members. Adolescents who experience food insecurity potentially experience communication about nutrition differently from those who live in food secure households. Furthermore, communication about food insecurity among peers or with family members may be taboo in this particular culture. Healthcare-related research shows that Appalachians are proud, private, not accepting of charity, do not seek attention, and try to manage their own problems (Behringer & Friedell, 2006). These cultural characteristics may have inhibited disclosure of messages of food security.

In addition to the lack of peer-sourced messages, there is scarcity of media-sourced messages. Participants discussed many media outlets such as television, movies, Internet, Facebook, Twitter, and Instagram, yet the only memorable messages reported were from television and movies. The results of the current study do not support using social media channels for health campaigns and interventions in this region. Although many participants discussed social media, the current study did not address access issues that may be present in this population. Appalachian residents experience lesser access and slower Internet speeds than the national average, which may explain the lack of memorable messages described in the current study (Bruggencate, 2012; Cheves, 2014). Additional research is needed to identify access to Internet among participants in this region in order to discover memorable messages of nutrition, if they exist, on various social media sites.

The discovery of few healthcare-sourced messages is noteworthy. Typically, adolescents have face time with various healthcare workers including school nurses, doctors, dentists, and health department personnel. This is typically a time period of frequent check-ups and reception of required and recommended vaccinations; however, the Appalachian region suffers from disparities in availability and accessibility of health care providers (Behringer & Friedell, 2006; Reed, Patterson, & Wasserman, 2011). The sparse findings of memorable messages from these sources may indicate missed opportunities for healthcare workers to influence the nutritional decision-making of adolescents, as well as influence the family-sourced messages that adolescents receive. That being said, it is important to consider access-related issues among families in this

region. Considering the reach of healthcare workers when developing health campaigns is imperative. If healthcare workers are to disseminate information about nutrition, it is also important to recognize the strains on healthcare in Appalachia. Historically, this region suffers from shortages of health care professionals, and residents often deal with travel to health centers due to geographic isolation (Behringer & Friedell, 2006). Perhaps the most effective entities in a campaign using providers to communicate positive and accurate information about nutrition are health department workers and school nurses; however, Appalachian health departments typically provide funding for schools to employ nurses, and many counties are experiencing funding shortages, forcing schools to reduce the number of nurses employed (Ritchie, 2013). Prior to health campaigns or interventions with healthcare workers as a secondary target, additional research is needed to identify the scope of adolescents seen by these workers as well as existing barriers that may prevent communication about nutrition.

Some messages shared by adolescents were not identified as memorable during data analysis as they were absent elements of the memorable message rule-structure; however, these messages may be important to mention in the context of this research. Many participants described media use during educator-sourced communication interactions. Respondents described visuals explained by health educators and teachers such as the food pyramid and MyPlate. These descriptions, although they do not possess the rule-structure of a memorable message, may indicate that adolescents are influenced in part by popular visual media used by educators in the presentation of nutritional education.

Historically, researchers using the memorable message framework have discovered and focused on positive messages, which is contrary to some of the messages revealed in the current study. Much of the memorable message research reveals positive messages shared by participants such as “It’s not how you start, it’s how you finish” (Nazione et al., 2011, p. 133) and “whatever life throws at you, your family will always be there” (Wang, 2014, p. 278). Even research investigating memorable messages about aging reflect mostly positive messages, such as “Aging is all what you make it. If you want to grow old, you will” (Holladay, 2002, p. 690). The current study adds to the memorable message framework in the discovery of negative messages that may influence future communication and behavior. Additionally, some messages discovered among participants reflected ambiguity and inaccuracy. Further investigation is needed to describe how messages of this nature may affect adolescents.

### **Limitations**

There are several limitations of this thesis to consider. First, data was obtained via convenience sample in one Appalachian state and therefore may not be indicative of the region as a whole. Second, social desirability bias may be an issue due to the nature of the small group interviews. Although significant rapport was established in each focus group, some messages and their sources may not have been discussed due to peer presence. Furthermore, participants may have indicated that messages reported influenced their attitudes and behaviors due to social pressure to conform, which may have been intensified by a classroom/library interview environment. Third, the protocol used may have not been sufficient for uncovering message topics and sources. The

original protocol was created for use with young adult participants – the wording may not have been as easily understood by younger participants. Fourth, a larger sample size may uncover more diverse messages and other sources of messages. Additionally, this study is retrospective in nature, relying on the memories of the participants, which may not be reliable.

