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### Understanding the Process by Which a Healthy Population Seeks Nutrition and Exercise Information

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UNDERSTANDING THE PROCESS BY WHICH A HEALTHY POPULATION  
SEEKS NUTRITION AND EXERCISE INFORMATION

By

Sally J Hillis

A THESIS

Presented to the Faculty of  
The Graduate College at the University of Nebraska  
In Partial Fulfillment of Requirements  
For the Degree of Master of Science

Major: Nutrition and Health Sciences  
Under the Supervision of Professor Fayrene L. Hamouz

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UNDERSTANDING THE PROCESS BY WHICH A HEALTHY POPULATION  
SEEKS NUTRITION AND EXERCISE INFORMATION

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University of Nebraska, 2013

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Faced with an overwhelming amount of available sources and different perspectives, researchers in the field of Nutrition and Health Sciences continually strive to identify key factors that shape a healthy lifestyle. Employing a qualitative methods design, this pilot study research project utilized a constructivist grounded theory approach to develop a model explaining the process by which healthy individuals acquire nutrition and exercise information. This model rests on the philosophical views and actions of participants in seeking meaningful and reliable sources guiding their decision-making strategies and offers a more complete understanding of this process. Implications of this research would be to continue to develop a useful instrument for testing and elaborating upon the model developed from this research. Long-range goal of this research will ultimately assist educators and practitioners develop interdisciplinary curricula for the general population, health professionals, and others interested in learning about this process.

This Thesis is Dedicated To:

Mike

Mary and Charlie

Mom and Dad

Susan and John

Thank You for your support and understanding!

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## **Introduction**

### **Statement of Problem**

Media sources, government agencies, professional organizations, educational institutions, and the internet supply an overwhelming amount of information in regards to our health (Ayres, 2013; McClure, 2013; NIH 2013; Obama, 2013; Wansink, 2006). General guidelines set forth by the National Institute of Health (NIH) include eating a nutritious, balanced diet, get plenty of regular exercise every day, get plenty of sleep on a consistent schedule each night, do your best to manage physical and emotional stress, and to make time each day for something you enjoy (NIH, 2013). The NIH guidelines seem comprehensive or is there a gap in understanding the information due to the vagueness of the guidelines. How do we define a nutritious diet? What would be an example of plenty of regular exercise every day? How does one pursue health information?

With an inexhaustible amount of sources to consider when making decisions for our nutrition and exercise information, what do we consider reliable information? Who answers our inquiries or where do we look for information? Is a conscious or subconscious behavior or some combination of these driving us to make our decisions? Perhaps, an aspect of information we lack is the detrimental awareness of the political control, economic trends, and marketing strategies within our food supply. Consumerism impacts our eating and exercise routines. Does a synergy of these factors undermine the maintenance of one's health?

We are in the midst of the Health Revolution, but to whom or where to turn for accurate information is a question difficult to answer. Understanding the process by which a healthy population seeks nutrition and exercise information is the topic of my grounded theory



research project.

Existing literature studied the factors and processes involved in food choice; which resulted in development of Furst's Food Choice Process Model to portray habitual and unconscious food practices, as well as more thoughtful eating decisions (Furst, 1996; Connors, 2001; Bisogni, 2003). Building on this research, a grounded theory study conducted by Bisogni an understanding of identities related to eating (Bisogni, 2002). The Academy of Nutrition released a position report on food and nutrition misinformation. The report expands on the organization's vision that members "are the leading source of nutrition expertise," the Academy recognizes its responsibility to help consumers identify food and nutrition misinformation (Wansink, 2006). Psychological researchers examine the mechanisms by which misinformation (inadvertently and purposely disseminated in society) is spread and the cognitive factors of an individual that render misinformation resistant to correction (Lewandowsky, 2012). Government agencies are implementing and evaluating the effectiveness of community-based cooking skills programs designed to improve cooking confidence and individual eating behaviors. (Fego, 2013). The impact of media has been associated between TV fast-food advertising receptivity and youth obesity (McClure, 2013).

A review of existing literature helped identify a deficiency in how we acquire our nutrition and exercise information. The problem this research focuses on is a gap in knowledge in understanding the process we engage to seek reliable nutrition and exercise information sources. The majority of existing projects study populations diagnosed with health related problems or diseases; this research focuses on a healthy population.

To focus on this gap in knowledge, the purpose of this qualitative research is to develop a theory explaining the process by which a healthy population acquire health related information, specifically in the areas of nutrition and exercise. The long-term goal of this research is to assist educators in designing and facilitating curriculum for the general population, health professionals, and others interested in learning about this process.

### **Central and Research Questions**

In consideration of the challenges that many face with their health, and impact of marketing and peer influences, exploration of the choice process within a healthy population intrigued the researchers. The central question to this grounded theory research is, "What is the process by which a healthy population seeks nutrition and exercise information?" From this main inquiry four research questions and probing questions were developed. (Appendix A)

RQ1: How do healthy individuals look for nutrition and exercise information?

RQ2: What sources do healthy individuals utilize for this information? How do they find them?

RQ3: What challenges do healthy individuals face when using these resources?

RQ4: What role does a healthy population's character traits play in understanding the process of finding nutrition and exercise information?

### **Definition of Terms**

**Body Mass Index (BMI)** is a clinical measure to define weight categories of children and adults. Healthy weight BMI for adults is between 18.5 and 24.9 kg/m<sup>2</sup>. (Centers for Disease

Control and Prevention)

**Nutrition** is simply defined as the utilization of foods by living organisms for normal growth, reproduction, and maintenance of health (Stipanuk, 2013)

**Exercise** has become synonymous with physical activity. Recommendations for healthy adults under age 65 years is moderately intense aerobic exercise 30 minutes a day for five days a week, or do vigorously intense aerobic exercise 20 minutes a day for three days a week and do 8 to 10 strength training exercises with 8 to 12 repetitions of each exercise twice a week (Haskell, 2007). Criteria for this research project was set at 60 minutes moderate daily exercise.

**Health Revolution** is a rethinking (and changing) of our current health situation (Hillis, 2013).

### **Researcher Positioning/Reflexivity**

The Primary Investigator (PI) for this research, Sally Hillis, R.D. is interested in developing interdisciplinary curriculum in the areas of nutrition and exercise education. Mrs. Hillis is currently a graduate student in the Department of Nutrition and Health Science at the University of Nebraska-Lincoln. Life experiences include many years of working with people and their stories related to nutrition and exercise misinformation. Advocating wholesome living through moderation, volunteer and entrepreneurial experiences have been the stimulus to gain new knowledge and assist those who are struggling with these concepts. Conversations with leaders in nutrition field has led to a discovery that the dietetics professional discipline has been fragmented into two areas, one a culinary art and the other health science, without a common bridge. Motivated by this

challenge, I have returned to graduate school to study the possibilities of integrating and harmonizing nutrition and culinary knowledge in curriculum. This lack of communication is a possible influence that has resulted in this escalating health epidemic, and subsequently, the Health Revolution.

Observing the process that a healthy population engages to seek sources and acquire information was a logical first step in this research. In addition to being the PI, my health and nutrition-exercise routine met the participant criteria for this project. Employed as a form of triangulation, including and comparing my views with the Healthy Population provided an “insider’s” view close to the researched. Being a novice to qualitative research but well-versed in topics related to nutrition and culinary skills, the exploration of this question through development of a theory identifying a process seemed a reasonable choice.

