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## Watch out for the Freshman 15: An Investigation and Interpretation of Memorable Health Messages Received by College Students

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WATCH OUT FOR THE FRESHMAN 15: AN INVESTIGATION AND  
INTERPRETATION OF MEMORABLE HEALTH MESSAGES  
RECEIVED BY COLLEGE STUDENTS

by

Lindsey Marie Rose

A Thesis  
Submitted to the  
Faculty of The Graduate College  
in partial fulfillment of the  
requirements for the  
Degree of Master of Arts  
School of Communication

Western Michigan University  
Kalamazoo, Michigan  
April 2008

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Lindsey Marie Rose

WATCH OUT FOR THE FRESHMAN 15: AN INVESTIGATION AND  
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RECEIVED BY COLLEGE STUDENTS

Lindsey Marie Rose, M.A.

Western Michigan University, 2008

Using the memorable messages framework as a guide (Knapp, Stohl & Reardon, 1981), this thesis examines the memorable health messages that college students are able to recall. The survey design queried respondents about the structure and form of the message, circumstances surrounding the message, the source of the message, and the content of the message. The data was assessed quantitatively through use of one-sample chi-square tests, and qualitatively utilizing grounded theory. The results of the study were generally supported by previous memorable message studies. The research findings are discussed based on the memorable messages framework and the implications for future research are presented.

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## CHAPTER I

### INTRODUCTION

College enrollment in the United States hit a record level of 17.5 million in the fall of 2005 and enrollment is expected to increase by an additional 13 percent between 2006 and 2015 (Digest of Education Statistics, 2006). Such statistics clearly suggest that a college education is an increasingly crucial milestone in young people's lives. While college enrollment is on the rise and notably beneficial to one's future career ambitions, it is not without its challenges. For instance, attending college is often associated with a great deal of change or adjustment, along with strong feelings of uncertainty and insecurity (Kitzrow, 2003; Stewart-Brown et al., 2000). Though there are numerous issues challenging students, one arguably key concern is the increased opportunity for engaging in risky health behaviors (Douglas & Collins, 1997; Kitzrow, 2003; Sax, 1997). Research reports that contrary to what might be expected of high achievers such as college students, the health status of students is poor relative to that of their peers (Stewart-Brown et al., 2000). Students' poor health can be attributed to a number of behaviors such as changes in eating routines, excessive drinking, risky sexual behaviors and sleep deprivation, as well as the common viruses that are likely to circulate among students (Douglas & Collins, 1997; Kitzrow, 2003). Hence, institutions of higher education have the capacity to provide an important setting for reaching young people and reducing their health risk behaviors (Douglas & Collins, 1997).

What is noteworthy about such risky health habits is that the majority of them can be credited to lifestyle choices. For instance, in a nation-wide study of binge

drinking behaviors in college students, researchers found that “by far the strongest effects noted in this analysis came from several variables that measure a student’s commitment to different college lifestyle choices” (Wechsler, Dowdall, Davenport & Castillo, 1995, p. 923). More specifically, when the respondents were asked “how important is it for you to participate in the following activities in college?” most answered “very important” or “important” with regard to attending parties. Thus, the risky health behaviors most frequently associated with college students could be attributed to lifestyle choices such as attending parties. Moreover, research suggests that these risky behaviors are generally correlated with one another (Wechsler et al., 1995). That is, if a student engages in binge drinking for example, s/he is more likely to participate in other behaviors such as drug use, unsafe sexual practices and sexual dating violence, smoking cigarettes, diet pill use, and suicidality (Silverman, Raj, Mucci, & Hathaway, 2001; Wechsler et al., 1995).

National reports on college student health are alarming. Consider the 1995 National College Health Risk Survey in which Douglas and Collins (1997) indicate the following findings:

During the 30 days preceding the survey, 34% of the participants had consumed five or more alcoholic drinks on at least one occasion, and 27% had drunk alcohol and driven a car. Thirty-one percent had smoked cigarettes regularly during their lifetimes, 49% had ever used marijuana, 30% had used a condom during their last sexual intercourse, 21% were overweight, and 38% had participated in vigorous physical activity on 3 or more of the 7 days preceding the survey. (p. 55)

Such reports clearly indicate that college students engage in numerous risky behaviors that compromise their health. For this reason student health is an issue of concern and

one that must be explored.

Contemporaneous to facing these risky health behavior choices, students entering college are challenged with a new autonomous living situation. Students often receive their first degree of independence to create a lifestyle free of parental influence while attending college (Seymour, Hoerr, & Huang, 1997; Stewart-Brown et al., 2000). With that liberty comes a great deal of responsibility and how the student manages health concerns is a significant aspect of that responsibility. With regard to health management, Stewart-Brown et al. (2000) assert that “health-related habits formed during this period may be difficult to change later in life” (p. 492). Furthermore, the habits established early in one’s life tend to be repeated later (Levi, Chan, & Pence, 2006). Therefore, this phase in life is crucial to developing positive health and lifestyle habits in order to ensure one’s health throughout adulthood.

A key to successful health management begins with the individual’s understanding about health (Beier & Ackerman, 2003; Levi et al., 2006). Health knowledge is important because it enables individuals to identify symptoms and communicate about diseases, participate in appropriate preventative strategies and understand where to receive health services (Beier & Ackerman, 2003). Research suggests that some individuals are more knowledgeable about health issues than others (Beier & Ackerman, 2003; Levi et al., 2006); hence, it can be postulated that students attend college with varying levels of information or knowledge about health. Consequently, they may be uninformed and/or underinformed about wise health decisions that they may encounter in college. In an effort to counter this lack of knowledge, students are apt to receive advice about how to handle health issues prior to entering college. While they may receive a variety of messages, the main concerns of this study are the messages that students have found to be memorable. Memory

has been defined as “some kind of repository in which facts (information) may be retained over some period of time” (Loftus & Loftus, 1976, p. 1). This study, therefore, is interested in messages that have persisted in memory. These memorable messages may assist college students as they embark on their college experience and manage their own health issues.

Previous research has examined this phenomenon of memorable messages. For example, Ellis and Smith (2004) analyzed individuals daily behaviors with regard to recalled messages of how they were expected/told to behave; Ford and Ellis (1998) examined supportive and non-supportive behaviors recalled by nurses in acute care settings, and Barge and Schlueter (2004) used memorable messages to understand newcomer socialization. While the memorable messages framework has been utilized in a variety of settings, it has yet to be applied to college students and their recalled memorable health messages.

The study of memorable health messages within the college population attempts to integrate previous research with current college health concerns. In this study, I will first present the major health risks challenging college students. I will then draw on the memorable message framework to examine recalled messages of health advice received by college students upon leaving home to attend college. Similar to previous studies (e.g., Ellis & Smith, 2004; Ford & Ellis, 1998; Smith & Ellis, 2001; Smith, Ellis & Yoo, 2001), this study focuses specifically on the structure, content, context and effects of the memorable health messages. The purpose of this study is to understand what makes these messages “stick” with college students. A study such as this is beneficial because it will provide knowledge of the health priorities and concerns of college students that could be of interest to individuals such as parents or practitioners. Additionally, the study will help

researchers understand from whom students are receiving messages and how they benefit or are harmed by those messages.