### **Practical Implications**

Many opportunities for future research of memorable messages exist in the context of adolescent perceptions of nutrition and the effect on subsequent behaviors. As with any health behavior, insight gained from the target audience is crucial to message design. Several implications for message design surfaced from the data collected in this thesis. These implications include not only targeting the adolescent population, but also the sources who communicate with this population frequently. Additionally, many opportunities for message tailoring to adolescents exist in this context.

Family member sources of memorable messages were frequently identified in the present study. One interesting aspect of the findings is the lack of positive, long-term consequence among messages stressing adherence to a particular behavior. The one message reported that is positive in context was from a family member. Potential health campaigns may include those that stress the importance of parent/guardian communication of long-term benefits of healthy nutrition as this may provide support to adolescents as they transition into adulthood.

As mentioned in earlier discussion, messages from healthcare providers were lacking in the current study. Potential health campaigns may focus on providers who

have regular contact with adolescents such as pediatricians, school nurses, and health department staff. Communication about nutrition to create memorable messages during routine physicals or visits for required or recommended vaccinations may stimulate healthier behaviors and improved nutritional decision-making.

Future research is needed to investigate memorable messages about food insecurity and its role in nutritional decisions among adolescents. This topic may be taboo in this culture; developing an appropriate interview protocol is crucial to uncover participant narratives. This type of questioning may be more appropriate in one-on-one interviewing, as well as interviews that include both the child and their parent(s) or guardian(s).

The interviewing process elicited narratives about subjects other than nutrition. Many participants discussed memorable messages of physical activity communicated to them by media or educator sources. Further qualitative investigation may stimulate more messages about physical activity and the sources of these messages. Additionally, investigating other topics within this age group such as body image may aid in bolstering other types of health campaigns. Research of body image among college-aged females discovered that interpersonal norms have a significant relationship to esteem (Krcmar, Giles, & Helme, 2008). The current study revealed memorable messages about nutrition from family members relating to body image (e.g., “if I keep eating cookie dough blizzards every night then I’m gonna [sic] get fat”). Discovery of other memorable messages driving norms that affect body image and esteem within the adolescent age group may serve as critical formative research for campaigns in this

realm. It is clear that the memorable message construct may be investigated in other contexts related to health outcomes for adolescents.

## **Conclusion**

The current study was conducted to gain an understanding of the adolescent perspective of nutrition-related messages. Qualitative investigation of memorable messages about nutrition uncovered many different types of messages adolescents are exposed to. Investigation of these messages suggests many practical implications for health campaigns and future research of memorable messages. This thesis extends findings that reveal rich participant dialogue of memorable messages and adds to the memorable message literature by introducing new territory for message discovery; moreover, this research furthers previous findings that memorable messages may have lasting influence on individuals' lives. Additionally, these findings illustrate a darker side of memorable messages, such that messages may be negative, ambiguous, and inaccurate.



## Appendices

## **Appendix A: Interview Protocol**

### **PART I: DEMOGRAPHIC QUESTIONS**

What is your age?

What is your sex?

What grade are you in?

### **PART II: INTERVIEW QUESTIONS**

Now that I know more about you, we can begin our interview. What I'm interested in is the memorable messages you have received from influential people in your life. Memorable messages are messages that we remember well and may have had an impact on how we behave, the attitudes we have, and the decisions we make. These messages can be either positive or negative. Today we will specifically be talking about memorable messages you have received about nutrition or healthy eating.

Everyone's experience is different, so there is no right or wrong answer here. Whenever you can, it will be helpful if you give me stories, examples, and dates to clarify your points. Do you have any questions about this interview?

#### **Memorable Messages – Family**

1. Describe a memorable message you received from a parent or parental figure about nutrition.

- Describe the situation/context in which you heard the message.
- Recall in as much detail as you can what your parent did and said.
- Who communicated the message?