The Secondary Investigator, Dr. Wayne A. Babchuk, currently teaches undergraduate and graduate level research methods courses as well as other courses in three departments-Educational Psychology, Sociology, and Anthropology at the University of Nebraska-Lincoln.

Dr. Fayrene Hamouz, advisor/mentor to Mrs. Hillis, is the Associate Dean of the College of Education and Human Science and an Associate Professor in Nutrition and Health Science. She teaches many courses in the area of Hospitality, Restaurant and Tourism Management.

## METHODOLOGY

### Rationale for a Qualitative Approach

The research question (above) is best addressed through a qualitative design. My interest is understanding how people interpret their experience in making food and exercise decisions. Rather than determining cause and effect, predicting, or describing the distribution of a variable among a population, the underlying interest is in uncovering the meaning of a central phenomenon for those involved. Qualitative researchers are interested in understanding how people interpret their experiences, how they construct their worlds, and what meaning they attribute to their experiences (Merriam, 2009). According to Merriam (2009), contemporary qualitative research was influenced by two landmark publications, one by Barney Glaser and Anselm Strauss, the *Discovery of Grounded Theory: Strategies for Qualitative Research* (1967), and a second by Egon Guba, *Toward and Methodology of Naturalistic Inquiry in Educational Evaluation* (Merriam, 2009). Glaser and Strauss's work provided the theoretical framework and principles of theory emerging from inductively analyzing social phenomenon. Guba's study took place in the real world, naturalistic settings, thus whatever was being researched (observed) was allowed to happen without control or manipulation. Both exhibited "discovery-oriented" research where findings are not predetermined (Merriam, 2009).

Characteristics that frame or model grounded theory research include face-to-face interviews conducted in a natural setting with the focus on the rich description of the participant's point of view and reiteration of their voices. The researcher generates and understands a process through a combination of inductive, deductive or abductive

inference (Charmaz, 2006). The primary data collection instrument is the researcher, thus the skills, experience and knowledge become assets in the rigor as the research unfolds. In grounded theory, a type of purposeful sampling called theoretical sampling is often employed, where the researcher selects his or her sample based on perceived relevance to the emerging theory (Hood, 2007). A researcher must be open-minded and able to see things from multiple perspectives. In addition the investigator must understand a central phenomenon from the participant's point of view as well as the reflexivity of the researchers. (Babchuk, 2012; Corbin & Strauss, 2008; Creswell, 2013, Denzin & Lincoln, 2011; Hatch, 2002; Merriam, 2009; Stake, 2010)

Charmaz's constructivist approach emphasizes the co-construction of knowledge by the researchers and participants based on their shared interpretation of views, values, beliefs, feelings, assumptions and ideologies (Charmaz, 2006). The final emphasis of grounded theory methods is to transform knowledge. (Charmaz, 2006).

The following passage from *Constructing Grounded Theory: A Practical Guide to Qualitative Analysis* by Kathy Charmaz, resonates my concepts in regards to grounded theory methodology.

"Grounded theory involves taking comparisons from data and reaching up to construct abstractions and simultaneously reaching down to tie these abstractions to data. It means learning about the specific and the general- and seeing what is new in them- then exploring their links to larger issues or creating larger unrecognized issues in entirety. An imaginative interpretation sparks new views and leads other scholars to new vistas. Grounded theory methods can provide a route to see beyond the obvious and a path to

imaginative interpretations."

Babchuk (2012) advocates the use of grounded theory in any field that contains a practice component as this method has a long history of successful use in practitioner settings such as health care, social work, and education. This approach encourages the researcher to delay the literature review until the study is well underway. Key components are an iterative zigzag comparative data collection and analysis process of grounded theory. Adding to the unique interpretation emerging is the active, reflexive role of the researcher. The epistemologically dynamic theory developing from this process addresses many gaps to strategize restructuring of learning environments not only to meet the needs of adult learners, but many social science disciplines (Babchuk, 2012). The purpose of this grounded theory study is to identify and develop an explanation of the process by which individuals acquire health related information specifically in the areas of nutrition and exercise.

The grounded theory research checklist (Appendix B) was adopted to be used in this study as a tool for meeting the project requirements (Badiee & Babchuk, 2011).

### **IRB and Ethical Considerations**

Three basic principles of *The Belmont Report* are considerations each researcher should pay close attention to when designing, implementing, analyzing, completing and distributing research. To summarize, the main points include the beneficence of treatment of the participants, respect for participants, and justice in the process (Creswell 2012). Ethics has become a more pervasive idea stretching from the origins of a research study to

its completion and distribution. Ethics should be a primary consideration rather than an afterthought, and it should be at fore-front of the researcher's agenda (Babchuk, 2012).

The Principal and Co-Investigator for this project have completed the CITI training as required by the University of Nebraska Institutional Review Board (IRB) and submitted a research proposal to them that was approved prior to data collection and analysis. The informed consent (Appendix C) form includes the purpose of the research, procedures, risks and/or discomforts, benefits, confidentiality, opportunity to ask questions, voluntary participation and freedom to withdraw at any time, consent, and the right to receive a copy of the consent form. The study participant in the pilot study was given a copy of this document in advance and then it was read to the participant prior to each interview. Two copies of the consent form were presented to the participant. One was signed by the participant and returned to the PI, a copy was left with the participant. Prior to the study the informed consent form and interview protocol were shared with the participant for review. An analog tape recording of the participant interviews was made and transcribed by the primary investigator. The audio recordings, interview transcriptions and exercise and food logs are password-protected and accessible only to the researchers. The transcriptions and exercise food logs will not include any identifying information and will be stored on password-protected computer. Hard copies of these materials are kept in locked filing cabinets of the researchers. To further protect and ensure participant privacy, the participant was assigned a pseudonym known only to the researchers as a form of participant protection and a means of triangulation of data.



## **Sampling**

In *The Discovery of Grounded Theory*, (Glaser and Strauss, 1967), one of the defining components of grounded theory practice includes sampling aimed toward theory reconstruction, not for population representativeness. Theoretical sampling means seeking pertinent data to develop your emerging theory. The main purpose of theoretical sampling is to elaborate and refine the categories constituting your theory. The researcher conduct theoretical sampling by sampling to develop the properties of your categories until no new properties emerge (Charmaz, 2006). Its goal is not to sample randomly selected populations or a sample representative of distributions of particular population. When engaged in theoretical sampling, the researcher seeks people, events, or information to illuminate and define the boundaries and relevance of these categories. Because the purpose of theoretical sampling is to sample to develop the theoretical categories, conducting it can take the researcher across sustainable areas (Charmaz, 2006). This allows the participants to open-up their world to the researcher.

The sampling frame used for this pilot study included a healthy population with a possible participant in a graduate level class, a professional colleague, someone exercising on the Rock Island or Boosalis Trails, or anyone who looked healthy. If this qualitative research would continue beyond the pilot study theoretical sampling would be employed to elaborate the developing theory.

## **Participant**

Three criteria set for the participant of this pilot study included a healthy self-reported BMI, one hour of moderate exercise per day, and consumption of a healthy diet. One

participant (N=1), was interviewed for this pilot study. Questions seeking information about demographic and educational background were included in the interview protocol (Appendix D). In addition current job position, how long at the present position, highest level of education, field of academic degree, age, ethnic background, and current self-assessed health rating was included.

