

ANALYSIS OF FACTORS THAT INFLUENCE MEN AND WOMEN 25 TO 44 YEARS  
OF AGE TO SEEK PREVENTIVE CHOLESTEROL EXAMS: ESTABLISHING  
EFFECTIVE COMMUNICATION CAMPAIGNS

By

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To my wonderful husband, Kurt Maximillian, and my perfect son, Henry George

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Abstract of Thesis Presented to the Graduate School  
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This qualitative study used a triangulation of methodologies – in-depth interviews and focus groups – to investigate what factors influence men and women 25 to 44 years of age of to seek preventive cholesterol exams. Study participants were recruited from local churches and from various departments within the University of Florida. The theoretical grounding of this study in a postpositivist worldview helped provide an enhanced understanding of the following research questions: (1) What is the familiarity level about preventive cholesterol screening among men and women 25 to 44 years of age? (2) What does high cholesterol mean to this group of men and women? (3) Do men and women within this age group know the factors that cause high cholesterol? (4) What is their knowledge level about cholesterol levels and prevention behaviors? (5) What are the risks, barriers and advantages that this group associates with preventive cholesterol screenings? Analysis of the transcribed discourse revealed four emergent themes: reasonable knowledge of cholesterol, factors influencing cholesterol, no communication with medical providers after cholesterol screening, and screening comfort. While literature indicated that less than 50% of men and women 25 to 44

years of age had been screened for LDL cholesterol, all but one of the participants in this study had been screened. This was the case for all ages included in the study as well as for both Caucasians and African Americans included in this study. However, there was confusion about when the screenings should be completed. Implications for these findings could assist communication planners with communication campaigns relating to cholesterol screening.

## CHAPTER 1 INTRODUCTION

In the United States, heart disease is the number one killer of men and women, with more than one million Americans suffering heart attacks and half a million dying from heart disease each year ("High Blood Cholesterol What you need to know," 2001). Heart disease is typically considered a disease for people middle aged and older; however, it is the third leading cause of death for men and women aged 25 to 44 years (Spencer, 2002, p. 291). Risk factors for heart disease include tobacco use, high blood pressure, high blood cholesterol, sedentary lifestyle, obesity and overweight, high alcohol consumption, diabetes and high stress levels. Maintaining a lifestyle with low levels of these risks can significantly reduce a person's likelihood of developing heart disease ("Risk Factors and Coronary Heart Disease," 2011a).

The focus of this study was cholesterol testing because many laboratory, clinical, pathological and epidemiological studies have clearly established that high blood cholesterol levels play a role in adults' development of coronary heart disease ("Cholesterol and Atherosclerosis in Children," 2011). Cholesterol is a fat, or lipid. If you held cholesterol in your hand, you would see a waxy substance that resembles the very fine scrapings of a whitish-yellow candle. Cholesterol flows through your body via your bloodstream, but this is not a simple process. Because lipids are oil-based and blood is water-based, they do not mix. If cholesterol were simply dumped into your bloodstream, it would congeal into unusable globs. To get around this problem, the body packages cholesterol and other fats into small protein-covered particles called lipoproteins (lipid + protein) that do mix easily with blood. The two main types of lipoproteins are low-density (LDL) and high-density lipoproteins (HDL). The differences

stem from their densities, which are a reflection of the ratio of protein to lipid; particles with more fat and less protein have a lower density than their high-protein, low-fat counterparts. In most people, 60 to 70% of cholesterol is carried in LDL particles. LDL particles take cholesterol to the parts of the body that need it at any given time. If you have too much LDL in the bloodstream, it deposits the cholesterol into the arteries (Freeman & Junge, 2005). The buildup of cholesterol in the arteries can prevent oxygen and blood flow to the heart. A heart attack can result if cholesterol is released into the blood stream, causing the blood to clot. This clotting can block blood flow to the heart ("What is High Blood Cholesterol," 2008).

There is evidence that hardening of the arteries begins to occur in childhood and manifests itself as heart disease in adulthood. Such evidence is discussed in the "Highlights of the Report of the Expert Panel on Blood Cholesterol Levels in Children and Adolescents" (1992) and can be summarized as follows:

- In the United States, children have higher blood cholesterol rates and adults have higher heart disease mortality than in many other countries.
- Autopsies on children have indicated hardened arteries or other precursors of heart disease.
- High total cholesterol, low high density cholesterol and high low density cholesterol in adulthood can be predicted by plaque buildup in childhood and early adulthood. High and low density lipoproteins transmit cholesterol in the blood. High density cholesterol removes excess cholesterol from tissues and carries it to the liver for disposal. This cholesterol is often referred to as "good" cholesterol. Low density cholesterol is not good because it carries excess cholesterol to the artery walls and is associated with the hardening of arteries and plaque buildup ("Cholesterol," 2008).
- Children and young adults with high levels of low density cholesterol are likely to be members of families with a history of heart disease among adults.
- Family history of high cholesterol is caused by environmental and genetic factors.

- The likelihood for high cholesterol in adulthood is greater for children who have elevated cholesterol levels ("National Cholesterol Education Program (NCEP): Highlights of the Report of the Expert Panel on Blood Cholesterol Levels in Children and Adolescents," 1992).

The Expert Panel on Blood Cholesterol Levels in Children and Adolescents that reported the above findings recommended selective screening of children who have a family history of heart disease or at least one parent with high cholesterol. Cholesterol screening provides the opportunity to identify elevated values and to assist in appropriate lifestyle modifications at a young age. Some on the Expert Panel contend that screening should be extended to all children and adolescents. Although it is recognized that preventive cholesterol screenings are important for people with risk factors for heart disease, there is still debate over the age at which universal screenings should begin for people without noticeable risk factors (Naylor & Paterson, 1996).

Awareness and education about cholesterol can lead to favorable behavioral changes that reduce heart disease risk. A fasting lipoprotein profile (total cholesterol, LDL-C, HDL-C, and Triglycerides) in all adults over the age of 20 once every five years is recommended by the National Cholesterol Education Program's Adult Treatment Panel III (ATP III), sponsored by the National Institutes of Health, and endorsed by the American Heart Association (ATP III, 2001). The American Academy of Family Physicians (AAFP) strongly recommends periodic cholesterol measurement in men aged 35 to 65 and in women aged 45 to 65 (AAFP, 2003), The American College of Obstetricians and Gynecologists (ACOG) recommends screening women every five years beginning at age 45; screening is recommended for women aged 19 to 44 based on risk factors (ACOG, 2003).

It is difficult to come up with a uniform age screening recommendation, because cholesterol screening recommendations are varied among reputable sources like The National Cholesterol Education Program's Adult Treatment Panel III (ATP III), The American Academy of Family Physicians, and The American College of Obstetricians and Gynecologists. However, this research focused on the age range of 25 to 44 to determine why the prevalence of cholesterol screenings is so low, when heart disease is the third leading cause of death for men and women between these ages (Spencer, 2002, p. 291). Through interviews and focus groups, the current study aims to determine what stage men and women aged 25 to 44 are in the Stages of Change Model to create more effective communication campaigns. Implications for these findings could assist communication planners with communication campaigns relating to cholesterol screening.

## CHAPTER 2 LITERATURE REVIEW

### **High Cholesterol and Risk Factors**

High cholesterol does not produce symptoms, so most people are unaware if their cholesterol numbers are high. A blood test called a “lipoprotein profile” is the most efficient way to screen for heart disease risk and is conducted to measure total cholesterol, LDL (bad) cholesterol, HDL (good) cholesterol, and triglycerides. LDL cholesterol is the source of cholesterol buildup and blockage in the arteries; HDL cholesterol helps prevent cholesterol from building up. Triglycerides are another form of fat in the blood. Cholesterol levels are measured in milligrams (mg) of cholesterol per deciliter (dL) of blood. The desirable level for total cholesterol is less than 200 mg/dL, and 240 mg/dL and above is considered high. Less than 100 mg/dL is the desirable level for LDL cholesterol. Because HDL (good) cholesterol protects against heart disease, high levels are good. A level less than 40 mg/dL for HDL is considered dangerous because it increases a person’s risk of developing heart disease. An HDL level of 60 mg/dL or higher is ideal to keep arteries clear of cholesterol. In addition to LDL cholesterol, triglycerides can also raise the risk of developing heart disease. High levels of triglycerides (200 mg/dL or more) may require treatment for some people (“High Blood Cholesterol: What you need to know,” 2001).