- How was the message communicated to you (e.g. said, written, etc.)?
- How old were you at the time?
- Was this message communicated directly to you?
- Why is this message memorable for you?
- How, if at all, does this message influence you today?

#### Memorable Messages – Peers

2. Describe a memorable message you received from a peer or friend about nutrition.

- Describe the situation/context in which you heard the message.
- Recall in as much detail as you can what your peer did and said.
- Who communicated the message?
- How was the message communicated to you (e.g. said, written, etc.)?
- How old were you at the time?
- Was this message communicated directly to you?
- Why is this message memorable for you?
- How, if at all, does this message influence you today?

#### Memorable Messages – Media

3. Describe a memorable message you received from a media source, such as television or the Internet.

- Describe the situation/context in which you heard/saw the message.
- Recall in as much detail as you can what you heard/saw.
- Who communicated the message?
- *How was the message communicated to you (e.g. said, written, etc.)?*

- How old were you at the time?
- Was this message communicated directly to you?
- Why is this message memorable for you?
- How, if at all, does this message influence you today?

4. What other sources of memorable messages can you recall?

#### Concluding Questions

5. What other information do you think would be helpful to me so that I can better understand the memorable messages about nutrition you have received?
6. What other thoughts do you have about what we have discussed today?
7. What else do you think is important that I should know about the topics/ideas that we have discussed?

## Appendix B: Thematic Framework Analysis Charting

### Interview Group 1

**Chart 1A: Adherence, Balance**

	Calories/items (1.1)	Eating too much (1.2)	Eating enough (1.3)
Family (FA)			"eat all my food" (p. 8)
Educator (ED)			
Media (ME)			
Peers (PE)			
Healthcare workers (HC)			
Coach (CO)			
Other (OT)			

**Chart 1B: Adherence, Type**

	Fruits (2.1)	Vegetables (2.2)	New foods (2.3)	Healthy/unhealthy foods or beverages (2.4)
Family (FA)				"blizzards" (p. 4); eat healthy (p. 18); water (p. 18); Gatorade (p. 18); soda (p. 18); bacon (p. 20)
Educator (ED)				
Media (ME)				
Peers (PE)				
Healthcare workers (HC)				
Coach (CO)				
Other (OT)				

**Chart 1C: Adherence, Time**

	Meals (3.1)	Timing directives (3.2)
Family (FA)		"eat in after 7" (p. 5)
Educator (ED)		
Media (ME)		
Peers (PE)		
Healthcare workers (HC)		
Coach (CO)		
Other (OT)		

**Chart 1D: Consequence, Short-term**

	Positive (4.1)	Negative (4.2)
Family (FA)		"get fat" (p. 4); "gain weight" (p.5); no play (p.8)
Educator (ED)	sports play (p. 18);	"hypes you up" (p. 18);
Media (ME)		
Peers (PE)		
Healthcare workers (HC)		
Coach (CO)		
Other (OT)		

**Chart 1E: Consequence, Long-term**

	Positive (5.1)	Negative (5.2)
Family (FA)		
Educator (ED)		"stops up your arteries" (p. 20); heart attack (p. 21); death (p. 21)
Media (ME)		
Peers (PE)		
Healthcare workers (HC)		
Coach (CO)		
Other (OT)		

**Interview Group 2**

**Chart 2A: Adherence, Balance**

	Calories/items (1.1)	Eating too much (1.2)	Eating enough (1.3)
Family (FA)			
Educator (ED)	My Plate (p. 9) even distribution (p. 6)		
Media (ME)			
Peers (PE)			
Healthcare workers (HC)			
Coach (CO)			
Other (OT)	Knowledge (p. 10)		

**Chart 2B: Adherence, Type**

	Fruits (2.1)	Vegetables (2.2)	New foods (2.3)	Healthy/unhealthy foods or beverages (2.4)
Family (FA)	“eat my [...] fruits” (p. 4)	carrots (p. 3); “eat my vegetables” (p. 4)		
Educator (ED)	My Plate (p. 9)	My Plate (p. 9)		
Media (ME)		always eat (p. 6)		
Peers (PE)		carrots (p. 3)		
Healthcare workers (HC)				candy (p. 11)
Coach (CO)				
Other (OT)				