The exercise criteria defining a healthy population in this study exceeded the government guidelines. Based on the exercise regimen of the PI, the exercise criteria of a healthy population was established. In concurrence with the exercise routine, triangulation with the participant allowed the researcher to discover deep meanings in the information collected. The participant for this study was a 45 years old female, white, has a doctorate degree, and has excellent health with the self-reported BMI of  $19.7\text{kg/m}^2$  (BMI for Normal Weight is between  $18.5$  and  $24.9\text{kg/m}^2$ ) according to NIH. Activities on the exercise logs met the one hour per day of moderate exercise, and the food logs indicated healthy food choices. A comfortable rapport was established between the participant and the PI in the first interview.

### **Data Collection Procedures**

In qualitative research the primary mode of data collection is face-to-face interviews (Merriam, 2009) and has historically been the primary data collection source in grounded theory research (Creswell, 2013). The researcher acts the primary data collection instrument and interviews the participants. A semi-structured interview protocol was designed by the researcher for the pilot study interview. The principal investigator conducted the interviews and transcribed the information. The initial interview protocol

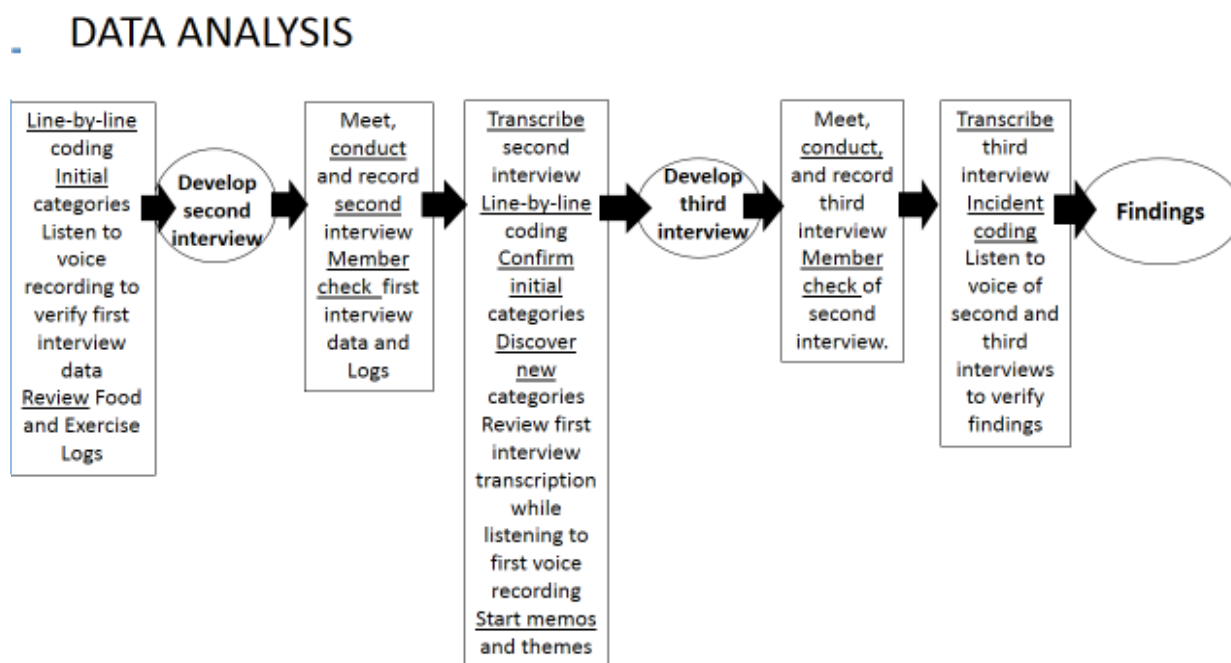
(Appendix E), consisted of three open-ended questions and eleven probes and four closing questions. Second and third interviews were used to clarify the details on the food and exercise logs, as well as member checking of the information from previous interviews. (Conflicting schedules required the third interview to be conducted by phone) The interview goal was to ask questions that enabled the participant to provide information addressing the central research question and sub-questions. The three interviews ranged from 18-26 minutes. In addition, prior to the interviews the participant completed 5 days of exercise and food logs as a form of triangulation of data. Upon completion of food logs and interviews, the participant was compensated \$50 cash.

### **Data Analysis Procedures**

Analyzing grounded theory research is as unique a process as the researcher involved. The analysis process begins in data collection with the establishment of rapport with your participants. How and what types of data we collect from our participants will shape the content of our data analysis. Respecting the views, actions, opinions and understanding the lives of our participants is critical in developing their perspective. Researchers attempt to access the world of participants and have them aid us in interpreting and understanding their lived realities. Two key questions asked in grounded theory research that I have kept in mind throughout the study that gained momentum as my study developed are: 1) What are the basic social processes? 2) What are the basic social psychological processes? (Charmaz, 2006). The logic of grounded theory entails going back to data and forward into analysis using an iterative, zig-zag process (Creswell, 2013). Subsequently we returned to the field to gather further data entry and find the emerging theoretical framework

(Charmaz, 2006). Initial coding was implemented during the first phase of coding. In initial coding, you can code words, phrases, lines, or incidents (Charmaz, 2006). This is the beginning or the base of your theories. From here, you build to categories, which emerge, into themes.

The analysis of the data began with transcription of the interviews to a text copy the data analysis steps utilized in this research are illustrated in the model 1 (below) (Appendix F).



Model 1, steps in data analysis

Listening to the taped interviews four times to complete an accurate transcription added to the rigor to this study. Hearing the voice of the participant was extremely valuable to understand feelings and emotions in the words and phrases. The transcribed interviews were then coded line by line. Gerunds were used to represent the major idea or feeling of each line. Developing categories from the gerunds yielded many threads throughout the

data. Memos were written in regards to messages and *in vivo* coding support the findings. The deeper the PI proceeded into the research, the more questions developed. And as with other researchers, the zigzag back and forth between the transcribed interviews, the voice of the participant, and the categories, generating new questions to help clarify and explain information from the initial interview. The memos created were sorted into categories/themes. Sketching a preliminary model was helpful to visualize how the process was emerging. Member checking was employed to verify the accuracy of the information. Reviewing and analyzing the exercise and food logs were a simultaneous procedure with the initial interview. The food logs requested general information about the amounts and time of day food, supplements, and vitamins were consumed. Amount of sleep and additional comments were included on the food logs (Appendix G). This study's criteria for healthy food choices included no fast food, processed food entrees or sugary drinks; reasonable serving sizes and variety of foods at each meal; eating three meals and two-three snacks per day; the main beverage being water; and limiting alcoholic beverage consumption to one drink per day for women and two drinks per day for men. The exercise logs included type of exercise, time of day, time exercising, distance, intensity, overall feeling and comments (Appendix H).

## **Findings**

### **Exercise logs**

The exercise logs indicate time exercising from 1 1/2 hours - 8 1/2 hours per day. The intensity of exercise ranged from easy long duration exercise activities (cleaning the barn or moving boxes) to intense short duration activities (running or power walking). The

intensity and duration of the exercise is used to differentiate the metabolic substrate used for the energy metabolism and indicate level of fitness of participant. The exercise periods occurred early in the morning, immediately following breakfast and again following dinner. Comments about overall feelings were *"Good workout."* *"Love walking the dog."* *"Great workout, beautiful day."* *"A lot accomplished."* Exercise activities were shared with family members or friends.