Finally, this study will contribute to the growing body of research on the memorable messages framework by studying a specific kind of message that has not yet been researched; health messages recalled by college students. In addition, the majority of previous studies have been quantitative examinations of the characteristics present in the message, namely reporting frequencies and significance. The present study is similar to previous research in that it will employ quantitative methodology through one-sample chi-square tests. However, in addition to quantitative analysis, the study will also qualitatively analyze the message itself, through open ended and axial coding (Strauss & Corbin, 1990). A qualitative examination will aid in a more in-depth understanding of the memorable health messages that students are able to recall. Coupled with the figures of one-sample chi-square, the study will provide increased knowledge of the relationship between students' health and message recall.

## CHAPTER II

### LITERATURE REVIEW

When embarking on one's first year of college, students are likely to be challenged with numerous issues and/or obstacles. One specific obstacle that college students are apt to meet is health related concerns. This can be attributed to the risky health behaviors that students frequently encounter in college (Douglas & Collins, 1997; Kitzrow, 2003; Sax, 1997). Such behaviors could include changes in eating routines, excessive drinking, risky sexual behaviors and sleep deprivation, and viruses (Douglas & Collins, 1997; Kitzrow, 2003; Lee & Bichard, 2006). In many instances, this point in a student's life is the first time they are independently in charge of their own health management (Levi et al., 2006). Accordingly, they may be unaware of sensible health decisions. In an attempt to transition students to making the appropriate choices, students are likely to receive advice about wise health decisions prior to attending college. The main concerns of this thesis are the health related messages that students have found to be memorable. Useful to understanding the memorability of messages, is the memorable messages framework (Knapp et al., 1981). This chapter then, first explores the various health risks challenging college students, and second, provides a review of the memorable messages framework and the associated research in the area.

#### Health Risks Challenging College Students

Studies suggest that young adults have much higher risk-taking tendencies than those who are younger or older (Lee & Bichard, 2006; Lee & Ferguson, 2002).

As a result of these tendencies, college students are apt to receive health advice about the risks they may encounter in college (Lee & Ferguson, 2002). Such health issues include unsafe sexual behaviors, drinking habits, weight issues, strain on mental health, as well as the usual illness and injury concerns. Each of these health risks are addressed in the sections that follow.

### *Unsafe Sexual Practices*

One health risk that has received a great deal of attention is unsafe sexual practices. Each year approximately 3 million new cases of sexually transmitted infections are diagnosed in the United States (Eng & Butler, 1997). Researchers argue that despite the fact that young adults are increasingly being educated on safe sex practices, there is growing incidence of sexually transmitted infections and safer sexual practices are not being regularly used among college students (Sadovszky, Keller & McKinney, 2002). Keller (1993) reports that college students, when asked about their reasons for not using a condom during their last intercourse, said that they were in a long-term relationship, knew their partners sexual history or they simply assumed their partner was safe. In a more recent study, Rouner and Lindsey (2006) report that “adolescents may not view other STDs (than HIV/AIDS) as life threatening, given these STDs receive considerably less media attention” (p. 30). Further contributing to this issue is the prevalence of multiple partners. The 1995 National College Health Risk Behavior Survey reported that 34.5% of college students report having six or more sex partners (Douglas & Collins, 1997).

Research suggests that a primary motive behind safer sex is the prevention of an unwanted pregnancy (Rouner & Lindsey, 2006; Sadovszky et al., 2002). Hence, young adults may opt out of using a condom if taking a hormonal birth control pill,



mistakenly believing that the pill alone will provide protection from STDs (Rouner & Lindsey, 2006). This finding is supported by Sadovszky et al. (2002) who suggests that students often mistakenly believe that they had safe sex, when in fact they did not; only 40% of respondents correctly identified whether they had risky or safe sex at their most recent encounter. Moreover, research indicates that people generally do not think about the risk until, or after they have engaged in the risky behavior, and do not connect their own behavior to the risk (Sadovszky et al., 2002). An additional concern regarding unsafe sexual practices lies in the prevalence of sexual violence. According to the National Survey of Counseling Center Directors, Kitzrow (2003) reports that 33% of respondents report severe psychological problems as a result of sexual assault concerns on campus. Thus, concern regarding risky sexual practice is warranted, given that students do not regularly practice safe sex precautions.

Booth-Butterfield and Sidelinger's (1998) study examining the openness of family communication as it relates to the attitudes of college-aged students on sex and alcohol produced interesting and relevant findings. Booth-Butterfield and Sidelinger (1998) suggested that parents are able to have significant influence on their children into late adolescence. "Parents apparently can reduce the chances of their children engaging in risky behaviors when they follow productive communication practices with their children about those behaviors" (Booth-Butterfield & Sidelinger, 1998, p. 305). Furthermore, when parents are the main source of sex education, their children tend to engage in fewer sexual activities and are more likely to use oral contraceptives (Handelsman, Cabral, & Weisfeld, 1987). This can be attributed to the fact that parents and children tend to have shared views of familial interaction (Booth-Butterfield & Sidelinger, 1998). That is, children who view communication as open and supportive also tend to have parents that view the same communication as open

and supportive. In open and supportive family communication environments, parents and children tend to discuss even volatile topics such as sexual practices more often than those families who do not have open family communication environments (Booth-Butterfield & Sidelinger, 1998). Hence, despite the increasing prevalence of risky sexual behaviors in college, individuals such as parents play an important role in communicating advice to students prior to attending college.

### *Drinking Habits*

An additional risk challenging college students is binge drinking. “Binge drinking is arguably the No. 1 public health hazard and the primary source of preventable morbidity and mortality for more than 6 million full-time college students in America” (Wechsler et al., 1995, p. 921). Wechsler, Dowdall, Maenner, Gledhill-Hoyt and Lee (1998) support that “students’ heavy episodic alcohol use, or binge drinking, is by far the single most serious public health problem confronting American colleges” (p. 57). Despite the frequent incidence of binge drinking, very few students perceive that they have a problem with alcohol and even fewer voluntarily seek alcohol treatment or help (Wechsler et al., 2002). In 1993, studies suggest that more than 2 of 5 students are classified as binge drinkers (Wechsler et al., 1998). In a more recent study, researchers indicated that heavy episodic drinking has increased to as many as 44% of undergraduates at American campuses (Thombs et al., 2007).