A diet with significant amounts of saturated fat and cholesterol, obesity, and a sedentary lifestyle can affect cholesterol levels; these are factors a person can control. However, uncontrollable factors such as a person’s age, gender, and family history also affect cholesterol levels. Cholesterol levels increase as people age. Women tend to have lower total cholesterol levels than men of the same age. A person’s genes partly

determine the amount of cholesterol made by the body; therefore, high blood cholesterol can run in a person's family ("High Blood Cholesterol: What you need to know," 2001).

Smoking, high blood pressure, high blood cholesterol, diabetes, physical inactivity and obesity are the traditional risk factors for cardiovascular disease. In the majority of cases, more than one of these risk factors is present in patients with cardiovascular disease. This phenomenon has been termed "metabolic syndrome" (Franssen, Monajemi, Stroes, & Kastelein, 2008). Obesity has increased over the past two decades. Obesity has doubled in frequency among adults in the United States and tripled among children and adolescents. Because of this increase in the prevalence of obesity, computer simulated models predict that by 2035, the prevalence of chronic heart disease will increase between 5 and 16% (Franssen, et al., 2008).

According to epidemiologic studies, multiple risk factors increase the probability of cardiovascular disease or heart attack because cardiovascular risk factors tend to reinforce each other in their influence on morbidity and mortality. Clustering of risk factors is evident in childhood and persists into adulthood, so multiple risk factors could indicate the increase of cholesterol buildup in the arteries of young people (Berenson, et al., 1998). Because high cholesterol independent of other risk factors can increase a person's likelihood of developing heart disease, focusing on preventing high cholesterol can in and of itself avert heart disease risk.

### **Cholesterol Screening Recommendations**

According to an analysis of the data collected from the 1999 to 2006 National Health and Nutrition Examination Survey, less than 50% of young men aged 20 to 35 years of age and women 20 to 45 years of age had been screened for LDL cholesterol.

However, 59% of individuals in these demographic groups had at least one risk factor for heart disease, such as obesity, high blood pressure, smoking or a family history of heart disease. Heart disease risk factors are high among this age group, yet cholesterol screening rates are low ("Risk Factors and Coronary Heart Disease," 2011b). This is significant since high cholesterol alone can lead to heart disease. Doctors are not clear about when to recommend cholesterol screening because there are different guidelines by the American Heart Association, the National Heart, Lung and Blood Institute, as well as the U.S. Preventive Services Task Force, and insurance companies may not cover the screenings. The recommendation supported by the American Heart Association and the National Heart, Lung and Blood Institute is to screen young adults regardless of risk level once every five years after they reach 20 years of age (Schiewe, 2010). The U.S. Preventive Services Task Force, "an independent panel of non-Federal experts in prevention and evidence-based medicine," provides a separate set of guidelines that recommends screenings of all men 35 years and older and all women 45 and older ("U.S. Preventive Services Task Force [USPSTF]," 2010). Earlier screenings are recommended only if a person has at least one risk factor for heart disease. Doctors now know that cholesterol levels are impacted by growth and hormone changes, so young adults should be screened more often to track changes, because a high cholesterol level in this age group is a predictor of heart disease later in life (Schiewe, 2010). As mentioned previously, high cholesterol alone is a risk factor and predictor of heart disease. The government's National Heart, Lung and Blood Institute is preparing new guidelines for cholesterol screenings, including when to screen younger adults.

Cullen et al. (2008) reviewed the Third Report of the Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults from the Adult Treatment Panel III. This report included strict guidelines for low density cholesterol targets and additional high risk conditions for heart attacks (Cullen, Stein, Gangoon, McBride, & Keevil, 2008). Previously, high risk conditions included coronary heart disease only. The Adult Treatment Panel III added diabetes and noncoronary atherosclerosis vascular disease to high risk status. The recommended low density cholesterol target for people with these conditions is < 100mg/dL. Optional drug therapy is recommended when low density cholesterol levels are between 100 and 129 mg/dl, and drug therapy should be initiated when cholesterol levels are greater than 130 mg/dL. According to the National Health and Nutrition Examination Survey III data, only 17% of people with coronary heart disease in the United States met these goals (Cullen, et al., 2008)

### **Health Care Reform**

On March 23, 2010, United States President Barack Obama signed into law the Patient Protection and Affordable Care Act. The Patient Protection and Affordable Care Act is a federal statute to produce health care reform, and it has provisions to ensure that all Americans have access to preventive services under their health insurance plans. This Act mandates coverage of preventive health services to promote public health, and this includes cholesterol testing. Because insurance coverage is a factor that doctors consider when determining appropriate screenings for adults, changes to health insurance caused by the Patient Protection and Affordable Care Act should be considered when scheduling preventive cholesterol screenings (Engel, 2010). As of September 23, 2010, insurance plans are no longer allowed to charge any out-of-pocket fees to insured individuals for preventive care on all new insurance plans (Engel, 2010).

It is possible that decreasing a patient's out-of-pocket cost for preventive screenings may increase the frequency with which men and women between the ages of 25 and 44, the focus of this study, seek preventive cholesterol exams.

Men and women may receive messages about the importance of cholesterol screenings, but they may not always act. The decision to seek cholesterol screening means taking action. Communication campaigns to encourage cholesterol screenings must encourage men and women to make the decision to act. One guide to the decision to act is the Stages of Change Model also known as the Transtheoretical Model.

### **Health Communication Campaigns**

In 2010 health care costs increased 3.9% from 2009 to \$2.6 trillion in the United States, according to the Centers for Medicare and Medicaid Services. The Centers for Medicare and Medicaid Services predicted that health care costs will increase by 5.5% by 2013, (Centers for Medicare and Medicaid Services, 2010, [www.CMS.gov](http://www.CMS.gov)). By 2035, the prevalence of chronic heart disease will have increased between 5 and 16% (McGinnis & Foege, 1993). Because of the increased health care costs and the predicted increase in the prevalence of heart disease, it is critical to find ways to prevent disease in order to reduce the demand on the health care system. One method to assist in disease prevention and cost reduction is to encourage action through health communication campaigns.

Interventions to promote behavior change and prevent disease have been accomplished through health communication. Dissemination of messages from experts to the public to motivate behavior change is the traditional form of health communication. Scientific research leads to the identification of risk factors for disease

and is the basis for the messages in health communication campaigns. There are few campaigns only about cholesterol. Most campaigns related to cholesterol focus on diet and a combination of other chronic diseases. One example is the California 5 a Day for Better Health! Campaign, which promoted increased fruit and vegetable consumption (Forester & Hudes, 1994). The basis of the campaign was that people who eat five or more servings of fruits and vegetables daily have greatly reduced risks of cancer, heart disease, diabetes and hypertension (USDHSS, 2000). The intervention involved a multimedia education campaign enlisting more than 800 food industry groups, local health departments and other educational partners. The campaign was designed using approaches from three current models of behavior change: the Health Belief Model, the Social Learning Model and the Transtheoretical Model. Over its three years, the campaign raised public awareness that fruits and vegetables reduce cancer risk and increased fruit and vegetable consumption (Forester & Hudes, 1994).

Because the current study focuses on cholesterol, it is important to understand some of the previous cholesterol communication campaigns, although there are few campaigns that focus only on cholesterol. These campaigns include the “Know Your Cholesterol” Campaign in Pawtucket, Rhode Island. This was a two-month cholesterol education campaign launched to encourage citizens to "know their cholesterol" levels by attending screening, counseling, and referral events. These events featured dietary fat and cholesterol assessments, finger stick procedures, and dietary counseling by trained volunteers. A total of 1,439 persons attended the events. Nearly 60% were found to have blood cholesterol levels that exceeded recommended levels. At a two-month follow-up of 1,040 of these same individuals, 600 had lowered their blood cholesterol

level by an average of 29.1 mg/dl. This experience suggests that similar campaigns could have a significant impact on blood cholesterol levels in the entire U.S. population (Lefebvre, et al., 1986).

The Women Veterans Health Care program was created in 1988 to provide more streamlined and cost effective medical care for women veterans. The Women Veterans Health Care program created materials in 2010 to raise awareness of high cholesterol among female veterans. Included in these materials were cholesterol awareness posters that read “Knowledge is power: What is your cholesterol level? Let VA help” (Health Awareness Campaigns: Cholesterol, 2011). There was no information about the results from this campaign posted to the Veterans Affairs website. The National Heart Foundation of Australia launched a campaign to reduce high blood cholesterol (New Campaign Tackles High Blood Cholesterol, 2011). The campaign’s motto was “Manage Life – Manage Cholesterol.” The campaign included a brochure and refrigerator magnet that lists 13 ways to make healthier food choices. It was funded under a grant from the Australian federal government and included media activities, advertising in doctors’ waiting rooms, and community service advertisements in regional areas (“New Campaign Tackles High Blood Cholesterol,” 2011).