### **Food Logs**

Each day three meals and two snacks were consumed. The meals were prepared and eaten at home or prepared at home and consumed at work. None of the meals were prepared by fast food establishments or contained processed food entrees. The participants response in the second interview to this inquiry was, *"We really don't go out to eat very often."* and *"...we eat at home."* The snacks rotated between Greek yogurt (5 oz. serving), small handful of almonds, and protein bars. *"Taste is a big part of it for me. I do love that Greek yogurt. Because of its taste and it was a little bit higher in protein. Those are things I go to between meals."* The participant is not influenced by brands or media endorsement *"I don't really look at advertising...I know it's on the side (computer screen). I'm not a big TV person either, so I probably block that out more than look at it."*, but makes purchased based on taste and information on the nutritional label. When asked about brands, the response was, *"I have just become a person who looks at (nutritional) labels....But I don't know that I always go for brand unless it's something that's more palatable to me...."* and again commenting about the yogurt and almonds, *"I just like the taste of them"*. Also, worth noting is the reasonable portion size and variety of foods at each meal. The only food group

under-represented in the food log were carbohydrates. Water was the major beverage consumed throughout each day.

The exercise and food logs indicated a daily routine of the participant. When questioned in the second interview, the participant responded, *"I am a creature of habit. I love routine. I've been that way for as long as I can remember."* Morris (2012) studied the influence of lifestyle behaviors on our endogenous circadian timing systems and how a disruption in this cycle can impact cardiovascular and metabolic function. The importance of establishing a routine in conjunction with our circadian system is a factor in the overall maintenance of excellent health.

## **Interviews**

### **Description of a Healthy Population**

In understanding the process by which a healthy population seeks nutrition and exercise information resources, one must first understand the characteristics, values, behaviors and philosophical views of a healthy population. Throughout the interviews, several characteristics recurred in the themes. The character traits and values exemplified by participant quotes from the interview data are listed in Table 1 and Table 2 (Appendices I and J).

Excellent problem solving and reasoning skills add to the base characteristics of the healthy population. *"So really looking at any situation and trying to factor out all of those things that do have an impact."* *"Even though they have the same thing there's a lot of different ways of how they got there. I guess I always try to play devil's advocate, look at the other factors that could maybe come in and make that...conflict so it's not always a*

*straight path. You know when you're trying to find information I guess I like that part of it...it doesn't make me frustrated. It's fun to read between the lines and try to problem solve and figure out why this works better for this person or why this works better for the other person."*

A blending of philosophical views emerge as the theory unfolds. Constructivism is clear in the presence of multiple realities, theory generation, inductive reasoning and the process of understanding. Problem centered and incorporating a real-world picture are features of pragmatism. Close association with the empirical world for reliable scientific knowledge based information is associated with postpositivism.

Being mindful of this information, we explore the process of how they choose nutrition and exercise information.

**When faced with a problem or challenge, exploring new information or confronted with more than one solution who do we turn to?**

### ***Parents (Family)***

The participant felt parents were the most reliable source of health information. When the question that source or sources do you feel has been the best? The response was, "*I would say my family.*" "*I'm probably a little more emotional about my information choices with my parents. I hold those in higher esteem*". This first choice reflects a solid relationship between parents and children. Trust, good rapport/communication, and knowledge of antecedent health history makes family a good first choice. Our routines, habits and memory are established early in one's life when parents are very influential. Choice is heavily impacted by our childhood years and modeled by those who are responsible for our



upbringing. *"...obviously they were the guiding light when I was young and I felt like they always wanted to do the best for me and that was just an ongoing conversation."* Many stories were shared about specific health challenges within the family that had been encountered throughout the lifetime and the role of parents in finding resolution. Concepts surrounding a strong family nucleus were threaded throughout the interview responses. Eating together as a family was important, *"We still do. I feel like now that I have children that it's even more important for my parents. And we always sat together... we would never eat in the car. We would sit and have a conversation. That was our family time ...that was good connection time."*

You could sense the synergy in communication between parents and children and how this learned process begins at very early age and its importance in establishing a good base for health information. *"I would say it started a long time ago. My mother....before I was a teenager...she started running. She was just trying to be very mindful about keeping her heart healthy. She was just wanting to make her heart as strong as possible."* Life experiences related to food and exercise habits develop consciously and subconsciously throughout our lifetime. *"...I would run with her and its interesting how that then leads to your kitchen table. Some of the food choices were different."* *"We still had those things in the family like homemade ice cream or my grandma would make pies, and sit-down family meals, but I feel like we were a little more conscious about what was going into them. So I think my family has always been the first source that I've gone to ....."*

Conscious decisions about eating were discussed as a family, *"we'd find those healthy choices....we went to nice places and sat down and had a good meal, not just a fast food*

*drive-through...we really talked about the different food choices to make so I try to do the same thing with our own children.”*

### ***Professionals in Health-Related Fields with Good Science Based Knowledge***

Emerging as the second important source of nutrition and exercise information in this study were health professionals with a good science knowledge based background. Identifying people and using these resources to collaborate and share information adds reliability to your sources. Surrounding yourself with healthy people will improve your overall health and impact your process of choice (Rath, 2013). When discussing nutritional labels, *“I feel like my group of friends, we are more cognizant about it. We talk about that but I feel like I’m with a pretty healthy group of people too.”* Developing “navigator” friends (those who give you advice and keep you headed in the right direction) or “mind opener” friends (those who expand your horizons and encourage you to embrace new ideas, opportunities, cultures, and people) expands your information sources, but establish profound friendships with a common thread to support and help you expand your ideas (Rath, 2006).

Identifying your mentors and you share the same source for ideas based on scientific knowledge forms a thread in your cognitive process. The participant demonstrated mentorship by leading healthy movements in a work setting, *“I need to practice what I preach, I need to be a good example”*. She also sought mentors to collaborate, formulate ideas and make decisions related to overall health. Having mentors that you trust, as well as being a trusted mentor for others is powerful in making decisions. *“Most people want to do the right thing. “ To be selfless (referring to herself) enough to encourage them to ask a lot of questions and ask for second opinion and ask other people...I think those are good*

*things.”*

Challenges the participant faced when using professional resources included, *“Sometimes they are not always available, like if I want to go to a person timing wise it’s a little tricky.”*  
*“If you go to somebody who is a professional a lot of times you know you have to wait, make an appointment....but the positive about that is when you’re meeting someone who’s knowledgeable and professional about it...they have all that base knowledge.... you can tell them about your situation and they can tailor and make it work for that specific situation. I always feel like those are worth the extra time.”*

The importance, impact, and resources friendships provide in our lives resonates in the multiple research studies in this field. (Rath, 2006)

### ***Continuing Education Resources***

Throughout our lifetime we experience learning in a variety of methods and from numerous sources. The third information resource the participant cited was schools.