Binge drinkers are classified differently depending on whether the drinker is female or male. Female binge drinking is considered four or more drinks in a row, while male binge drinking is classified as five or more drinks in a row (Lee & Bichard, 2005, Thombs et al., 2007, Wechsler et al., 1995). Binge drinking is

dangerous because it is associated with elevated risks for various alcohol related education, interpersonal, health and safety problems (Wechsler et al., 1998; Weitzman & Nelson, 2004). With regard to educational issues, substance abuse disorders are strongly associated with lower academic performance such as one's GPA (Svanum & Zody, 2001). Additionally, excessive drinking is problematic because of its high correlation to acute health problems. These behaviors include, but are not limited to, serious injury, automobile crashes, aggressive behavior, marijuana use, smoking, and unprotected sexual activity (Bardo, Donohew & Harrington, 1996, Wechsler et al., 1995; Weitzman & Nelson, 2004). Weitzman and Nelson (2004) report that after 5-6 drinks (which was reported as the usual number of drinks per drinking occasion) 29% of respondents reported falling behind in studies, 30% reported having unprotected sex, 30% reported vandalizing others property, and 32% reported obtaining injuries.

Supportive information exchange about the risks of binge drinking is one avenue for alleviating the obvious presence of binge drinking on college campuses. Parents are one possible source of this information. Booth-Butterfield and Sidelinger (1998) suggest parents and children tend to have similar views with regard to drinking. For instance, as parents' opinions about alcohol use became more liberal, children were less likely to take precautions such as a designated driver (Booth-Butterfield & Sidelinger, 1998). They attribute this to the idea that parental permissiveness is viewed as careless by adolescent alcohol users. In contrast, when parents are perceived to discuss alcohol related issues on a regular basis, children report behaving more responsibly (Booth-Butterfield & Sidelinger, 1998). Thus, the importance of open and supportive communication with regard to issues such as drinking is an important precursor to positive health related behaviors in college.

## *Weight Issues*

College students are challenged with numerous weight issues. Common weight issues include eating disorders, weight gain, and weight cycling. Research suggests that young adulthood is a vulnerable time for development of or continuation of disordered eating (Lager & McGee, 2003; Seymour et al., 1997). Eating disorders are frequently blamed on societal pressure, rebellion, perfectionist tendencies, and feelings of inadequacy (Lager & McGee, 2003). In addition to these factors, disordered eating within college students is also partly attributed to the fact that parents have little to no influence on eating behaviors when the student is in college (Seymour, et al., 1997; Stewart-Brown et al., 2000). In research investigating the relationship between gender, ethnicity and disordered eating, Hoerr et al. (2002) reported that 4.5% of women and 1.4% of men have been treated for eating disorders prior to attending college. The study further revealed that 10.9% of women and 4.0% of men are at risk of developing an eating disorder. Furthermore, 17.4% of women and 10.4% of men reported that weight issues interfered with academic performance (Hoerr et al., 2002).

In a study assessing gender differences in body perception and weight-loss strategies and college students, Conner-Green (1988) reports problematic findings regarding weight issues challenging students. Conner-Green (1988) asserts that, although males reported slight dissatisfaction with their bodies, they tended to want to gain rather than lose weight. This can be attributed to the fact that over the past 15 years men have come under increasing pressure to conform to the cultural ideal of a lean, well-toned, muscular build (Frith & Gleeson, 2004). Law and Labre (2002) present interesting findings regarding male body image in comparison to the thin female body ideal that is featured in media. Law and Labre (2002) suggest that the

muscular male body ideal that is disseminated in media can ultimately lead to harmful weight control and muscle building behaviors such as use of anabolic steroids, and untested muscle-enhancing and fat-burning supplements. Despite the increasing incidence of disordered eating in men, research confirms that females diet and engage in disordered eating more frequently than males (Law & Labre, 2002). Alarmingly nearly one-third of the females reported either self-induced vomiting or laxative use as a weight-loss strategy (Conner-Green, 1988). Regardless of the obvious attention towards body image, the 1995 National College Health Risk Behavior Survey reports that approximately one fifth of all students are overweight as determined by their body mass index (overweight was defined as a BMI greater than or equal to 27.8 for men and greater than or equal to 27.3 for women) (Douglas & Collins, 1997). A more recent survey utilizing BMI to classify weight status of college students, found slightly lower figures, reporting that 20% of respondents were overweight and only 3% were obese (Levi et al., 2006). Additionally, a higher percentage of male students than female students fell into the overweight category (28.5% vs. 13.5%) and obese category (6.3% vs. 1%). Researchers largely attribute this to socialized masculine notions of health in which men demonstrate low interest in healthy food choices (Levi et al., 2006; Shannon, Story, Fulkerson, & French, 2002).

Furthermore, weight cycling seems to be an issue, as demonstrated in Hoerr et al.'s (2002) study in which one-third of respondents reported they had lost and gained ten pounds two or more times in the past two years. Undoubtedly weight gain and cycling are unhealthy for anyone, but perhaps, especially for college-aged students. Studies report that mild or moderate overweight when aged 20 to 22 was linked with substantial incidence of obesity by age 35 to 37 (McTigue, Garret, & Popkin, 2002). Clearly, weight issues such as eating disorders, weight gain and weight cycling are

problematic health behaviors encountered by college students.

### *Mental Health*

Strain in mental health among college students is one of the numerous health issues challenging students today. Research suggests that today's college students demand different mental health needs as a result of the increasingly diverse college population (Kitzrow, 2003). Counseling is required for a broad range of students, as well as issues. Concerns include multicultural and gender issues, career and developmental needs, life transitions, stress, violence, and serious psychological problems (Archer & Cooper, 1998; Kitzrow, 2003). Alarming, the level of severity of these concerns seems to be on the rise, with clients frequently expressing concerns such as suicidality, substance abuse, history of psychiatric treatment of hospitalization, depression and anxiety (Pledge, Lapan, Heppner, & Roehlke, 1998). An estimated 16% of college counseling center clients have severe psychological problems (Gallagher, Gill, & Sysko, 2000). Researchers attribute the rise in mental issues to social and cultural factors such as divorce, family dysfunction, instability, poor parenting skills, poor frustration tolerance, violence, early experimentation with sex, drugs and alcohol, and poor interpersonal attachments (Gallagher et al., 2000).

Stewart-Brown et al. (2000) surveyed three higher education establishments in order to understand health risk factors affecting college students. They report that the most common physical ailments were asthma and musculo-skeletal problems. However, these concerns were trivial compared to the one to two-thirds of students who reported that anxiety about their studies and financial concerns was limiting their capacity to work. More specifically, 62% of respondents reported that they worried about study or work problems "often" or "most days," followed by money worries

(52%) (Stewart-Brown et al., 2000). When stress is perceived to be negative or becomes excessive, students can experience physical and psychological impairment (Murphy & Archer, 1996). This is problematic given that previous studies suggest that prolonged stress can have a detrimental impact on the immune and cardiovascular system (Glynn, Christenfeld & Gerin, 1999).