**Chart 2C: Adherence, Time**

	Meals (3.1)	Timing directives (3.2)
Family (FA)		
Educator (ED)		
Media (ME)		
Peers (PE)		
Healthcare workers (HC)		
Coach (CO)		
Other (OT)		



**Chart 2D: Consequence, Short-term**

	Positive (4.1)	Negative (4.2)
Family (FA)	eye health (p. 3)	
Educator (ED)		
Media (ME)	muscles (p. 6)	
Peers (PE)	eye health (p. 3)	
Healthcare workers (HC)		sweet tooth (p. 11)
Coach (CO)		
Other (OT)		

**Interview Group 3**

**Chart 3E: Consequence, Long-term**

	Positive (5.1)	Negative (5.2)
Family (FA)		
Educator (ED)		
Media (ME)		
Peers (PE)		
Healthcare workers (HC)		
Coach (CO)		
Other (OT)		

**Chart 3A: Adherence, Balance**

	Calories/items (1.1)	Eating too much (1.2)	Eating enough (1.3)
Family (FA)			
Educator (ED)	My Plate (p. 9)		
Media (ME)			
Peers (PE)			
Healthcare workers (HC)			
Coach (CO)			
Other (OT)			

**Chart 3B: Adherence, Type**

	Fruits (2.1)	Vegetables (2.2)	New foods (2.3)	Healthy/unhealthy foods or beverages (2.4)
Family (FA)	“go eat a fruit instead of a junk” (p. 4)	“eat your vegetables” (p. 3)		candy (p. 4); "junk" (p. 13, 14)
Educator (ED)	“always have a fruit” (p. 10)	“always have a [...] vegetable (p. 10)		
Media (ME)				
Peers (PE)				
Healthcare workers (HC)				
Coach (CO)				
Other (OT)	“eating your fruits [...] is good for you” (p. 11)	“eating your [...] and vegetables is good for you” (p. 11)		

**Chart 3C: Adherence, Time**

	Meals (3.1)	Timing directives (3.2)
Family (FA)		
Educator (ED)		
Media (ME)		
Peers (PE)		
Healthcare workers (HC)		
Coach (CO)		
Other (OT)		

**Chart 3D: Consequence, Short-term**

	Positive (4.1)	Negative (4.2)
Family (FA)	money (p. 12); "junk" (p. 13)	quality (p. 12; "junk" (p. 13); teeth (p. 14)
Educator (ED)		
Media (ME)		
Peers (PE)		
Healthcare workers (HC)		
Coach (CO)		
Other (OT)		

**Chart 3E: Consequence, Long-term**

	Positive (5.1)	Negative (5.2)
Family (FA)	"junk" (p. 13)	"junk" (p. 13); teeth (p. 14)
Educator (ED)		
Media (ME)		
Peers (PE)		
Healthcare workers (HC)		
Coach (CO)		
Other (OT)		

## Interview Group 4

**Chart 4A: Adherence, Balance**

	Calories/items (1.1)	Eating/drinking too much (1.2)	Eating/drinking enough (1.3)
Family (FA)		soda (p. 3, 4, 5)	
Educator (ED)	My Plate (p. 8); pyramid (p. 9)	limits (p. 8, 9)	
Media (ME)			
Peers (PE)			
Healthcare workers (HC)			
Coach (CO)			
Other (OT)			

**Chart 4B: Adherence, Type**

	Fruits (2.1)	Vegetables (2.2)	New foods (2.3)	Healthy/unhealthy foods or beverages (2.4)
Family (FA)	consume (p. 6)			breakfast food (p. 3); soda (p.3, 4, 5); salt (p. 10)
Educator (ED)				goals (p. 8)
Media (ME)				
Peers (PE)				
Healthcare workers (HC)				
Coach (CO)				
Other (OT)				