*“Elementary school and high school ...we have different information (from the schools) that’s a lot off the same page, but we just try to incorporate (at home) those things that they’re talking about in school. And I love it at Beattie (elementary) they have the garden.”*

The school garden is an example of “learn by doing” philosophy (CalPoly student-athlete code of ethics) with hands on experience in the outdoor garden project. The garden project has been part of this elementary school for fourteen years with the inspiration coming from the Edible Schoolyard Project by Alice Waters in Berkeley, California. Community volunteers continue the garden-nutrition education in the class room and cafeteria. *“I love that part of Beattie because we talk about what we’re going to have in the garden (at home)*

*because I want them to tend to it and also to eat from the garden at the end of the day.”*

Another comment in regards to school information, *“my daughter was really good at sharing her fitness for life class and I thought they had some really good tips for young people about thinking ahead and having a general base fitness level.”* The participant’s professional discipline requires continuing education hours to remain an active member.

### ***Internet/Computer***

When healthy population looks for reliable information in regards to nutrition and exercise, the computer was the fourth source. *“If I go to the Internet or the computer it’s trying to filter through what’s going to work and what’s not and that’s a little bit time-consuming.”*

When asked how much do you learn from the computer, *“I wouldn’t say so (learning from computer). I would say it’s more a double check or just a data gathering device. Not necessarily something that I would feel it’s a point of reference where I just shoot off to look for things. I’ll just figure out what else is out there and get more information. I don’t know that I go there hoping to gain something form it. I’m more the one directing the computer where to go.”* Not considered a reliable source but a place to search for ideas or to use if time is limited. *“If I don’t have time to talk to somebody that would be a good source...I try a lot of different avenues with that and not use just one...I try to get a little variation.”* Reliable information comes from first-hand resources. *“There’s a lot of great products out there, so scientifically based research is my go to ...instead of a quarky new brand.”*

As a resource, the computer is a quick method for retrieving information from (your) identifiable sources. Current scientific based research studies or information (news) from

professional associations is easy to access on the internet. Science-based websites can provide general information.

### **Limitations**

The number of participants (N=1) limited the scope of data in this pilot study. Thus, limiting the perspective represented in the findings. With a larger sample additional themes/categories could develop and expand the current model. Additional researchers to analyze the data and to aid in triangulation of the results to reinforce validation the information. The theory should be further developed and modified with a larger healthy population or modified for different populations.

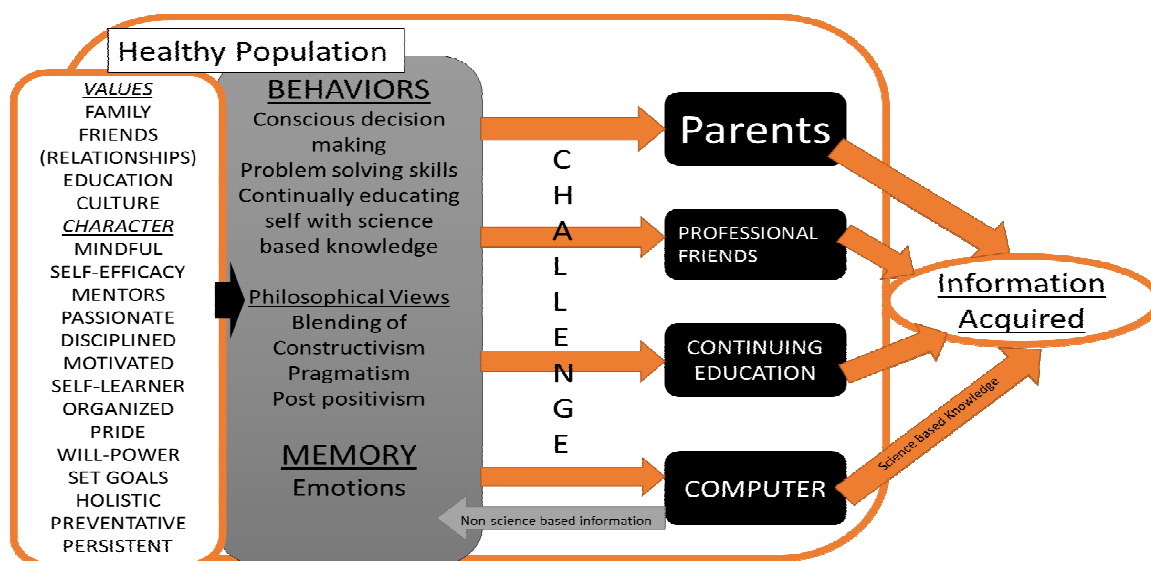
The exercise and food logs should be amended to clarify the information collected and adapted to the purpose the researcher intends to use the data. Bias in the selection of participants.

### **Conclusion**

Understanding the process by which a healthy population seeks nutrition and exercise information is a complex inquiry. Personal values, characteristics, behaviors, worldviews, and memories impact our "how" and "why" decisions. In the journey to identify, sort, code, and categorize themes, the complexity of this process became evident.

The transformation of the new knowledge is reflected in model 2 (Appendix K), an illustration of the process seeking nutrition and exercise information. A simultaneous convergence of values, character traits, behaviors, philosophical views and memory occurs in the conscious and unconscious states of mind. The type of challenge directs us to the source we determine to be the most helpful. In the final step, the acquired information is

applied to the challenge.



Model 2. Process understanding how a healthy population seeks for nutrition and exercise information

## Implications and Future Research

The importance of parent-child consecutiveness is central to the choice process. The lessons from parents create a deep initial memory in our cognitive process, and is the initial place we look for resources or begin inquiry. Whether it be related to genetics or learned throughout life experiences, we tend to seek this information first. In order to assist parents, professionals in health related fields need to reach out to parent groups in various settings to offer advice and support healthy choices. Helping consumers identify science based nutrition information and help them to realize misinformation is a recognized responsibility by the Academy of Nutrition (Wansink, 2006). Additional responsibilities outlined by the Academy include, members need to be the primary source of sound, science-based nutrition information for the media and to inform them when misinformation is presented; and members should continue to diligently work with other health care practitioners, educators, policy makers, and food and dietary supplement

industry representatives to responsibly address the health and psychological, physiological, and economic effects of nutrition-related misinformation (Wansink, 2006). Finding people who live a healthy lifestyle, collaborate, and learn from their experiences is an inference the participant offered in this study. Making time to be with friends is sometimes a difficult task. Understanding the health benefits of developing hobbies or activities to relax or enjoy a healthy activity is not highly recognized in our society (Rath, 2013). This message needs to be initiated in our work settings. Studies to understanding this gap, in addition to how friendships can enrich our health in the work place has been studied and reviewed in self-help books (Rath, 2006). An understanding of the concept of identity and eating, reveals what is of concern to people, how people organize food according to their own preferences, how they express themselves through food, and the ways in which they manage eating situations (Bisogni, 2002). Suggesting, if we associate with people engaged in a healthy lifestyle, we will personally accept a healthy lifestyle role, including nutrition and exercise routines.

From a curriculum stand point, we are able to reach the largest number of people through formal education. To acquire this information, we need to focus on memorable and influential experiences. As illustrated by the Beattie garden project, incorporate a “learn by doing” philosophy in the curriculum. From pre-school thru college level course-work, nutrition and exercise curriculum needs to stay abreast of the ever changing and growing scientific knowledge base. Emphasizing the importance of messages learned and modeled at school should be highlighted. From the rewards children are offered in the classroom to choices in the school cafeteria, we need to be cognizant of the impact on memory,

behaviors, and information processing these messages send to our children. If healthy messages are not shared, the process of correcting misinformation disseminated in messages is complex and involves retracting the myth and affirming worldview (Lewandowsky, 2012).