Clearly, stress negatively affects the individual performance. However, such strain on one's mental health also has implications for the university. For instance, research suggests that "mental health problems may also have a negative impact on academic performance, retention and graduation rates" (Kitzrow, 2003, p. 171). Moreover, students experiencing emotional problems have potential to negatively affect other people on campus, including roommates, classmates, faculty and staff (Kitzrow, 2003). Accompanying the growing mental health incidence is a demand for increased counseling services and professional staffing (Gallagher et al., 2000). Thus, concern is warranted given the monumental impact that the students' mental health has on the university.

Research further suggests that feeling control over one's time in particular, results in lower levels of stress and higher levels of individual problem solving ability and wellbeing (Nonis et al., 1998). Thus, effective time management appears to be a tool to reducing anxiety and promoting overall health. The opposite also holds true. Stewart-Brown et al. (2000) suggest that anxiety among college students could cause high levels of long-standing illness and could be considered "normal" for them later on in life. It is likely that the constant pressure to compete and succeed in college is itself detrimental to human health (Stewart-Brown et al., 2000). Hence, this suggests that students' emotional health must also be considered in relation to their physical health.

### *Common Illnesses and Injuries*

As mentioned previously, risky health behaviors tend to accompany one another. Thus, it is no surprise that injuries are typically associated with engaging in other behaviors such as drinking alcohol. The 1995 National College Health Risk Behaviors survey indicated that more than one fourth of all students (27.4%) reported that they had drunk alcohol and driven a car or other vehicle at least once during the 30 days preceding the survey (Douglas & Collins, 1997). The survey further indicated that among all students, 10.2% had been involved in at least one physical fight during the 12 months preceding the survey (Douglas & Collins, 1997). In both situations, males reported significantly higher rates than females. Furthermore, significantly more females than males reported injury as a result of forced sexual intercourse. Among all students, 13.1% reported that they were forced to have sexual intercourse against their will (Douglas & Collins, 1997).

Illness is another health risk that students are prone to when engaging in risky health behaviors. Research suggests that academic stress can often produce psychological, as well as physiological symptoms in students (Nonis, Hudson, Logan, & Ford, 1998). The majority of the physiological symptoms frequently reported by university students included upper respiratory tract infections, such as, a cough, often accompanied by a fever, also known as the “common cold” (Nichol, D’Heilly, & Ehlinger, 2005). In a survey consisting of 4919 college student participants, 91% of respondents reported at least one upper respiratory tract infection, 83% reported having at least one cold, and 36.7% of the students reported at least one influenza-like illness (from November through April) (Nichol et al., 2005). Upper respiratory tract infections are problematic because they often require the curtailing of activities (Linder & Singer, 2003). Nichol et al. (2005) reports that “these URI’s were



responsible for 6,023 days in bed, 4,263 days of missed class, 3,175 days of missed work, and 45,219 days of illness among the 3,249 students in the cohort” (p. 1264). Clearly these common illnesses are particularly problematic for college students because they are associated with significant work loss and missed class, and ultimately decreased academic performance which is fundamental to success in college (Nichol et al., 2005).

### *Summary*

Clearly young adults engage in various behaviors that are potentially harmful and dangerous to their overall health and wellbeing. Such behaviors include unsafe sexual behaviors, drinking habits, weight issues, mental health strain, and illness and injury concerns. It is with regard to such risk taking behaviors that one may speculate that students are apt to receive messages or advice of how to handle their health in college. The memorable messages framework could provide a useful explanation of such messages.

### Memorable Messages Framework

The study of memorable messages offers a useful framework for understanding the health advice offered by supportive others to college students. In the foundational work of memorable messages, Knapp et al. (1981) described the “memorable message” as a meaningful unit of face-to-face communication that affects behavior and guides sense-making processes. The memorable messages framework is valuable because it reveals how people develop conceptions about themselves, others, and situations that serve as guidelines for behavior (Holladay, 2002). Memorable messages can be understood as “verbal messages which may be

remembered for extremely long periods of time and which people perceive as a major influence on the course of their lives” (Knapp et al., 1981, p. 27). These messages have a profound impact on a person’s life because they are internalized and taken to heart (Knapp et al., 1981). Simply stated, memorable messages are characterized by two qualities: (1) the individual recalls the message for a long period of time and (2) the individual perceives the message as having an important influence on his or her life (Knapp et al, 1981; Stohl, 1986).

Knapp et al. (1981) suggest that feelings of insecurity, uncertainty and ambiguity are evident in memorable messages. Ford and Ellis (1998) further suggest that “a feeling of uncertainty within the recipient appears to be the fundamental human experience giving rise to receptivity of the memorable message” (p. 42). Holladay (2002) supports this notion in a study examining the memorable messages given to individuals with regard to aging. Holladay (2002) asserts that “we may find that some messages about aging seem especially salient, thought-provoking, and memorable because they help to reduce our uncertainty about our own and others’ aging” (p. 682). Thus, with regard to the present study, one of the significant circumstances associated with the transmission of memorable messages is the notion of uncertainty experienced by the new college student.

Memorable messages are useful because they provide a rich source of information about ourselves, our society and our methods of communication (Knapp et al, 1981). In addition to providing information, “memorable messages perform socializing functions by communicating expected behaviors, decision premises, and preferred attitudes” (Holladay, 2004, p. 683). For instance, Stohl (1986) reports how memorable messages socialize organizational members into their work environments by guiding their sense-making and communicating role-appropriate behaviors.

Memorable messages are beneficial because they offer strategies for dealing with situations and usually emphasize a counseling relationship. For example, messages can encourage people to live up to certain standards such as “be kind” or “respect yourself” (Ellis & Smith, 2004). In sum, Ford and Ellis (1998) state “regardless of their specific function, however, it is clear that memorable messages have consequence in our lives” (p. 45).

Previous studies of memorable messages suggest that such messages exhibit recurrent features (Ford & Ellis, 1998; Knapp et al., 1981; Stohl, 1986). More specifically, memorable messages are characterized by four qualities: (1) their structure and form, (2) the circumstances surrounding the enactment and reception of the message, (3) the source of the message and (4) the content of the message. Such features are of key concern to this study. The following review will discuss each of these characteristics in depth.

### *Structure and Form of the Memorable Health Message*

Messages people recall seem to follow set guidelines or rules. More specifically, memorable messages are typically characterized by their brevity, oral delivery and simplicity (Knapp et al., 1981). Brief messages are obviously easier to recall based on simplistic reasoning; a few words are easier to remember than several words. Loftus and Loftus (1976) explain that at any given point in time, our five sense organs are being bombarded with information from the environment. This information is generated from our five senses, that is, our visual, auditory, tactile, olfactory and gustatory senses. Research suggests that human behavior is primarily based on information that is initially visual or auditory (Loftus & Loftus, 1976). Of interest in the present study is the information generated from our auditory sense.

Loftus and Loftus (1976) further suggest that oral delivery is conducive to memorability because the hearing memory is stronger in human beings than sight, touch or smell memory. Thus, individuals may remember a message based on the fact that they literally heard the message and hearing is their strongest sense.