**Chart 4C: Adherence, Time**

	Meals (3.1)	Timing directives (3.2)
Family (FA)	breakfast (p. 3)	
Educator (ED)		
Media (ME)		
Peers (PE)		
Healthcare workers (HC)		
Coach (CO)		
Other (OT)		

**Chart 4D: Consequence, Short-term**

	Positive (4.1)	Negative (4.2)
Family (FA)	good day (p. 3); nourished body (p. 6)	health problems (p. 3, 5, 10); cancer (p. 4)
Educator (ED)		
Media (ME)		
Peers (PE)		
Healthcare workers (HC)		
Coach (CO)		
Other (OT)		

**Chart 4E: Consequence, Long-term**

	Positive (5.1)	Negative (5.2)
Family (FA)		health problems (p. 3, 5, 10); cancer (p. 4)
Educator (ED)		
Media (ME)		
Peers (PE)		
Healthcare workers (HC)		
Coach (CO)		
Other (OT)		

**Interview Group 5**

**Chart 5A: Adherence, Balance**

	Calories/items (1.1)	Eating too much (1.2)	Eating enough (1.3)
Family (FA)			
Educator (ED)	lunch (p. 10)		lunch (p. 10)
Media (ME)		measure (p. 10)	measure (p. 10)
Peers (PE)			
Healthcare workers (HC)			
Coach (CO)			
Other (OT)			

**Chart 5B: Adherence, Type**

	Fruits (2.1)	Vegetables (2.2)	New foods (2.3)	Healthy/unhealthy foods or beverages (2.4)
Family (FA)				
Educator (ED)			"try new foods" (p. 18)	
Media (ME)			"try new foods" (p. 17)	"you are what you eat" (p. 7); "got milk" (p. 11)
Peers (PE)				
Healthcare workers (HC)				
Coach (CO)				
Other (OT)				

**Chart 5C: Adherence, Time**

	Meals (3.1)	Timing directives (3.2)
Family (FA)	breakfast (p. 4)	
Educator (ED)	breakfast (p. 4, 5, 12)	
Media (ME)		
Peers (PE)		
Healthcare workers (HC)		
Coach (CO)		before games (p. 6)
Other (OT)		

**Chart 5D: Consequence, Short-term**

	Positive (4.1)	Negative (4.2)
Family (FA)		
Educator (ED)	hunger (p. 5); energy (p. 5, 12); "brain function" (p. 12)	hunger (p. 5)
Media (ME)		
Peers (PE)		
Healthcare workers (HC)		
Coach (CO)	hunger (p. 6)	sick/weak (p. 6)
Other (OT)		

**Chart 5E: Consequence, Long-term**

	Positive (5.1)	Negative (5.2)
Family (FA)		
Educator (ED)		
Media (ME)		
Peers (PE)		
Healthcare workers (HC)		
Coach (CO)		
Other (OT)		



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Development Assistant, University of Kentucky College of Law (2014)

Development Intern, Susan G. Komen Lexington (2012-2013)

Retail Sales Representative, Verizon Wireless (2010-2012)

Retail Sales Consultant, AT&T (2008-2010)

Corporate Trainer, RMD Corporation (2004-2007)

**Professional Publications and Presentation:**

Bachman, A.S. (in press). Review of *What doctors feel: How emotions affect the practice of medicine*, by D. Ofri. *Health Communication*.

Cohen, E., Head, K., Crosby, R.A., Helme, D., Parrish, A., Reno, J., Wombacher, K., Bachman, A.S. (Under Review). Society of Behavioral Medicine 36<sup>th</sup> Annual Meeting and Scientific Sessions. "Protect their Future" video intervention improves parental intentions to vaccinate adolescents.

Beck, A., Frisby, B. N., Bachman, A.S., Byars, C., Lamberth, C., & Thompson, J. (2015). The influence of instructor-student rapport on instructors' professional and organizational outcomes. Paper accepted for presentation at the annual meeting of the International Communication Association, San Juan, Puerto Rico.

Bachman, A.S. (2015). Adolescent Perceptions of Nutrition: Identifying Memorable Messages. Poster accepted for presentation at biannual D.C. Health Communication Conference.

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