Comparing T.V. viewing time between the obese participants in McClure's (2013) study (more than three hours per day), and this study's participant's response, *"I don't really look at advertising...I'm not a big T.V. person either, so I probably block that out more than look at it."* How much time does a healthy population spend watching TV? If so, which programs?

Cooking skills, cooking confidence and eating behaviors definitely play a role in nutrition.

Our lack of skills and confidence is detrimental to our overall health (Fego, 2013).

Reliance on fast food and convenience foods increases without basic knowledge of purchasing and preparing meals at home. Programs and workshops aimed at the improvement of shopping and cooking skills should be included in formal education curriculum, as well as in community centers. Identifying leaders passionate about food and health would be a vital component of this movement. A limitation would be lack of facilities and trained culinary.

Professionals in health related fields are a source for others to inquire; therefore health professionals must continue their education in order to pass along science based information. Actively practicing and continuing education in a health related field is difficult. One suggestion, the professional associations compile an annual printed synopsis of findings and research that have made a significant impact on the discipline. Including



topics taken for granted by those in educational settings versus a stay-home parent raising a family with limited monetary and time resources.

Scientific research has given us alarming health statistics, knowledge of the detrimental effects of advertising, and an understanding of the process a healthy population seeks health information. Responsible, reputable companies need to lead the food and entertainment industry in this movement (health revolution) toward a healthier lifestyle.

The media messages and stories they endorse and promote reflect not only their values and beliefs, but consciously and subconsciously impacts their audience.

Advice offered from the participant in this study to someone looking for nutrition and exercise information, *“I would say, think about those people in your life that you look up to and think that they do a nice job, they seem to be able to fit those things into their schedule...all their lifestyle. They seem to be happy about the meals they cook, it doesn’t seem to be stressful. Go to somebody that you look up to and trust. Also find those professional people as a resource.”*

Suggestions based on the findings of this project would be to continue additional research to explore this topic with a larger healthy population. The data collection procedures should be reviewed, evaluated for effectiveness, and amended as needed. In addition, the consideration of a mixed method research project to strengthen the findings of the qualitative research.

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## Appendices

## Appendix A

### Research Design and Interview Questions

### Research Questions

RQ1: How do healthy individuals look for nutrition and exercise information?

RQ2: What sources do healthy individuals utilize for this information? How do they find them?

RQ3: What challenges do healthy individuals face when using these resources?

RQ4: What role does a healthy population's character traits play in understanding the process of finding nutrition and exercise information?

### Interview Questions

#### Initial Questions

1. When you have an inquiry about nutrition or health information, tell me how you look for an answer to your question(s)?

Probe 1: Give me an example?

Probe 2: How do you use this information?

Probe 3: How satisfied are you with information from a single source?

Probe 4: If conflicting information is found, how do you interpret the information?

2. Throughout your lifetime, what sources have you utilized for this information?

Probe 1: How do you feel about the quality of the resources available today?

Probe 2: Describe how anything or anyone has influenced your choices?

Probe 3: Which source(s) do you feel have been the best?

3. What are the major challenges you face when using these resources?

Probe 1: How do you use information from more than one source?

Probe 2: How do you identify reliable sources?

Probe 3: Describe your feelings about the sources?

Probe 4: Give me an example?

#### Closing Questions

1. What advice would you give to someone looking for nutrition and exercise information?
2. Is there anything that you might not have thought about before that occurred to you during this interview?
3. Is there anything else you think I should know to better understand your choices?
4. Is there anything you want to ask me?

## Appendix B

### Grounded Theory Procedural Checklist



### Grounded Theory Article Critique Checklist\*

#### General:

- ☐ Explain that qualitative research will be used
- ☐ Provide a rationale for why qualitative research is well-suited for studying the research problem (e.g. participant views, context, complex understanding, lack of knowing variables, capture voices)
- ☐ Define grounded theory
- ☐ Justify use of grounded theory
- ☐ Discuss specific grounded theory approach (e.g. Glaser & Strauss, 1967; Glaser, 1978; Corbin & Strauss, 1990; Clarke, 2005; Charmaz, 2006)
- ☐ Discuss the role of literature

#### Qualitative data collection methods:

- ☐ Discuss the site that will be studied
- ☐ Identify permissions that have been granted (include something about IRB permissions)
- ☐ Indicate how participants will be recruited to the study
- ☐ N of participants
- ☐ Discuss use of theoretical sampling
- ☐ Demographics of participants
- ☐ Indicate how participants will benefit from study (reciprocity)
- ☐ Indicate types of data to be collected (e.g. interviews, observations)
- ☐ Indicate extent of data collection
- ☐ Mention use of protocols (e.g. interview, observations, records) used to record the data
- ☐ State research questions that will be asked (if interviews)

#### Data analysis methods:

- ☐ Discuss preparing the data (transcriptions)
- ☐ Indicate general procedure of data analysis (reading through data and memoing, coding the data, description, developing themes, interrelating the themes)
- ☐ Indicate specific details of data coding procedures (e.g. open, axial, selective, etc.)
- ☐ Discuss the use of qualitative data analysis software to help analyze the data (e.g. Atlas.ti, MAXqda, etc.)
- ☐ Discuss use of multiple coders (i.e. intercoder agreement) if used in the study and how this process was accomplished with % agreement
- ☐ Discuss validity strategies (e.g. member checking, triangulation, negative case analysis, peer audit, external audit, immersion in the field)
- ☐ Discuss reflexivity – how researchers' experiences and role will influence the interpretation of findings
- ☐ Discuss saturation of the data

#### Outcome:

- ☐ Describe the results in narrative, rather than numerical format (e.g. themes)
- ☐ Allow grounded theory to emerge from the data
- ☐ Outline how well research goal was met

\*Adapted by Manijeh Badiiee from Checklist for Writing a Qualitative Methods Section for a Journal Article or Proposal for Extramural Funding (prepared by Dr. John Creswell, April 21, 2008) and Research Articles Critique, Evaluation, and Presentation (Dr. Wayne Babchuk, Strategies of Social Research: Qualitative Methods 407/807 syllabus, Spring 2009).

## Appendix C

### Informed Consent Form



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COLLEGE OF EDUCATION AND HUMAN SCIENCES  
Department of Nutrition & Health Sciences

## INFORMED CONSENT FORM

IRB# 20130913706EX

### **Title of Project:**

Nutrition and Exercise Information Resources of the Healthy Population.

### **Purpose of the Research:**

The purpose of this qualitative research is to develop a theory explaining the process by which individuals acquire health-related information, specifically in the areas of nutrition and exercise. This research is to assist educators in designing and facilitating curriculum. Participants must have a self-reported BMI ranging between 18.5-24.9 kg/m<sup>2</sup>, moderate exercise a minimum of one hour each day, and eat a healthy well-balanced diet. You must be at least 19 years of age or older to participate.

### **Procedures:**

Participation in this study will require approximately 5 hours of your time. You will be asked to complete an interview protocol, food and exercise diaries, and a semi-structured interview. The interview will be audio taped. The interview will take place in location of your choice. You may be contacted a second time if clarification is needed, which may require up to an additional one hour of your time. You may also be presented with the transcript from your interview.

### **Risks and/or discomforts:**

There are no known risks to participating

### **Benefits:**

There are no direct benefits to participants, but information gained may be used to develop curriculum to assist with the process of acquiring health information.