Respondents also tend to report that they remember the message precisely as it was given to them. “Previous studies have indicated that the majority of respondents were moderately certain or extremely certain they recalled the exact wording of the original message” (Holladay, 2002, p. 683). Knapp et al., (1981) reported that as many as 70% of respondents were very certain that they remembered the precise words uttered. However, it may be that the participants overestimate their ability to recall exact phrasing. “When we try to remember events that happened a long time ago, it is hard for us to be accurate” (Loftus & Loftus, 1976, p. 113). Moreover, when an individual is presented with new material, they tend to remember the gist of the material, but not the precise wording (Loftus & Loftus, 1976). Bates, Masling and Kintsch (1978) assert that memory for meaning seems to be stronger than memory for exact structure and phrasing. Thus, individuals are likely to engage in refabrication or building up a memory from bits and pieces of truth (Loftus & Loftus, 1976). Consequently, it may not be important that the respondent recall the message verbatim, instead that they believe what they recall and that their recollections signal what is important to them about the message (Holladay, 2002).

Memorable messages are also rule-like. According to Knapp et al. (1981), memorable messages usually prescribe “rules of conduct” and specify personal, action-oriented advice enabling the person to solve personal problems. Shimanoff (1980) defined a rule as “a followable prescription that indicates what behavior is obligated, preferred, or prohibited in certain contexts” (p. 57). Moreover, rules

generally function to “regulate, interpret, evaluate, justify, correct, predict, and explain behavior” (Shimanoff, 1980, p. 83). Researchers have further defined rules by providing specific characteristics that rules must exhibit. According to Knapp et al. (1981) in order for the statement to be considered rule-like, it must contain four features: (1) the condition in which the rule applies and that it is repeatable, (2) prescriptive markers of obligation, preference, or prohibition such as must, should or should not, (3) the behavioral act that ought to, may or must be improved and (4) the desired consequences of behaving in the prescribed manner.

Memorable messages tend to articulate behavioral injunctions through use of linguistic devices such as proverbs, colloquialisms and “rules of thumb” (Barge & Schlueter, 2004). Furthermore, memorable messages can be perceived as commands (Knapp et al., 1981). This is important to the memorable nature of messages because commands often demand attention and are regularly familiar to the dialogue in parent-child interactions (Knapp et al., 1981). Moreover, research has consistently reported that parents are routinely the primary source of memorable messages (Ellis & Smith, 2004; Ford & Ellis, 1998; Knapp et al., 1981; Smith, Ellis & Yoo, 2001). Thus, it can be argued that one factor associated with the memorability of messages from parents involves the very nature of the “attention demanding” interactions that frequently take place between child and parent. Additionally, Berne (1964) asserts that the path our life follows is often heavily rooted in the injunctions set forth by our parents. Such injunctions could include “You’ll be famous some day” or “Marriage is a trap that only fools fall for” (Knapp et al., 1981). While the receiver may choose whether or not to follow such commands, the relevance lies in the notion that we grow accustomed to the message format, which could ultimately aid in their memorability. Stohl (1986) referred to such injunctions as schematic cognitive maps for behavior

that ultimately contribute to sense-making.

Previous research has further contributed to the “rule-like” understanding of memorable messages. For instance, in a study examining the critical incidents communicated to newcomers in organizations, Gundry and Rousseau (1994) referenced Denzin’s (1989) concept of epiphanies. Epiphanies describe the interactional moments that leave a mark on people’s lives (Gundry & Rousseau, 1994). Similar to injunctions (Knapp et al., 1981), epiphanies are said to vary in nature, from minor impacts such as providing insights into personal dynamics, to major life turning points (Gundry & Rousseau, 1994). Epiphanies are referenced in the newcomer study in relation to understanding the critical incidents that are communicated to newcomers. Critical incidents are comprised of two major components: (1) description, which details the incident, including persons involved, time of occurrence and behaviors observed and (2) the message, the informant’s interpretation of the way things are done in the organization and his or her role in it (Gundry & Rousseau, 1994). Thus, the “rule-like” nature of memorable messages is illustrated in the epiphanies newcomers receive upon entering a new organization.

In addition, “the memorable message may be one which ‘makes everything clear’ in retrospect or it may be a message which has over the years, represented a superordinate injunction guiding life decisions” (Knapp et al., 1981, p. 38). In their study about messages as guides to assessing daily behaviors, Ellis and Smith (2004) found that the injunctions that respondents often note are messages regarding obeying the law and living a healthy life. Hence, plausible messages in the present study could involve direct phrasing such as “don’t drink and drive” or “watch out for the freshman fifteen.” Clearly messages that are received prior to attending college have the potential to act as “rules of conduct” for students regarding future behaviors.

Given the nature of the health concerns discussed previously, memorable messages given to college students may take the form of oral, short reminders of the expected emotional stress that may be encountered at a University. For example, “don’t fall behind” or “keep your priorities straight” could be possible messages given to students. Messages such as those previously mentioned follow the four features indicating that the statement is “rule-like.” It is with regard to previous understandings of structure and form of memorable messages that the following research question was posed:

RQ1: What is the structure and form of the memorable health messages received by college students?

#### *Circumstances Surrounding the Enactment of the Memorable Health Message*

According to Knapp et al. (1981), the event where the interaction took place is usually a single, significant episode in a person’s life or there is something especially unique about the event. Furthermore, individuals tend to be more receptive to messages during life crises involving one’s self-concept or relationships with others such as divorce, death of a loved one or failure about one’s abilities on the job (Knapp et al., 1981). In Stohl’s (1986) study about newcomer socialization she reported that “perceptual and emotional receptivity increased when the message provided a unique way of resolving a crisis, integrated diffuse and confusing experiences, and/or created hopeful guidelines for future understanding” (p. 232). In addition, memorable messages tend to have a personal focus and the conversation usually occurs at a time when the person is seeking something (Knapp et al., 1981). As a result of the vulnerable position of the receiver, perceptual and emotional receptivity is high (Keeley, 2004), thus the nature of the interaction could aid in its memorability.

Keeley (2004) further asserted that the recipient of the message should feel empowered as a result of their role in co-creating the message and because of their inherent understanding of the sender's intent.

An additional condition associated with memorable messages involves the setting of the conversation. In the study conducted by Knapp et al. (1981) the data suggested that most messages (62%) were exchanged during interactions in a private setting such as a car or in one's home. In support of this finding, Holladay (2002) reported that 72% of messages were communicated in a private setting. However, despite the evident trend in a private setting, even if the message was given in a public setting, the recipient may perceive the message to be targeted towards her or him instead of the larger group (Knapp et al., 1981). For instance, Smith and Ellis (2001) reported that the most frequent locales where behaviors were recalled were at home, in the community and at school. Clearly the latter two locations are a public domain; thus, it could be that the location is not necessarily fundamental to the memorable nature of the message, but instead that the message is purposefully directed towards the recipient alone, or perceived as such.