Health communication and behavior change models provide guidance on improving their behavioral outcomes. These models indicate that health communication is more effective when it reaches people on an emotional as well as a rational level. Communicating risk alone does not usually engage people to change behavior (Freimuth, Linnan & Potter, 2000). These models also indicate that health communication is more effective when it relates to people’s social or life contexts. The

process of making and maintaining a life change is made within the context of family, community and cultural factors (Airhenbuwa & Obregon, 2000). Incorporating health communication into a life context is thought to have another important advantage: It may enable people to make changes across a range of health issues. The contextual approach is likely to be more effective at strengthening people's sense of efficacy and control to make changes.

A combination of the effectiveness of interpersonal communication and the reach of mass media communication is needed to change behavior. A commonly held understanding of health communication has been that interpersonal approaches are more effective in changing individual behavior, but they are too expensive and too limited in reach to have a broader population effect. Mass media approaches have broad reach for lower cost, but are usually not as effective in changing behavior (Backer, Rogers, & Sopory, 1992). Johnson, Meischke, Grau and Johnson (1992) argue that this understanding is inaccurate; both kinds of communication are important and interrelated.

Tailored communication is more effective than generic messages. One of the main findings of behavioral research is the importance of tailoring or customizing information so that it more closely meets the needs of the recipients. This approach has resulted in significantly improved communication outcomes (Kreps, 2000; Marcus, Nigg, Riebe & Forsyth, 2000).

The final guideline for improving behavioral outcomes through health communications is interactive communication. Interactive communication is more effective than one-way communication. Passive dissemination of health information is

the most common strategy and the least effective. People want knowledge and ideas to enhance their lives; however, receiving it from the medical field or governmental establishments may be off-putting. Dominant communication, which is when the communicator takes charge of the conversation, stimulates submissive behavior in the receiver – the opposite of empowerment required for behavior change (Bero, Grill, Grimshaw, Harvey, Oxman, & Thomson, 1998). There is increasing evidence that health communication approaches that are set within social contexts and that engage people interactively and personally are more effective (Emmons, 2000).

### **Stages of Change Model**

The purpose of preventive screenings is to assist with the implementation of any behavioral change or treatment to thwart disease. In the case of cholesterol screenings, a high total cholesterol number should lead to behavior change to prevent heart disease or heart attack. Because behavioral change is essential in prevention of heart disease for a person with high cholesterol, the Stages of Change Model can be used to explain the basis for developing effective interventions to promote health behavior change. The Stages of Change Model was developed in the late 1970s and early 1980s by James Prochaska and Carlo DiClemente, who studied smoking cessation while at the University of Rhode Island (DiClemente & Prochaska, 1982). The premise behind this model is that behavior change does not happen in one step. Instead, people change in different stages and at their own rate. The Stages of Change Model, also known as the Transtheoretical Model, has been used in several behavior change studies, including those focused on eating behavior change (Horwath, 1999), smoking behavior change (Prochaska & DiClemente, 1983), and behavior change to consistent condom usage among AIDS patients ("Community-level HIV intervention in 5

cities: Final outcome data from the CDC AIDS Community Demonstration Projects," 1999). In each of the stages, the behavioral change requires different tasks to be completed and issues to be addressed. In this study, the Stages of Change Model was applied to behavioral change as it relates to men and women ages 25 to 44 and cholesterol screenings.

The Stages of Change Model is an all-encompassing model of behavior change that has been applied to numerous health risk behaviors. The Stages of Change Model originally was applied to smoking cessation by Prochaska and DiClemente (1983). The model is based on the notion that people go through a series of stages when attempting to change behavior. People can remain in each stage for a long time, but they are still open to change. The stages of the Stages of Change Model are precontemplation, contemplation, preparation, action, maintenance, and relapse. The stages are defined as follows:

1. Precontemplation – the stage in which people are not yet acknowledging that there is a problem behavior that needs to be changed.
2. Contemplation – acknowledging that there is a problem but not yet ready or sure of wanting to make a change.
3. Preparation/Determination – getting ready to change.
4. Action/Willpower – changing behavior.
5. Maintenance – maintaining the behavior change.
6. Relapse – returning to older behaviors and abandoning the new changes.

In the precontemplation stage people are not thinking about changing or seeking any kind of help. The target behavior is not being performed by the people in this stage, nor is there intent by the people to perform the target behavior. People in the precontemplation stage are not aware of the impact of their current behavior and are not

confident about their ability to change. People may be defensive in the face of other people's efforts to pressure them to change behavior.

In the contemplation stage people are more aware of the personal consequences of their bad behavior and spend time thinking about their problem. People in the contemplation stage are still hesitant about changing behavior, although they spend time considering the possibility of change. People can remain in the contemplation stage for years, even though the intention to change is present. However, people can be labeled chronic contemplators if they only think about behavior change rather than act. Contemplators do not act on behavior change because sustaining the current behavior is perceived as equal in benefits and costs.

In the preparation/determination stage, people have committed to change by making small lifestyle modifications. This is considered a research phase as the people are gathering information about what they need to do to change behavior. People in the preparation stage have not reached the behavior criterion to reach the action stage. Immediate intention to perform the behavior is critical to the preparation stage.

The action/willpower stage occurs when people believe they have the ability to change their behavior and are actively taking steps to change. Overt behavioral changes, which are the most noticeable by others, have occurred during this stage. People in this stage tend to be open to receiving help and support from others.

Finally, people move to the maintenance stage. Here, the goal is to maintain the new status quo over time. People in maintenance reformulate the rules of their lives and are acquiring new skills to deal with life and avoid relapse. Movement through the

stages can take many attempts in order to succeed. It is possible for relapse to occur for difficult changes even after a long period of time.

Decisional balance and self-efficacy are important factors that impact the Stages of Change Model. Decisional balance refers to the individual's weighing of the pros with the cons, the benefits of changing the behavior and the costs of changing the behavior (Patten et al., 2000; Prochaska & Velicer, 1997). The core constructs of Janis and Mann's (1977) decision-making model were used to define decisional balance for the Stages of Change Model (Prochaska & Velicer, 1997; Prochaska et al., 1994). Only two factors were used, pros and cons of smoking, rather than the eight factors proposed by Janis and Mann (1977) in a study by Velicer, DiClemente, Prochaska, and Brandenburg (1985) to measure decisional balance (Prochaska et al., 1994). The two scales, pros and cons, supported the comparative approach to balancing decisions studied by Janis and Mann (1997). An individual's judgments of pros and cons vary through the stages of change (Prochaska et al., 1994). During the precontemplation stage, individuals will judge the pros of the problem behavior to outweigh the cons. However, in the action and maintenance stages, individuals judge the cons to outweigh the pros (Prochaska et al., 1994). Decisional balance has been demonstrated to be a good predictor through the stages of change (Prochaska et al., 1985; 1994). As individuals progress through the stages of change, the pros of the desired behavior tend to increase and the cons decrease. At some point, the pros and cons balance each other out, and the pros begin to outweigh the cons. Once the pros do outweigh the cons, the action stage in the Stages of Change Model is reached (Dempsey, Johnson, & Westhoff, 2011).

Self-efficacy is a person's belief about whether he or she can change successfully and the belief that relapses can be resisted over time (Prochaska et al., 1992). Based on research by Bandura (1977), the theory of self-efficacy argues that a person's perception of his or her own abilities to act out a specific behavior is important in determining behavior change. The Stages of Change Model's construct of self-efficacy, incorporated from Bandura, is described as the situation-specific confidence that an individual can cope with high-risk situations and not relapse to the problem behavior (Fallon & Hausenblas, 2004; Patten et al., 2000; Prochaska & Velicer, 1997; Velicer et al., 1998). Self-efficacy is considered important for people to move through the upper stages of change. For example, self-efficacy is especially important when an individual moves from the contemplation to preparation stage, and preparation to action stage (Kraft, Sutton, & Reynolds, 1999).

There is a need to find out why the prevalence of cholesterol screenings among 25 to 44 year old men and women is so low, given that heart disease is the third leading cause of death among this group, that the prevalence of heart disease will increase between 5 and 16% by 2035, and that cholesterol buildup in arteries occurs in young people. The current study aims to address this gap in the literature through interviews and focus groups to determine what stage men and women aged 25 to 44 were in the Stages of Change Model in order to create more effective communication campaigns. The findings from this study could assist communication planners with communication campaigns in promoting preventive cholesterol screenings among men and women aged 25 to 44 years of age.