### **Confidentiality:**

Information about who participated will be kept confidential by the researchers. Any identifying information obtained from the interviews will be de-identified and will only be reported in aggregate form. Random pseudonyms selected by the PI will be used on transcripts, exercise and food logs to protect participants and keep information confidential. Results may




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COLLEGE OF EDUCATION AND HUMAN SCIENCES

Department of Nutrition & Health Sciences

also be published in scientific journals or conferences. Audio tapes and transcripts will only be available to the researchers.

**Opportunity to Ask Questions:**

You may ask any questions concerning this research and have those questions answered before agreeing to participate in or during the study. You may contact the primary investigator at any time by contacting Sally Hillis at [sjhillis@huskers.unl.edu](mailto:sjhillis@huskers.unl.edu) or 402-560-2052. You may also direct questions about being a research participant to the University of Nebraska-Lincoln Institutional Review Board at 402-472-6965.

**Voluntary Participation and Freedom to Withdraw:**

Your participation in this study is completely voluntary. You are free to decide not to participate in this study or to withdraw at any time without adversely affecting your relationship with the investigators or the University of Nebraska.

**Consent, Right to Receive a Copy:**

You are voluntarily making a decision whether or not to participate in thesis research study. Your signature certifies that you have decided to participate having read and understood the information presented. You will be given a copy of this consent form to keep.

\_\_\_\_\_ Check if you agree to be audio taped during the interview.

**Signature of Participant:**

\_\_\_\_\_  
Signature of Research Participant

\_\_\_\_\_  
Date

**Name and Phone number of investigator(s)**

Sally Hillis, Principal Investigator 402-560-2052

Wayne Babchuk, Secondary Investigator 402-472-7942

## Appendix D

### Demographic and Education Background

**Please answer a few broad demographic questions about yourself and your educational background?**

**Current job position?**

**How long in present position?**

**What is your highest level of education?**

**What field(s) is (are) your academic degree(s) in?**

**Age?**

**Gender?**

**Ethnic Background?**

**Would you describe your current health as excellent, average, or poor?**

## Appendix E

### Initial Interview



## INTERVIEW PROTOCOL/QUESTIONS: HEALTH INFORMATION RESOURCES

Day and Date: \_\_\_\_\_

Location: \_\_\_\_\_

Interviewer: \_\_\_\_\_

Interviewee: \_\_\_\_\_

Time of Interview: Start \_\_\_\_\_ End \_\_\_\_\_

Thank you for agreeing to meet with me (us) today for this interview. Qualitative researchers often view the interview process as a focused conversation about the central phenomenon of interest they are studying. I (we) intend for this interview to be a conversation and want you to feel comfortable throughout our meeting and feel free to ask questions as we go. Before we get started with a few demographic questions, we need to go over the informed consent form and have you sign it. As you are aware, this form provides some basic information as to how we will proceed, what the study is about, our role, my role, etc...

*Review Informed Form/Sign***Do you have any questions before we move forward and record our conversation?***Turn On Tape Recorder***To start with, will you please answer a few broad demographic questions about yourself and your educational background?****Current job position?****How long in present position?****What is your highest level of education?**

**What field(s) is (are) your academic degree(s) in?**

**Age?**

**Gender?**

**Ethnic Background?**

**Would you describe your current health as excellent, average, or poor?**

### **Interview Questions**

#### Initial Questions

4. When you have an inquiry about nutrition or health information, tell me how you look for an answer to your question(s)?

Probe 1: Give me an example?

Probe 2: How do you use this information?

Probe 3: How satisfied are you with information from a single source?

Probe 4: If conflicting information is found, how do you interpret the information?

5. Throughout your lifetime, what sources have you utilized for this information?

Probe 1: How do you feel about the quality of the resources available today?

Probe 2: Describe how anything or anyone has influenced your choices?

Probe 3: Which source(s) do you feel have been the best?

6. What are the major challenges you face when using these resources?

Probe 1: How do you use information from more than one source?

Probe 2: How do you identify reliable sources?

Probe 3: Describe your feelings about the sources?

Probe 4: Give me an example?

#### Closing Questions

5. What advice would you give to someone looking for nutrition and exercise information?

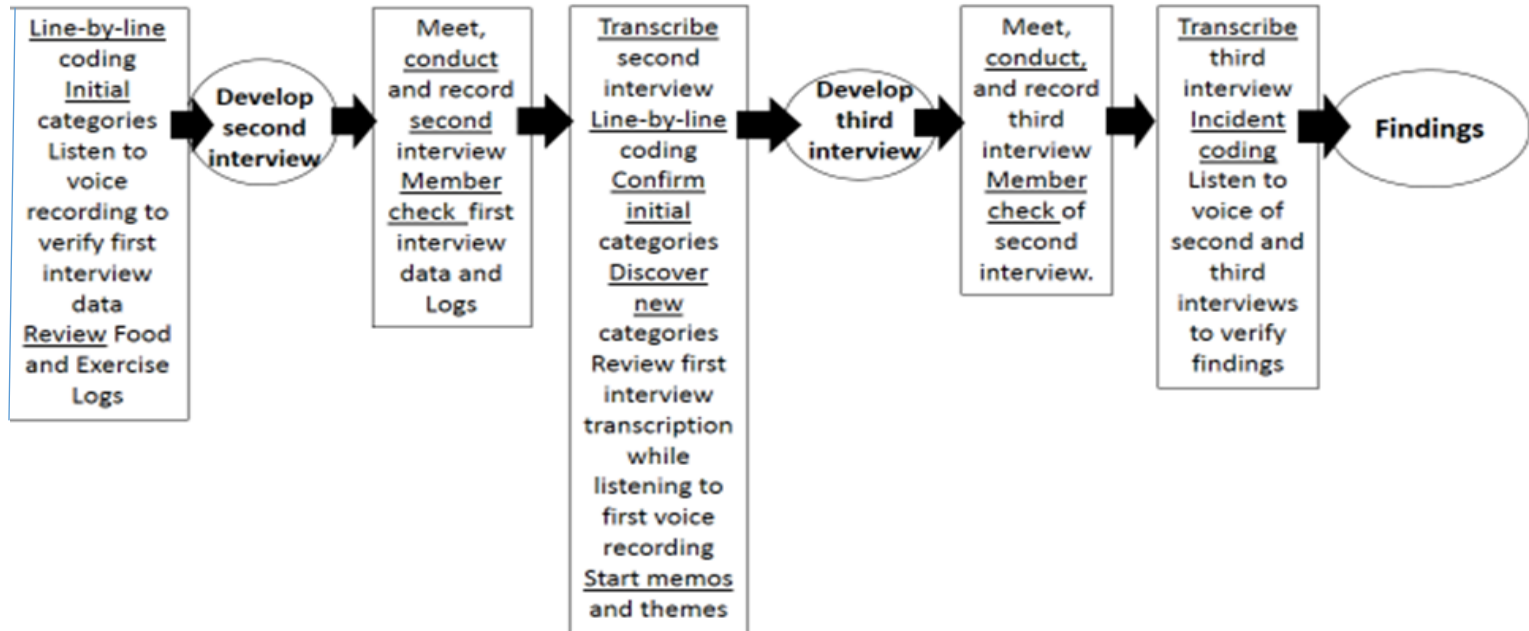
6. Is there anything that you might not have thought about before that occurred to you during this interview?
7. Is there anything else you think I should know to better understand your choices?
8. Is there anything you want to ask me?