In support of this, Ford and Ellis (1998) suggest that an important circumstance surrounding memorable messages involves the notion that the recipient will remember the message if it is directed at the individual in particular. They found that 96% of supportive messages and 88% of non-supportive messages were believed to be purposefully directed at the recipient (Ford & Ellis, 1998). In previous studies, the messages were perceived by respondents as personally directed, purposeful, and in the recipient's best interest (Ford & Ellis, 1998; Holladay, 2002; Knapp et al., 1981; Stohl, 1986). Furthermore, research confirms that communication that holds personal significance tends to be remembered more accurately than communication that is



more impersonal (Keenan, MacWhinney & Mayhew, 1977). Messages are most likely to be recalled when the receiver has “taken the message to heart” and it is personally meaningful to him/her.

As previously mentioned, Knapp et al. (1981) reported that respondents tended to associate feelings of personal insecurity, conceptual ambiguity and behavioral uncertainty with the receipt of memorable messages. Furthermore, in Stohl’s (1986) study of memorable messages in the process of organizational socialization, she asserted that most individuals will recall a message received early in one’s career due to the heightened sensitivity and cognitive needs of organizational newcomers. Stohl (1986) further suggested that the same message, given at a less stressful time, may not be perceived as insightful or as meaningful. Thus, with regard to the present study, college students may be more likely to recall a message they perceive as meaningful due to the feelings of insecurity that are apt to be present before leaving home to attend college.

With regard to college students and health messages, it can be suggested that the messages may occur during similar circumstances. That is, consistent with previous studies, health messages are apt to be aimed purposefully and directly at the recipient and they would most likely take place in a private setting. Therefore, I pose the following research question:

RQ2: What are the circumstances surrounding the enactment of the memorable health message?

### *Source of the Memorable Health Message*

Previous research has identified several recurring themes regarding the source of the message and the vital role that the source plays in the memorability of the

message. For instance, in a study assessing idealized self-images as important values and guiding principles in memorable messages, Smith et al. (2001) highlighted the important task that relational partners, such as parents, friends and romantic partners, have in sending memorable messages that will be recalled when deciding how to behave in a given situation. Furthermore, Knapp et al. (1981) suggested that the sender is usually older, perceived to have higher social status than the receiver, and is generally an individual whom the receiver holds in high esteem.

Research suggests that the sender's credibility in the life of the recipient may both legitimize the longevity of the message and/or make it easier to recall (Knapp et al., 1981). In support of this notion, Ellis and Smith (2004) investigated the function of memorable messages as guides to self-assessment of daily behavior, where participants kept diaries of recalled behaviors that either violated or exceeded personal expectations for themselves. Participants were then instructed to recall the memorable messages, if any, which were given to them regarding these behaviors. Ellis and Smith (2004) found that the primary sources of positive and negative memorable messages were most often mothers, followed by parents, teachers, personal experiences and fathers. Consistent with previous studies (Smith & Ellis, 2001; Smith et al., 2001), Ellis and Smith (2004) reported that parents and teachers were the most frequently reported sources of messages pertaining to kindness, loyalty, and patience. Such data highlights the important role that parents and teachers play in sending messages that guide behaviors. This assertion can be extended to the present study because it can be assumed that parents and teachers have the potential to play significant roles in the health messages given to students prior to attending college.

Previous research suggests that the source of the memorable message can be found in the recipient's regular network; that is, someone with whom the recipient is

in regular contact (Ford & Ellis, 1998). Additionally, in a study investigating memorable messages about aging it was found that all message senders were older than receivers, and that messages were significantly more likely to be conveyed by females, in same-sex dyads (Holladay, 2002). Researchers attribute this finding to that fact that aging, especially as it relates to family members, may be a topic more likely to be discussed by females. This finding is consistent with previous studies. For example, Ford and Ellis (1998) found that 81% of messages of support and 69% of non-support were recalled from female-to-female interactions. Furthermore, Ellis and Smith (2004) report that “live a healthy life” messages were most likely to come from mothers. We know from previous studies that health issues tend to be regarded as “Mother topics,” as mothers are the primary person responsible for caring for their family’s health (Ellis & Smith, 2004; Ford & Ellis, 1998; Holladay, 2002). Thus, women could be the main source of memorable health messages because it follows their gender role in society.

Therefore, it can be concluded that the source of the memorable message is likely an important factor in its memorability. For college students, it is likely that a primary source of support is family, based on previous studies (Ellis & Smith, 2004; Smith & Ellis, 2001; Smith et al., 2001) in which the major sources of memorable messages ranked mothers and parents as a primary source. Thus, I posed the following research question.

RQ3: Who is the source of the message and what is the nature of the relationship?

### *Content of the Memorable Health Message*

Memorable messages are generally recalled based on content features. For

instance, Stohl (1986) asserted that the “content reflected rather conservative social values, those attitudes most beneficial for the maintenance of the social system” (p. 232). Furthermore, previous studies suggest the matters discussed in memorable messages are almost always serious in tone and intent (Knapp et al., 1981). In addition, the memorable messages are most often (72%) action oriented and contain prescriptions of what one should or should not do (Knapp et al., 1981). For example, “If you don’t love yourself, no one else will” or “You can be whatever you want to be” (Knapp et al., 1981). Examples such as this illustrate the notion that these messages generally regard serious issues and suggest that some sort of action take place.

Despite their serious tone and rule-like nature, messages are generally positive and optimistic (Knapp et al., 1981). Previous studies indicate that memorable messages involving kindness, loyalty, and patience are recalled most frequently (Ellis & Smith, 2004; Smith & Ellis, 2001; Smith et al., 2001). Moreover, themes of “comforting” have emerged from the literature. For instance, a significant “comforting” theme is evident in Keeley’s (2004) study of the memorable messages recalled by survivors in the final conversations with a dying loved one. Keeley (2004) notes that despite the difficulty associated with talking with a dying loved one, participants emphasized the importance and comfort of having a “final conversation.” Such findings are consistent with previous research stressing the centrality of comforting messages during times of high stress and supportive communication (Burlinson, 1994). Comforting messages communicate a high degree of involvement, and are accepting, emotion focused and person centered (Burlinson, 1994).

Memorable messages can usually be applied to a number of situations, thereby increasing the number of associations and the repetition of the message (Knapp et al.,

1981). In Stohl's (1986) examination of organizational socialization, it was found that 86% of the messages reported were applicable in a variety of settings. Such findings are reinforced in Heisler's (2000) investigation of the role of parental memorable messages in the socialization of gender roles. Similar to previous studies, Heisler found that the messages were most often injunctions about general behavior and applicable to a variety of situations. For instance, messages included "Work hard today to be successful tomorrow" and "Study hard." Sharing the message with others could function to increase the redundancy of the message and as a result increase the memorability of the message (Honeycutt & Cantrill, 2001). Because of the message's applicability to numerous situations, it can be assumed the recipient is likely to repeat the message in multiple and varied circumstances. Thus, every time a college student repeats the message he/she received, the power of the impact of the original message has the potential to be reinforced. This assertion is similar to Keeley's (2004) report, which proposed that messages given to survivors during the final conversation with a loved one have the capacity to gain strength through the repeating of the message.