## Research Questions

The overarching research question guiding this study is: What factors influence men and women 25 to 44 years of age to seek preventive cholesterol exams?

The following research questions will be answered through interviews and focus groups:

1. What is the familiarity level about preventive cholesterol screening among men and women 25 to 44 years of age?
2. What does high cholesterol mean to this group of men and women?
3. Do men and women within this age group know the factors that cause high cholesterol?
4. What is their knowledge level about cholesterol levels and prevention behaviors?
5. What are the risks, barriers and advantages that this group associates with preventive cholesterol screenings?

Answers to these questions will help determine where this cohort of men and women fall in the Stages of Change Model. This in turn, will help with the development of a communication plan to more effectively reach out to men and women 25 to 44 years of age and encourage them to seek cholesterol screenings.

## CHAPTER 3 METHODOLOGY

### **Qualitative Research**

Qualitative research has become more accepted as a legitimate mode of inquiry in the social behavioral and health sciences than it was in the late 1990s. Increased acceptance of qualitative research is exemplified by courses on qualitative research, funding for qualitative projects, and qualitative journals (Creswell, 2007, p. 2). A qualitative approach is appropriate to use to study a research problem when the problem needs to be explored, when a complex, detailed understanding is needed; and when the researcher seeks to understand the context or settings of participants. It is common for qualitative researchers to use multiple sources of data, rather than rely on a single data source. Then, researchers review all of the data and make sense of them, organizing them into categories or themes that cut across all the data sources (Creswell, 2007).

This current study can be described as a phenomenological study with an ontological assumption and postpositivist worldview based on the overarching goal to gain an understanding of how the participants experience the phenomenon (e.g. cholesterol exams) through a series of steps (e.g. interviews and focus groups) in order to take a stance in reality (ontology).

There are many different approaches to qualitative research with specific design features from philosophical and theoretical perspectives (Creswell, 2007, p. 5). A phenomenological research approach describes the meaning for several individuals of their lived experiences of a concept or a phenomenon. The purpose of a phenomenology is to reduce individual experiences with a phenomenon to a description

of universal essence. Phenomenological data analysis includes going through the data and highlighting significant statements, sentences, or quotes that provide an understanding of how the participants experienced the phenomenon (Creswell, 2007). This inquiry attempted to determine how participants understand cholesterol and factors that lead them to seek preventive cholesterol exams based on their “statements, sentences, and quotes” (Creswell, 2007).

Philosophical assumptions lead to an individual’s choice of qualitative research. The ontological philosophical assumption is a stance toward the nature of reality. Once the assumption is made, a researcher further shapes his or her research by paradigms or worldviews. A paradigm or worldview is a basic set of beliefs that guide action (Guba, 1990, p. 17). Researchers who engage in qualitative research using a postpositivist worldview view inquiry as a series of logically related steps, believe in multiple perspectives from participants rather than a single reality, and use rigorous methods of qualitative data collection and analysis.

Data collection for qualitative research can be grouped into four types of information: observations, interviews, documents and audiovisual materials. For a phenomenological study, the process of collecting information involves primarily in-depth interviews, as is the case in this study. The important point is to describe the meaning of the phenomenon for a small number of individuals who have experienced it.

As mentioned previously, it is common for qualitative researchers to use multiple sources of data, rather than rely on a single data source. The usage of different sources and methods to further understand a phenomenon is called triangulation. This

study uses triangulation through multiple methods (in-depth interviews and focus groups). Silverman (2000) suggest that triangulation should follow two basic rules:

1. Always begin from a theoretical perspective (e.g. Stages of Change Model).
2. Choose methods and data that will give an account of structure and meaning from within that perspective (e.g. by showing where participants fall in the Stages of Change Model) (p. 99).

The data yielded by the in-depth interviews and focus groups provided enhanced understanding of the factors that influence men and women between the ages of 25 to 44 to seek preventive cholesterol exams.

### **Methods Employed**

This study employed two qualitative methods, described in the following section, to better understand the factors that influence men and women between the ages of 25 to 44 to seek preventive cholesterol exams. The first portion of the study was a series of eight in-depth, or long, interviews of men and women between the ages of 25 to 44. The second methodology employed was audio recorded focus group interviews. One focus group comprised white men and women between the ages of 25 to 35, the second focus group comprised white men and women between the ages of 36 to 44, and the third focus group comprised African American men and women between the ages of 25 to 44.

### **Interview and Focus Group Participation Selection**

In accordance with university Institutional Review Board approval for the study, interview and focus group participants for this study were recruited from local churches and from various departments within the University of Florida. Participants were recruited during February through July 2012. The researcher hung fliers at various spots around departments of the University of Florida and in local churches throughout

Gainesville. Volunteers communicated with the researcher via email. The researcher explained the study in general terms and invited the individuals to participate. A free homemade lunch was provided to all focus group participants and \$5 gift cards were provided for all interviewees.

It is necessary to recognize the importance of age-related and racial subdivisions within the population participating in this study. The analysis identified and subdivided Caucasians into younger (ages 25 to 35) and older (ages 36 to 44). African Americans were separated from Caucasians and included both younger and older members of the population. Dividing the groups based on race was due to the significant impact that race seems to have on the effectiveness of education efforts related to health care. According to Gerges, Bolton and Bennett (2004), African American adults tend to have marginal or inadequate health literacy in comparison to their Caucasian cohorts. Patients with limited health literacy are more likely not to use preventive health services (Gerges et al., 2004). As mentioned previously, the homogeneity created by separating the groups by age and race made the participants more comfortable. In-depth interview participants included both the younger and older groups, with the ages of the study participants ranging from the youngest at 34 and the oldest at 41.

### **In-depth Interviews**

In-depth interviews in qualitative research attempt to understand something from the interviewees' point of view and to uncover the meaning of their experiences. According to Kvale (1996), interviews allow people to convey to others a situation from their own perspective and in their own words. Research interviews are based on conversations about everyday life. They are conversations with structure and purpose that are defined and controlled by the researcher. Although the research interview may

not lead to objective information, it captures many of the interviewees' views on something. That is why the basic subject matter consists of meaningful ideas to be interpreted (Kvale, 1996).

The research interview is characterized by a methodological awareness of question forms, a focus on the dynamics of interaction between interviewer and interviewee, and a critical attention to what is said. The purpose of the interview is to obtain descriptions with respect to interpretations of the meaning of what is described. The interviewer does not use ready-made categories but is open to new and unexpected phenomena (Kvale, 1996).

Kvale (1996) also pointed out that ethical issues such as informed consent, confidentiality and consequences for the interviewee should be taken into account with any qualitative interview. Research subjects should be informed about the purpose of the investigation and the main features of the design.

The in-depth interviews began on February 24 and concluded on July 2, 2012. All but one of the interview participants for this study were interviewed in their homes. The final interview was conducted at the interviewee's workplace. Allowing interviewees to remain in an environment familiar to them increased their comfort during the interview session. With the approval of the interview participant, the researcher began the audio recorded interview. The following broad areas were covered in the interviews:

- The meaning of cholesterol for the participant.
- The factors that impact cholesterol.
- The concerns that the participant had regarding cholesterol.
- The ways in which high cholesterol is treated.

The interview participants were then given a handout of cholesterol information. A copy of this handout can be found in Appendix A. After the handout was reviewed, the participants were asked how their perception of their own risk for high cholesterol had changed, if they had gained any new knowledge about cholesterol, and their feelings about getting screened for high cholesterol.

The informed consent document that was used for each interview and focus group participant is found in the Appendix B. All interviews were transcribed. A sample transcript of an interview is included as Appendix C.

### **Focus Group Interviews**

Focus groups are advantageous when the interaction among interviewees will likely yield the best information, when interviewees are similar and cooperative with each other, when time to collect information is limited, and when individuals interviewed one-on-one may be hesitant to provide information (Krueger, 1994; Morgan, 1988; Stewart & Shamdasani, 1990). Care must be taken to ensure all participants feel free to talk and to monitor individuals who may dominate the conversation (Creswell, 2007).

Focus groups are an appropriate methodology for this inquiry because the interactions among participants provide insights that amplify the data from in-depth interviews and increase the understanding of the factors that influence men and women between the ages of 25 to 44 to seek cholesterol exams.

Three focus groups were conducted, with each group including 6 to 8 participants. Although Morgan (1996) cautions that smaller groups may have difficulty maintaining an active level of involvement, it was found that the participants in this study interacted more comfortably and therefore more effectively, in smaller groups. Morgan's (1996) guidelines of an over-recruitment of at least 20% were followed. The

same participant population was used for both to recruit volunteers for the focus group interviews as was used for in-depth interview volunteers. The homogeneity of these groups encouraged interactions among participants and enhanced the sharing of life experiences. No individuals participated in both the in-depth interviews and the focus groups.