#### FOLLOW-UP INTERVIEW QUESTIONS

1. Please clarify descriptions in exercise, food, beverage, supplements, vitamin log.
  - a. Tell me more about a specific food, beverage, supplement or vitamin
2. I understand your most important source of nutrition and exercise information to be <reply from initial interview>, is this correct?
  - a. When you find more than one source for information, you <reply from initial interview>
  - b. You use this information to <reply from initial interview>
3. <Reply from initial interview> has been your most influential source for information.
4. You feel <reply from initial interview> about these sources.
5. Is there anything else you would like to share with me?
6. Is there anything else you would like to ask me?

Appendix F  
Data Analysis Model

## DATA ANALYSIS



## Appendix G

### Food Log

## Food, Beverage, Supplement, Vitamin Intake Log

Date:

Hours of Sleep:

Time of Day:

Food/Supplement/Vitamin:

Amount:

Beverage:

Amount:

Time of Day:

Food/Supplement/Vitamin:

Amount:

Beverage:

Amount:

Time of Day:

Food/Supplement/Vitamin:

Amount:

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Food/Supplement/Vitamin:

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Beverage:

Amount:

Time of Day:

Food/Supplement/Vitamin:

Amount:

Beverage:

Amount:

Comments:

## Appendix H

### Exercise Log



## Exercise Log

Date

Type of Exercise-1:

Time of Day:

Time Exercising:

Distance:

Intensity: Easy/Moderate/Hard/Very Hard

Overall feeling:

Comments:

Type of Exercise-2

Time of Day:

Time Exercising:

Distance:

Intensity: Easy/Moderate/Hard/Very Hard

Overall feeling:

Comments:

Type of Exercise-3

Time of Day:

Time Exercising:

Distance:

Intensity: Easy/Moderate/Hard/Very Hard

Overall feeling:

Comments:

Type of Exercise-4

Time of Day:

Time Exercising:

Distance:

Intensity: Easy/Moderate/Hard/Very Hard

Overall feeling:

Comments:

Type of Exercise-5

Time of Day:

Time Exercising:

Distance:

Intensity: Easy/Moderate/Hard/Very Hard

Overall feeling:

Comments:

## Appendix I

### Table 1

VALUES	Participant's response
Family	"(parents) really encouraged my passion....they would always encourage me to do what I was passionate about....it took a lot of time, it was a big commitment...."
Friends (relationships)	When referring to a physician who helped with lactose challenge, "one of my dearest friends". "I feel like my group of friends we are more cognizant about it (nutritional labels). We talk about that but I feel like I'm with a pretty healthy group of people too."
Education	"I think anything with a lot of research behind it. I always will be open-minded about things that are new but a lot of it is probably just my background. I did a lot of research in college. And I like research-based things."
Culture (heritage)	"my mother grew up on a farm and my grandmother was a phenomenal cook." You know we still have those things in the family like homemade ice cream or my grandma would make pies and we would still have a great sit-down family meal."

## Appendix J

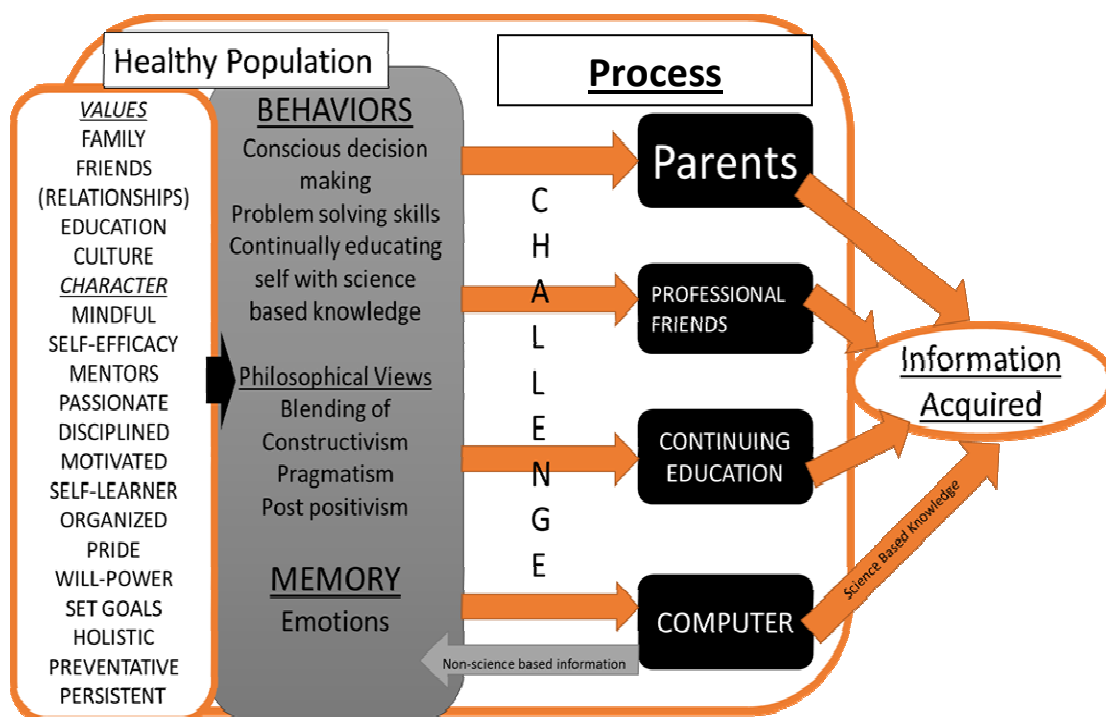
## Table 2

CHARACTERISTICS	Participant's response
Mindful	<i>-Be mindful of the smaller meals" "mindful about that with our children" when referring to lactose challenges. "the last three or four years I have been more cognizant about looking at (nutritional) labels"</i>
Self-Efficacy	
Mentor	<i>-by the end of the day you make slow rates of change and encourage them to make some better choices"</i>
Passionate	
Disciplined	<i>"I learned to get up early in the morning" as a teenager</i>
Motivated	<i>"if you're motivated you can certainly find a lot of information"</i>
Self-learner	<i>"I've noticed from 40 to 45 I do feel like I have to exercise more and eat less and be more mindful about what I eat"</i>
Organized	<i>"...you have to think ahead of all the things that you need"</i>
Proud (not arrogant)	<i>"I do hope I'm humble..."</i>
Goal setter	
Holistic	<i>"I try to give myself every chance I can to stay as healthy as possible"</i>
Preventative	<i>"you always want to give yourself the best opportunity to be healthy"</i>
Persistent	<i>Overcoming a fatigue challenge, "trying to find a balance about how to eat a little healthier and then maintain that through the day."</i>
Receptive to change (not risk taker)	<i>"Just be willing to listen to a new idea and try something out and if it works great. And if it doesn't try something else."</i>
Enjoys routine and daily rhythm	<i>"I love mornings. So I consciously do want to enjoy it...I love the sunrise...I think it's a great time of the day...it puts me in a better frame of mind for the</i>

## Appendix K

### Model 2

#### Understanding the Process



Model 2. Process understanding how a healthy population seeks for nutrition and exercise information