In a study conducted by Ellis and Smith (2004) new messages were suggested to be important that had not been found in previous studies; including, messages about obeying the law and messages about living a healthy life. Novelty and uniqueness of an event can also make it more likely to be remembered (Knapp et al., 1981). Furthermore, Knapp et al.'s (1981) study reported that "although some of the messages we examined seemed to be clichés, it seems likely that the recipient perceived the message as a unique insight – providing hitherto unknown or unusual perspective on a situation or situations" (p. 34). Perhaps if the message is creative or new to the recipient, they may be more likely to pay attention to it. An alternative argument could suggest that repetition of a message is likely to aid in its

memorability. However, Holladay (2002) asserts “although we might suspect that the familiarity of the phrases would diminish their impact on receivers, the respondents reported these messages stuck in their minds and influenced them” (p. 690). Hence, the issue of repetition versus novelty in memorability is an interesting question that has gathered diverse conclusions.

With regard to the present study, it could be argued that such content features would be evident in health messages directed towards college students as well. Memorable messages towards college students could include content about drinking, drugs, or stress that may be encountered in college. Therefore, the following research question was investigated:

RQ4: What is the content of the memorable message?

### *Summary*

The memorable messages framework has been utilized in a variety of contexts. For instance, the framework has been applied to newcomer socialization (Barge & Schlueter, 2004; Stohl, 1986), self-assessment of daily behaviors (Ellis & Smith, 2004; Smith & Ellis, 2001; Smith et al., 2001), final conversations (Keeley, 2004), messages of support and nonsupport in health care (Ford & Ellis, 1998), messages to the elderly (Fung & Carstensen, 2003) and the foundational work of Knapp et al. (1981) outlining the memorable messages framework. This study is practical in that it utilizes the findings of previous studies and attempts to replicate and extend the present understanding of memorable messages to the college student population. Furthermore, previous research has emphasized the need of the memorable messages framework to be extended to those interested in health behaviors, such as substance abuse and personal choices (Ellis & Smith, 2004).

Moreover, Smith and Ellis (2001) assert that future research regarding the college student population should focus on “health behaviors that either exceeded or violated the personal standards of the respondent and the memorable messages associated with them” (p. 167). Thus, the present study has the capacity to add to the research ambitions of other communication scholars interested in their study of memorable messages.

While numerous studies have contributed to the memorable messages framework through quantitative measures, few have examined the messages qualitatively. One notable exception is Keeley’s (2004) study of the final conversations between the dying individual to their surviving loved ones. Keeley’s (2004) study achieved two major goals: (1) it analyzed and described the meaning of participants’ experiences through examining the reoccurring patterns and it (2) approached the data openly, but within the memorable messages framework. This study emphasizes the utility of a holistic approach to understanding memorable messages and it is a useful illustration of the value of analyzing the actual messages qualitatively. Thus, the present study will integrate aspects of previous research to create an examination of memorable health messages that both quantitatively and qualitatively analyzes the characteristics of messages. Next, Chapter III will discuss the methodology this thesis will use to answer the four research questions in order to determine the health messages that are given to students prior to attending college and the characteristics of those messages.

## CHAPTER III

### METHODOLOGY

Attending college is often associated with significant life adjustments. Accompanying these changes are often strong feelings of uncertainty and insecurity (Kitzrow, 2003; Stewart-Brown et al., 2000). While in college, numerous issues pose a threat to students. However, as has been argued here, a chief concern is that of risky health behaviors (Douglas & Collins, 1997; Kitzrow, 2003; Sax, 1997). Because the majority of students attend college with varying levels of health knowledge, they may be naïve about wise health decisions that they may encounter in college (Beier & Ackerman, 2003; Levi et al., 2006). Thus, in an attempt to offset this lack of knowledge, students are apt to receive advice about how to handle such health issues prior attending college. While most students will have received numerous messages, the focus of this thesis is a specific message that the student found memorable. This thesis proposes that these memorable messages have the capacity to support college students in the management of their own health throughout their experiences.

Consequently, this chapter discusses the methods used to examine the memorable health messages received by college students as they embark on their college experiences. In order to accomplish this, this chapter is organized into five sections. The first section outlines the sampling design. The second section discusses the procedures for soliciting participants and conducting the survey. The following section details the data collection procedures, and the informed consent process. The fourth section explains the survey instrument used in the study. Lastly, the fifth section discusses how the data will be analyzed.



## Sampling Design

The participants in this study are comprised of undergraduate students enrolled in communication courses at a large Midwestern university. Permission was secured from the instructor of record for the investigator to announce and complete the survey during the beginning of a regularly scheduled class session (please see Appendix A: Oral Recruitment Script). The investigator gathered 127 participants. Because the survey demands recollection of a message received prior to attending college, any participant over the age of 25 was excluded from the study. Data was collected during the fall, 2007 and spring, 2008 semesters.

## Solicitation of Participants

Upon securing institutional review board approval, permission was secured from the instructor of record of an undergraduate communications course for the investigator to announce and conduct the survey during the beginning of a regularly scheduled class session. Participants were invited to take part in the study and informed consent was obtained (please see Appendix B: Consent Document). The informed consent document was distributed immediately following the oral recruitment script. Potential participants were provided a consent form to read and keep for their personal records. The consent document follows the format designed for use with anonymous surveys. The consent document provided participants with the purpose of the study and ensured them of confidentiality in compliance with HSIRB standards. The survey administrator 1) instructed potential participants to carefully read the consent document and 2) also read the content of the consent document aloud to the participants. The potential participants were provided with the survey questionnaire after they read the consent form and were provided with an

opportunity to pose questions to the researcher. Students who chose not to participate at this time were thanked for their consideration and asked to sit quietly and work on something else while the participants completed the survey.

### Participants

Memorable message data was collected from 127 participants enrolled in undergraduate communication courses at a large Midwestern university. Sixty-seven percent ( $n = 84$ ) of participants were female, while thirty-three percent ( $n = 42$ ) were male. Their ages ranged from 17 to 25 years, with a mean of 19.48 ( $SD = 2.23$ ). The participants were primarily first-year students (42%,  $n = 54$ ), followed by juniors (27%,  $n = 34$ ), sophomores (17%,  $n = 22$ ), seniors (12%,  $n = 15$ ), and one participant classified himself/herself as “other” (.8%,  $n = 1$ ). A majority (89%,  $n = 113$ ) were Caucasian, followed by African American (6%,  $n = 8$ ), Hispanic/Latino (2%,  $n = 2$ ), Native American/American Indian (1%,  $n = 1$ ) and other (2%,  $n = 2$ ). One participant did not complete the demographic portion. Participants were offered extra credit in return for participating in the study.