This researcher facilitated each of the focus groups, creating an audio record of each group. The focus groups took place on March 12, June 5, and June 20, 2012, in the break room of the participants' workplace. The broad topics addressed during each of the focus group discussions were:

- The meaning of cholesterol.
- The effects of cholesterol.
- The concerns regarding cholesterol.
- The treatment options for high cholesterol.
- The benefits of maintaining healthy cholesterol.
- Change in perceptions of risk for high cholesterol, knowledge gain, and feelings about getting screened for high cholesterol after discussion.

All focus groups were transcribed. A sample transcript of a focus group is included as Appendix D.

## CHAPTER 4 RESULTS

### **Participant Information**

Requests to forty potential participants resulted in eight interviews, and three focus groups. Two of the focus groups had six participants and one of the focus groups had eight participants. The two focus groups with six participants had seven volunteers, but only six showed up on the day of the focus group. Five females, ranging in age from 34 to 41, and three males, ranging in age from 35 to 39, participated in the in-depth interviews. Four females and two males participated in the focus group that included Caucasians between the ages of 25 and 35. Four females and two males participated in the focus group that included Caucasians between the ages of 36 and 44, and seven females and one male between the ages of 25 and 44 participated in the focus group that included African Americans. There were no significant differences between the responses from the focus groups that consisted of Caucasians compared to the focus group that consisted only African Americans. Because the information gathered from the interviews and focus groups were similar, the results will be described together.

### **Emergent Themes**

According to Creswell (2007), analyzing the data for specific themes is the next step following description. Emerging categories and themes from the transcribed interviews and focus groups were as follows:

- Reasonable knowledge of cholesterol.
- Factors influencing cholesterol.
- No communication with medical providers after cholesterol screening.
- Screening comfort.

## Reasonable Knowledge of Cholesterol

When asked to discuss cholesterol knowledge, 27 of the 28 participants indicated that they knew something about cholesterol. However, the range of cholesterol knowledge was varied. The most detailed description of cholesterol came from a 41-year-old female who had a history of high triglycerides. She indicated: “LDL is the lousy cholesterol, the not-so-good cholesterol that we want to try to keep low. Then there is the HDL that we try to keep a little higher to balance out the LDL.”

Four of the 28 respondents knew that there was good and bad cholesterol. They were further able to describe HDL as good cholesterol that can help lower bad cholesterol and LDL as bad cholesterol. One female interviewee stated: “I know there is good cholesterol and bad cholesterol. There’s HDL and LDL. HDL is good cholesterol and LDL is bad cholesterol.” A male interviewee stated: “Cholesterol is all of what we eat, the trans-fat, all about fat that goes into your body. Some are good and some are bad.” Another male interviewee added the importance of having higher good cholesterol and lower bad cholesterol. He stated:

I know that there is what’s called a LDL, which is a lower density kind of cholesterol which is bad cholesterol. And there is good cholesterol, which is higher density lipid cholesterol. So there is a good and a bad, and you want more good to outnumber the bad.

Respondents were able to offer other information about their knowledge regarding cholesterol such as: high cholesterol can cause hardening of the arteries and plaque buildup, as well as heart attacks and strokes. A female interviewee stated: “I know that it clogs your arteries if it’s the bad cholesterol type, so you have to watch out for that.” A male interviewee stated: “Cholesterol can clog up your vein system if it’s

too high.” A focus group participant indicated: “I know that if you have really bad cholesterol it can cause hardening of the arteries and plaque.”

### **Factors Influencing Cholesterol**

Interview and focus group participants were all quick to list factors that can affect cholesterol, such as diet, physical activity, age, gender and heredity. Fourteen of the 28 respondents indicated that diet had an impact to some extent. For example, one female focus group participant indicated:

I remember my dad had to go on a certain kind of diet because his cholesterol was high, so he could not have eggs. This was way back. Now they advertise that Cheerios are really good for your cholesterol.

Other interviewees explained: “If you eat healthier, you can lower your cholesterol. If you eat veggies and not eat things that lead to higher cholesterol...”  
“Fried foods, chips, cookies, carbs can all impact your cholesterol.”

Eleven of the 28 interview and focus group participants agreed that weight does have a correlation with high cholesterol. However, respondents were also quick to note that this is not always the case because people who are not overweight can have high cholesterol. A focus group participant said: “Even skinny people have trouble with cholesterol, so it’s not the end-all-be-all.”

An interviewee said, “I think [weight] does, but not always.” Another respondent said, “Oh yeah, because some people’s weight and eating habits don’t play as big of a part in it. You hear of young and small people having heart attacks.”

Eighteen of the 28 participants believed that physical activity can impact cholesterol by helping to keep it manageable and lower by burning your fat. Two of the 28 respondents did not think that physical activity had an impact. For example, one

respondent indicated that she tried physical activity to lower her cholesterol, but her numbers did not improve.

Four of the 28 participants advised that age had an impact on cholesterol. One focus group respondent indicated: "As you get older, your eating habits are harder to change. And your physical activity is much less than when you're younger so those things can creep up." Another focus group respondent added: "I would think the older you get, the less active you are, so without more activity that helps manage cholesterol. So, older people may be apt to have higher cholesterol." A third focus group respondent added that age had an impact but mainly because of increased knowledge about cholesterol screening as you get older: "I haven't been checked for my cholesterol in a few years, so maybe younger people just don't know what to do with it." The other respondents did not think age was a factor in cholesterol because they knew young and old people with high cholesterol.

Only three of the 28 respondents indicated that gender had an impact on cholesterol. They felt it could be because of the differences between eating habits among men versus women and because there are scientific studies that show women take better care of themselves than men. Although one respondent indicated the following:

Women die of heart disease more than they do from breast cancer and other diseases combined, but you only hear of breast cancer. I think it's a silent killer. You think of men having more problems with high cholesterol, but knowing that women die more from heart disease.

All 28 respondents agreed that heredity had an impact on cholesterol because diet and exercise do not always control cholesterol. One respondent stated:

Genetics. I know that if your family is susceptible to having a heart attack at an earlier age, then being the son of a father that has high blood pressure is

more likely to have a tendency to be affected by cholesterol at an earlier age.

Another focus group respondent agreed, saying:

Oh yeah, because some people's weight and eating habits don't play as big of a part in it. You hear of young and small people having heart attacks. Obviously, they may be eating well. It's not just diet, so I think it is heredity. A friend of mine's dad has high cholesterol and he is in excellent shape, low body fat, exercises, but has to watch his cholesterol.

### **No Communication with Medical Providers after Cholesterol Screening**

Although the interviewees and focus group participants had had cholesterol screenings at some point, none had been proactive about communication efforts with their medical providers or vice versa. Twenty of the 28 participants indicated they had had a cholesterol screening at some point. However, they did not know their numbers or understand what the numbers meant. There seemed to be no follow-up by the medical providers or the individuals once the tests were completed. A respondent said: "My doctor always says, 'Let's run your regular blood work' and cholesterol is always included. I just assume the numbers are fine because I don't hear otherwise."

Another respondent said:

They check your cholesterol if you give blood. That is how I monitor my cholesterol. It's always been really good. They don't break it down between good and bad for you, though. You can log into LifeSouth's website and view all of your readings from when you gave blood.

A third respondent indicated: "I think mine is good because I have to get my blood pressure tested every three months. But I never know what the numbers mean."

## Screening Comfort

Twenty six of the 28 participants were excited about the idea of getting screened for high cholesterol. The two who did not indicate they would get screened explained that they were not concerned about their cholesterol. One said,

Uh, yeah, when I go to my next physical and they want it done, I'll do it. But, uh, I'm not going to go out of my way right now to do it. But if it's part of my physical, I will do it.

The other said: "I probably will not get screened because I'm not too concerned. "

The other participants were supporters of having cholesterol screening done: "It's so easy! My next appointment is in about a month. I get a wellness exam when I go to my OBGYN. That's the only time I go to the doctor because I'm pretty healthy." And, "I feel okay getting screened." "I think it's a great idea. I think I would definitely do it and I do it."

## CHAPTER 5 DISCUSSION

The present study attempted to determine the factors that contribute to willingness to seek cholesterol screening among men and women between the ages of 25 to 44. The participants in this study yielded results that are most likely not generalizable. The statistics discussed in the literature review indicated that less than 50% of young men aged 20 to 35 years of age and women 20 to 45 years of age had been screened for LDL cholesterol. However, all but one of the participants in this study indicated that they had been screened for their cholesterol. This was the case for all ages included in the study as well as for both Caucasians and African Americans included in the study. It is interesting that all of the participants had some level of awareness regarding cholesterol, and there was a reasonable comfort level with cholesterol screening. However, the definition of cholesterol and the impact or effect of cholesterol were not clearly understood by the participants. Although the participants did not have many reservations about getting screenings, there was confusion about when the screenings should be completed.

The above discrepancies may be due to the fact that the guidelines regarding cholesterol screenings have been varied among and within countries in several ways, including initial screening and follow-up, threshold values leading to further testing and treatment, and the place of other risk factors in treatment decisions. The most important change in policies is the increased emphasis on coronary heart disease risk status as a guide to screening and intensity of cholesterol-lowering therapy prescribed (Naylor et al, 1996).

The majority of participants did not think age had an impact on cholesterol. They were correct in believing that a young person can have high cholesterol. However, the risk of coronary heart disease changes with age. One consequence of guidelines based on risk factors and waiting to treat high cholesterol is the increased propensity to treat elderly persons who are otherwise in good health rather than treating persons at a young age through lifestyle changes (Naylor et al, 1996).

Some progress has been made toward setting clinical policies for cholesterol screening and treatment that respect evidence from both epidemiologic research and clinical trials. There is now more of an emphasis on coronary heart disease risk as the basis for decision making, which has led to guidelines that are more easily followed by medical providers than in the past. There is still debate about the screening of young adults and children. The government's National Heart, Lung and Blood Institute is preparing new guidelines for cholesterol screenings, including when to screen younger adults. As of February 2013, these guidelines are still in development (National Cholesterol Education Month, 2013).

It is necessary to understand why participants had high awareness about cholesterol and knew there were screenings, but were unclear about the facts of cholesterol. It may be due to the difficulty in disseminating health messages across a large population. Evaluating population strategies for cholesterol reduction is an exceedingly complex undertaking. Population strategies include mass dissemination of educational materials.

Some community or work-site programs have incorporated blood testing as well as individualized dietary advice that is more intense than most physicians will provide.

Dietary advice is entangled with legislation about food advertising and labeling, changes in retail strategies and both market and government shifts in agricultural policy.

Examples of the impact of agricultural policy in food advertising and labeling includes decrease in sales of whole milk, eggs and beef. This may be why participants believed that diet had an impact on cholesterol (Naylor et al, 1996).

The modern cholesterol movement began gaining momentum in the 1960s. The diet-heart hypothesis assumes a primary role of dietary saturated fat and cholesterol in the causation of coronary heart disease. Based on broad epidemiologic evidence for the diet-heart hypothesis, American recommendations for dietary change and public policies to reduce coronary heart disease risk factors appeared as early as 1970 with the publication of the report of the Inter-Society Commission for Heart Disease Resources. Similar to recent advice, this report called for significant reductions in the overall consumption of fat, saturated fat, and cholesterol. In 1977, the United States Department of Agriculture assumed responsibility for a wide range of nutrition research and educational activities, including advice to the public. The first federal dietary guidelines for disease prevention, entitled "Dietary Goals for the United States," were released later that year. Acknowledging that many of the leading causes of death in the U.S. are linked to diet, this Congressional report was compiled to provide guidance to the public on dietary choices consistent with prevention of chronic diseases. According to the report, too much fat, sugar or salt can be and are linked to heart disease, cancer, obesity and stroke, among other killer diseases. Six major dietary goals were outlined as well as simple buying guides to help consumers attain these goals, since diet is one of the things that we can change if we want to. The report also included

recommendations for government actions related to food labeling, and nutrition education and research. The six dietary goals were as follows:

1. Increase carbohydrate consumption to account for 55 to 60% of the energy intake.
2. Reduce overall fat consumption from approximately 40 to 30% energy.
3. Reduce saturated fat consumption to 10% of total energy intake, balanced with 10% of poly-unsaturated and mono-unsaturated fats.
4. Reduce cholesterol consumption to about 300 milligrams a day.
5. Reduce sugar consumption by 40%.
6. Reduce salt consumption by 50 to 85% to approximately 3 grams a day.

These goals, which still stand, suggested changes in food selection and preparation by increasing consumption of fruits, vegetables, and whole grains; decreasing consumption of meat, foods high in fat, sugar and salt; substitute non-fat milk for whole milk; and decrease consumption of high cholesterol sources, such as eggs. The public was made aware of these goals through government advertisements and labeling requirements on food products (Committee on Nutrition and Human Needs, 1977).

Programs such as these may be another reason that participants agreed that diet had an impact on cholesterol, since early adjustment of diet could prevent cholesterol from accumulating in the arteries.

Evidence for the broad impact of the cholesterol movement is indeed compelling. According to national and regional surveys, the 1980s saw vast changes in cholesterol-related knowledge and behavior among US adults (Naylor et al, 1996). Possible explanations are the dietary goals established by the U.S. government as mentioned previously. In 2010, a study published in *The Journal of the American Medical*

Association showed that the average total cholesterol level in adults fell below 200 milligrams per deciliter, which is the goal for healthy total cholesterol. The study suggested that the widespread public health campaigns over the past twenty years to rid trans fats from foods might have had the most impact. Once widely found in fried and packaged foods, trans fats, which can raise LDL and lower HDL cholesterol, have been removed from the food supply as cities have banned their use in restaurants and pressed companies to remove them from cookies, soups, crackers and other processed foods (Carroll et al, 2012). The participants in this study support that the knowledge about cholesterol is prevalent. However, more needs to be done to help people understand the importance of screening at a young age.

## CHAPTER 6 CONCLUSION

Based on these findings, it is believed that the participants in this study fell into the precontemplation and contemplation stages in the Stages of Change Model. As mentioned in Chapter 2, precontemplation is the stage in which people are not intending to take action and they are uninformed or under-informed. People in this group are often characterized as unmotivated or not ready for health promotion programs. The participants in this study who indicated that they were not going to change their current behavior to seek cholesterol exams fell into this category. Contemplation is the stage in which people are intending to change. They are more aware of the pros of changing but are also acutely aware of the cons. These people are not ready for traditional action-oriented programs. The participants in this study who would continue thinking about cholesterol and cholesterol screenings would fall into this category.

Processes of change are the covert and overt activities that people use to progress through the stages. Processes of change provide important guides for intervention programs, since the processes are the independent variables that people need to apply, or be engaged in, to move from stage to stage. Ten processes (Prochaska & DiClemente, 1983; Prochaska, Velicer, DiClemente & Fava, 1988) have received the most empirical support. The first five are classified as Experimental Processes and are used primarily for the early stage transitions. The last five are labeled Behavioral Processes and are used primarily for later stage transitions. The Experiential Processes include Consciousness Raising, Dramatic Relief, Environmental Reevaluation, Social Liberation and Self Reevaluation. Consciousness Raising involves increased awareness about the causes, consequences and cures for a particular

problem behavior. Interventions that can increase awareness include feedback, education, confrontation, interpretation, bibliotherapy and media campaigns. Dramatic Relief initially produces increased emotional experiences followed by reduced affect if appropriate action can be taken. Psychodrama, role playing, grieving, personal testimonies and media campaigns are examples of techniques that can move people emotionally. Environmental Reevaluation combines both affective and cognitive assessments of how the presence or absence of a personal habit affects one's social environment such as the effect of smoking on others. It can also include the awareness that one can serve as a positive or negative role model for others. Empathy training, documentaries, and family interventions can lead to such reassessments. Social Liberation requires an increase in social opportunities or alternatives especially for people who are relatively deprived or oppressed. Advocacy, empowerment procedures, and appropriate policies can produce increased opportunities for minority health promotion, gay health promotion and health promotion for impoverished people. Self-reevaluation combines both cognitive and affective assessments of one's self-image with and without a particular unhealthy habit, such as one's image as a couch potato or an active person. Value clarification, healthy role models and imagery are techniques that can move people evaluatively (Prochaska & DiClemente, 1983; Prochaska, Velicer, DiClemente & Fava, 1988).

This information can be used to formulate a communication plan; this is preliminary research to assist communication planners. As mentioned previously, the respondents in this study are at the precontemplation and contemplation stages within the Stages of Change Model. Any communication campaigns to promote preventive

cholesterol screening should focus on the five processes of change classified as Experiential Processes. Since this group was informed about cholesterol, the awareness that needs focus in the Consciousness Raising stage should be on improving the dialogue between patients and their medical providers with regard to cholesterol and screening results. A suggestion to improve this dialogue is post card or email reminders to patients to remind them to contact their medical providers for a consultation to discuss cholesterol screening results. This could be an automated mailing or email set by the medical provider after 3 to 6 weeks from the screening to make sure the dialogue continues between the provider and patient. Most participants in this study knew they had cholesterol screenings completed in the past, but none remembered a dialogue from their medical providers to explain the results. For wellness checkups, it would be recommended that patients have the lab work done ahead of time, so the patient could initiate conversation about the results with their physician.

Personal testimonials could be employed in the Dramatic Relief stage by using patients who received clear explanations of their cholesterol screening results from their medical providers and could then act appropriately by improving their diet or physical activity. It seems to have become a norm to obtain cholesterol screenings as part of a routine physical exam. Therefore, Environmental Reevaluation and Self Reevaluation could extend to creating positive role models of patients who not only obtain cholesterol screenings, but also those who go beyond that to truly understand the results by creating an open dialogue with their medical provider. Social Liberation can play a part for communication planners to create a communication campaign by developing policies

and procedures that ensure all patients feel comfortable enough to create this open dialogue with their medical provider. Once the target population moves beyond the first stages of the Stages of Change Model, communication campaigns can shift to the five process of change classified as Behavioral Processes (Prochaska & DiClemente, 1983; Prochaska, Velicer, DiClemente & Fava, 1988).

Creating a communication campaign that focuses more on interpersonal communication between the patient and medical provider is supported by Johnson, Meischke, Grau and Johnson (1992). There is value to mass media channels because information can be disseminated to large audiences with speed and efficiency. However, in this case, interpersonal communication is better to provide immediate feedback and handle individual needs and questions that may arise from cholesterol screenings.

### **Limitations**

Although the population included in this study was 25 to 44 year olds, the majority of participants in the interviews and focus groups were 33 to 41. The population also included males and females; however only eight of the 28 participants were male. Additional demographic data was not obtained, nor were inquiries about media utilization. The participants were not asked about where they obtained health information, which would be important to know when creating communication campaigns. Participants were recruited from departments within the University of Florida as approved by the Institutional Review Board. Therefore, the data gathered from this study cannot be generalizable to other populations, since this sample is different from most in that the participants were more educated, from a large medical population and covered by health insurance from the University of Florida.

## **Future Research**

Future research should continue interviews and focus groups with the 25 to 44 year old demographic to confirm this study's results. Attempts to reach possible participants could extend beyond Gainesville to determine if the themes found extended to other regions in Florida. A determination of what percentage of people has had health care providers explain their cholesterol numbers should be pursued. Also, interviewing physicians in order to better understand their perspective on cholesterol could also further this research. If the themes can be confirmed across several regions of Florida, then the next phase to research is to develop and analyze the effectiveness of the findings laid out in the conclusion of this study that can help communication planners in creating communication campaigns.

## APPENDIX A CHOLESTEROL HANDOUT

### High Blood Cholesterol – What you need to know US Department of Health and Human Services National Institutes of Health (June, 2005)



#### Why Is Cholesterol Important?

Your blood cholesterol level has a lot to do with your chances of getting heart disease. High blood cholesterol is one of the major risk factors for heart disease. A risk factor is a condition that increases your chance of getting a disease. In fact, the higher your blood cholesterol level, the greater your risk for developing heart disease or having a heart attack. Heart disease is the number one killer of women and men in the United States. Each year, more than a million Americans have heart attacks, and about a half million people die from heart disease.

#### How Does Cholesterol Cause Heart Disease?

When there is too much cholesterol (a fat-like substance) in your blood, it builds up in the walls of your arteries. Over time, this buildup causes “hardening of the arteries” so that arteries become narrowed and blood flow to the heart is slowed down or blocked. The blood carries oxygen to the heart, and if enough blood and oxygen cannot reach your heart, you may suffer chest pain. If the blood supply to a portion of the heart is completely cut off by a blockage, the result is a heart attack.

High blood cholesterol itself does not cause symptoms, so many people are unaware that their cholesterol level is too high. It is important to find out what your cholesterol numbers are because lowering cholesterol levels that are too high lessens the risk for developing heart disease and reduces the chance of a heart attack or dying of heart disease, even if you already have it. Cholesterol lowering is important for everyone—y younger, middle age, and older adults; women and men; and people with or without heart disease.

#### What Do Your Cholesterol Numbers Mean?

Everyone age 20 and older should have their cholesterol measured at least once every 5 years. It is best to have a blood test called a “lipoprotein profile” to find out your cholesterol numbers. This blood test is done after a 9- to 12-hour fast and gives information about your:

- **Total cholesterol**
- **LDL (bad) cholesterol** – the main source of cholesterol buildup and blockage in the arteries
- **HDL (good) cholesterol** – helps keep cholesterol from building up in the arteries
- **Triglycerides** – another form of fat in your blood

If it is not possible to get a lipoprotein profile done, knowing your total cholesterol and HDL cholesterol can give you a general idea about your cholesterol levels. If your total cholesterol is 200 mg/dL\* or more or if your HDL is less than 40 mg/dL, you will need to have a lipoprotein profile done.

*\*Cholesterol levels are measured in milligrams (mg) of cholesterol per deciliter (dL) of blood.*

## APPENDIX B INFORMED CONSENT DOCUMENT

### **Informed Consent**

**Protocol Title:** Analysis of factors that influence men and women 25-44 years of age to seek preventive cholesterol exams: Establishing effective communication campaigns

**Please read this consent document carefully before you decide to participate in this study.**

#### **Purpose of the research study:**

The purpose of this study is to determine what factors influence men and women between the ages of 25 to 44 to seek cholesterol exams. The results from this study will be used to create effective communication campaigns to promote preventive cholesterol exams amongst this age group.

#### **What you will be asked to do in the study:**

You will be asked to determine your knowledge, attitudes and beliefs about cholesterol.

#### **Time required:**

30 minutes

#### **Risks and Benefits:**

You may learn more about cholesterol and the importance of preventive measures. There are no more than minimal risks involved.

#### **Compensation:**

Interviewees will be paid \$5.00 compensation for participating in this research. Focus group participants will be provided a free meal prior to the beginning of the focus group.

#### **Confidentiality:**

Your identity will be kept confidential to the extent provided by law. The interviews and focus groups will be recorded via audio tape. Once the recordings are transcribed, they will be destroyed.

Your demographic information will be replaced by random codes. Only first names will be used in the focus group discussion.

#### **Voluntary participation:**

Your participation in this study is completely voluntary. There is no penalty for not participating.

#### **Right to withdraw from the study:**

You have the right to withdraw from the study at any time without consequence.

#### **Whom to contact if you have questions about the study:**

Julie Neubig, Graduate Student, Department of Public Relations, XXXX, Gainesville, FL XXXX, XXX-XXX-XXXX.

**Whom to contact about your rights as a research participant in the study:**

IRB02 Office, Box 112250, University of Florida, Gainesville, FL 32611-2250; phone 392-0433.

**Agreement:**

I have read the procedure described above. I voluntarily agree to participate in the procedure and I have received a copy of this description.

Participant: \_\_\_\_\_ Date: \_\_\_\_\_

Principal Investigator: \_\_\_\_\_ Date: \_\_\_\_\_

## APPENDIX C INTERVIEW TRANSCRIPTION

### Interview Protocol

Time of Interview: 10:34 am (7 minutes and 9 seconds)

Date: 7-2-12

Place: Interviewee's workplace

Position of interviewee: sitting in office of interviewee's workplace.

(Briefly describe the study)

### Questions:

1. What do you know about cholesterol? *Well, I'm familiar with the cholesterol test, triglycerides, um, what's normal and what isn't. Simply because, as I explained, I actually always had high triglycerides and although my cholesterol numbers seemed to have improved with weight loss, my triglycerides are still elevated, so I test frequently for those, just to check the levels.*
  - a. What do cholesterol numbers mean?
    - i. What is LDL cholesterol? *The lousy cholesterol, the not so good cholesterol that we want to try to keep low, then there is the HDL, that we try to keep a little higher to balance out the LDL.*
    - ii. What is HDL cholesterol? *That we try to keep a little higher to balance out the LDL.*
    - iii. What are triglycerides? *The fat in the blood.*
2. What do you think affects cholesterol? *I wouldn't have realized that it could have been genetic until I had the problem with elevated triglycerides even*

*through weight loss and exercise. But at one time I thought it was 100% caused by or motivated by physical conditions similar to diabetes. Where the more you lose, the better those numbers get. And, I used to think cholesterol ran along the same lines. But since I've done everything possible to get my triglycerides lower through exercise and diet and it hasn't gone down, I'm beginning to realize how it could definitely be genetic or family based.*

- a. *What is the impact of diet on cholesterol? I think that it does to a certain extent, but it doesn't fix everything.*
  - b. *What is the impact of weight on cholesterol? Same thing. I think it does to a certain extent...*
  - c. *What is the impact physical activity on cholesterol? I tried physical activity as well, but didn't cause my triglyceride numbers to get lower.*
3. *What is the impact of age, gender and heredity on cholesterol? I've never thought about age or gender impacting cholesterol. I don't know, because the one person in my family that I'm thinking about who has elevated triglycerides is a male who is older than me and has always had elevated triglycerides. So, I don't know if it gets better or worse as you age, I'm not sure. And, I never thought about it as gender having an effect on that. Heredity does have an impact as described earlier.*
4. *What are your concerns regarding cholesterol? Well, since I know it's directly correlated to stroke and heart disease in general, that's my concern. Is that*

*the numbers are not improved that this could possibly have a detrimental effect on me.*

a. Do you know if you have any risk factors you have for high cholesterol? *Um, I thought the risk factor I had was that I was overweight and I think that's the only one that I thought about that could be a possibility.*

i. Do you smoke? *No*

ii. Do you have high blood pressure? *No*

iii. Do you have low HDL cholesterol? *I don't have them right now, but I had them checked recently.*

iv. Do you have a family history of early heart disease? *No, I do have a family history of high cholesterol, though.*

v. Age *41*

5. Do you know how high cholesterol is treated? *I know about drugs that are given nowadays that are given to lower cholesterol.*

a. Therapeutic Lifestyle Changes? *Yes, weight management and exercise.*

i. Weight management

ii. Physical activity

b. Drug Treatment?

6. Do you know the benefits of maintaining healthy cholesterol? *You can avoid heart disease and things like that. Other than that I don't know another way that you can measure it or feel it. Other than the fact that long term you can reduce your risk for heart disease. Other than that I don't know of other ways that it can manifest. That you can say, oh today my cholesterol is good. I know that folks with high blood pressure can know to that extent that they know when their blood pressure is high or when it is low based on things that are going on in their body at that very moment. But, other than to avoid heart disease, I'm not sure.*

(discuss handout with cholesterol information)

1. How do you perceive your own risk for high cholesterol now that you have reviewed the cholesterol information? *No, I think I'm still at risk.*
2. Have you gained any new knowledge about cholesterol now that you have reviewed the cholesterol information? *Well, I heard of this through other sources, um I think it's because I have always been at risk I'm always sent home with a lot of literature and I have read up on it. So, because, you know this is important to me, I probably have a lot more information than the average person about it. Simply because I do get tested often and I do different things in my life to try to change my numbers.*

How do you feel about getting screened for high cholesterol? Is this different than prior to the discussion and handout? *I feel okay getting screened, and this is not any different to prior to the discussion.*

APPENDIX D  
FOCUS GROUP TRANSCRIPTION

**Focus Group Protocol**

Time of Focus Group: 12:16pm

Date: 3-12-12

Place: workplace break room

Number of participants: 8

Position of participants: Sitting around a lunch table

**Questions:**

1. Talk to me about what you know about cholesterol.

**Respondent 1:** There is good and bad

**Respondent 2:** HDL is the good cholesterol and LDL is the bad; cholesterol over 200 is really really bad. Heart attacks, stroke is bad.

- b. Talk to me about what cholesterol numbers mean.

- i. Talk to me about LDL cholesterol.

- ii. Talk to me about HDL cholesterol.

**Respondent 1:** Helps lower the bad cholesterol. HDL is good.

- iii. Talk to me about triglycerides.

**Respondent 1:** it's fat

2. Talk to me about what affects cholesterol.

**Respondent 1:** Can lead to high blood pressure and heart conditions

**Group** – agrees with statement

- a. Talk to me about the impact of diet on cholesterol.

**Respondent 1:** If you eat healthier you can lower your cholesterol. If you eat veggies and not eat things that can lead to higher cholesterol.

**Respondent 2:** Eat fiber

**Respondent 3:** Fried foods, chips, cookies, carbs can all impact your cholesterol. Eat more greens.

b. Talk to me about the impact of weight on cholesterol.

**Respondent 1:** A lower weight could lower your cholesterol. A healthier weight.

**Respondent 2:** Even though skinny people have trouble with cholesterol, so it's not the end all be all.

c. Talk to me about the impact physical activity on cholesterol.

**Respondent 1:** helps to lower it.

**Group -agrees**

d. Talk to me about the impact of age, gender and heredity on cholesterol.

**Respondent 1:** It is hereditary. There is a hereditary type. I've also seen younger people with high cholesterol, so I don't think it's an age thing.

**Respondent 2:** I don't remember if you mentioned gender, but I don't think that impacts cholesterol either. I think it has more to do with your genes with regards to cholesterol.

3. Talk to me about your concerns regarding cholesterol.

**Respondent 1:** I think about it. My mom, my dad and my sister all have high cholesterol. I'm the only one that doesn't have it. That's why I exercise.

**Respondent 2:** I was concerned when I had a test and they told me I had high cholesterol. But I haven't had an issue with cholesterol since then.

a. Talk to me about the risk factors you have for high cholesterol.

i. Cigarette smoking – **Group said no**

ii. High blood pressure

**Respondent 1:** Yes

**Respondent 2:** Yes

iii. Low HDL cholesterol

**Respondent 1:** They check your cholesterol if you give blood.

Mine is always good. That is how I monitor my cholesterol.

It's always been really good. They don't break it down

between good and bad for you, though. You can log into

LifeSouth's website and view all of your readings from when

you gave blood. Plus I'm saving lives.

**Respondent 2:** I think mine is good, because I have to get my

blood pressure tested every three months. But I never knew

what the numbers meant.

iv. Family history if early heart disease

**No one indicated a family history**

v. Age

**No one indicated that age was a factor.**

4. Talk to me about how to treat high cholesterol.

**Respondent 1:** Change your diet

**Respondent 2:** Diet and exercise

**Respondent 3:** Can't you take medicine?

a. Therapeutic Lifestyle Changes

i. Weight management

ii. Physical activity

b. Drug Treatment

5. Talk to me about the benefits of maintaining healthy cholesterol.

**Respondent 1:** Avoid stroke, heart disease.

(pass out and discuss handout with cholesterol information)

6. Talk to me about how you perceive your own risk for high cholesterol now that you have reviewed the cholesterol information.

**No change**

7. Talk to me about any new knowledge you have gained about cholesterol now that you have reviewed the cholesterol information.

**Respondent 1:** How am I supposed to know that my cholesterol is bad without symptoms?

**Respondent 2:** That's the thing, you have to get it checked.

**Respondent 3:** I just want to add that you need to know what your cholesterol is. If you keep dieting and exercising without getting your

cholesterol checked you don't know if it's gotten any better. Heart disease is the number 1 killer, but I didn't put the two and two together. I'm like, oh, I'll get my cholesterol tested, but I realize now it's a big deal because of heart disease.

8. Talk to be about how you feel about getting screened for high cholesterol. Is this different than prior to the discussion and handout?

**Respondent 1:** I do it

Everybody does it?

**Respondent 2:** Not often, but I do it; My perception has changed, because I know I don't eat right.

**Respondent 3:** How often should it be?

**Respondent 4:** I think this will help me more to pay attention to the numbers. This has made me realize that I should pay attention to the numbers.

**Respondent 5:** I think this will help at the doctor's office when they say oh your cholesterol is good. You can then ask how far away I am from this or what is good? So, maybe I'll ask more and know what to ask.

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## BIOGRAPHICAL SKETCH

Julie Kay Neubig was born in Baton Rouge, Louisiana, to Gerald Evans Eggert of Winter Haven and Dorothy Ann Bush of Bogalusa. She attended Scotlandville Magnet High School in Baton Rouge, Louisiana, and graduated Magda Cum Laude from Louisiana State University, majoring in Business Management. After graduating from college in 2003, Julie moved to San Antonio, Texas to begin her career. Within a year of moving to San Antonio, Julie got engaged and married her high school sweetheart, Kurt Maximillian Neubig. She moved to Gainesville, Florida in 2004 and began working in the Office of Human Resource Services at the University of Florida. Julie began her Master of Arts in Mass Communication in the College of Journalism and Communication at the University of Florida in 2006 as part of the Employee Education Program. Her research interests are health communication. After seven years of marriage, Julie and Kurt had a beautiful son, Henry George Neubig.