### Data Collection Procedures

After the informed consent documents were given to all of the students, the researcher distributed the anonymous surveys to those who agreed to participate. The survey consisted of 17 open-ended questions regarding a specific memorable health message that the participant was able to recall. In addition to the open-ended questions, a brief demographic section was included for sample description purposes (please see Appendix C: Survey Instrument). The survey took approximately 15-20 minutes to complete. Participants were instructed to place the completed surveys

face-down, in the box provided at the front of the classroom. They were thanked for their participation and asked to sit quietly until class lecture began.

### Survey Instrument

Similar to previous studies (Smith & Ellis, 2001), the present study employed survey methodology to obtain a memorable message that the respondent was able to recall. The “Memorable Health Messages and College Students” survey is designed to assess a specific health message that college students were able to recall receiving prior to attending their first year of college. The survey consists of 17 open-ended questions geared toward understanding four major characteristics of the message: (1) structure, (2) circumstances surrounding the enactment of the message, (3) source, and (4) content of the message. Additionally, three Likert-style questions assess the perceived accuracy of the wording of the recalled message (“How certain are you of the wording?”), as well as the participants perceived health status (“I consider myself a healthy person”) and health knowledge (“I consider myself knowledgeable about health related issues”). Finally, the survey concludes with a brief demographic section asking for the age, gender, classification and race of the participant.

A pilot-test of the survey has demonstrated its reliability. A sample of 33 participants enrolled in an undergraduate communication course at a large Midwestern university was gathered to participate in the study entitled *Memorable Health Messages and College Students*. The surveys were distributed during the scheduled class time and collected upon completion. Surveys were first read in their entirety by the researcher, to gain a general sense of the recalled messages. Of the 33 surveys submitted, all but one was acceptable for data analysis. Survey responses were then coded and classified into categories at which point the categories were

entered into SPSS and the frequencies obtained. The data was analyzed using One-Sample Chi Square tests. Results produced findings similar to previous studies in terms of the structure and form of the message, circumstances surrounding the enactment of the message, the message source, and the content of the message, demonstrating the reliability of the open ended survey.

### Data Analysis

The major goals of this study are to approach the data through the lens of the memorable messages framework (Knapp et al., 1981) and to describe the meanings of participants' experiences. Previous studies have primarily utilized coding or counting (Ellis & Smith, 2004; Ford & Ellis, 1998; Holladay, 2002; Knapp et al., 1981; Smith & Ellis, 2001; Smith et al., 2001; Stohl, 1986). Thus, the data analysis used techniques of previous studies. The data was analyzed quantitatively through use of One-Sample Chi Square tests, and it will also be examined qualitatively through use of grounded theory based assumptions (Glaser & Strauss, 1967).

Quantitative analysis is valuable because it offers observations that are expressed in numerical terms, and is useful in explaining communication behavior (Reinard, 2001). Additionally, it is valuable because it is more generalizable to a population of undergraduate students. Thus, quantitative analysis was utilized to report significance and frequencies of reported characteristics of memorable messages. Qualitative analysis is beneficial because it provides for well-grounded, rich descriptions and explanations for interactions in local contexts (Miles & Huberman, 1994). That is, we are able to develop detailed explanations for processes in an everyday or even a remote environment. Hence, qualitative analysis was used to analyze the actual messages in order to generate broad themes of the messages.

To analyze the recalled health messages quantitatively, each survey question was coded and classified into categories. The categories were then entered into SPSS and the frequencies were obtained. One-Sample Chi Square tests were conducted, followed by pairwise comparisons, in order to assess whether the proportions of individuals who fall into categories of a variable are equal to hypothesized values, i.e. hypothesized values obtained by chance.

In order to analyze the data qualitatively, this thesis replicates Keeley's (2004) qualitative analysis of interview transcripts. The messages illustrated on the surveys were first be read in their entirety to gain a holistic understanding of the data. The messages were first be typed, and then put onto note-cards. The note-cards were then re-read and the investigator made notes regarding the themes of each message. The investigator used a process of open and axial coding to identify emergent themes and memorable messages (Strauss & Corbin, 1990). Open coding compares data for similarity and/or difference, in addition to an evolving process in which categories are continuously added, combined and revised (Strauss & Corbin, 1990). Open coding is beneficial to the present study because as the memorable health messages were placed into categories, some of those categories could be refined. Upon completion of the open coding, axial coding was performed. Axial coding involves making connections between the data that was open coded and finding commonalities (Strauss & Corbin, 1990). That is, integrating the findings from the messages to find more general themes (Keeley, 2004). Axial coding was an important component to this thesis because it allowed the researcher to identify broad themes of memorable health messages.

## Summary

This chapter has detailed methodologically how this study will investigate the health messages that college students have found memorable. This chapter was composed of five sections: (1) sample design, (2) procedures for soliciting participants and conducting the survey, (3) data collection procedures, and the informed consent process, (4) the survey instrument, and (5) data analysis. These sections function to provide a basis for how the research questions will be methodologically answered. Subsequently, the following chapter will discuss the results of the study.

## CHAPTER IV

### RESULTS

More and more students are facing the uncertain endeavor of attending college (Digest of Education Statistics, 2006), and are often challenged with the opportunity to engage in numerous risky health behaviors (Douglas & Collins, 1997; Kitrow, 2003; Sax, 1997). These risky health behaviors are particularly harmful, because the majority of students attend college with varying levels of health knowledge, and consequently may be underinformed or uninformed when faced with health related decisions that they may encounter in college (Beier & Ackerman, 2003; Levi et al., 2006). Accordingly, students are likely to receive advice about how to handle such health issues prior to attending college. While they may receive multiple health messages, the main concerns of this thesis are the messages that students found to be memorable. These messages are likely to assist college students as they embark on their college experience and manage their own health issues.

This chapter reports on the results of the data analysis of the memorable health messages collected for this study. The chapter is organized into two major sections. The first section reports the results of one-sample chi-square tests of the memorable message variables and characteristics. The second section details an interpretive analysis of the specific memorable message, using grounded theory and the memorable messages framework to identify the meta-messages of the recalled health messages.

## Results of One-Sample Chi-Square Tests of Memorable Health Messages

This section will detail the results of one-sample chi-square tests used to answer the four research questions posed in this thesis. One-sample chi-squares essentially evaluate whether the proportions of variables that fall into categories are equal to hypothesized values, or values obtained by chance. Moreover, chi-squares reveal if the proportions associated with the categories are significantly different from hypothesized portions. Pairwise comparisons were conducted as follow-up tests in order to determine significance between pairs of variables. The following section is divided into four categories, each reporting and interpreting the results of the one-way chi-squares.

### *Structure and Form of the Memorable Health Message*

RQ1 focused on the structure and form of the message. One-sample chi-square tests revealed that significantly more students recalled messages that were received orally and face-to-face (90%), than from multiple channels (8%), written formal (less than 1%), and the media (less than 1%),  $\chi^2(3, N = 127) = 29.12, p < .01$  (see Table 1). Pairwise comparisons were conducted as follow-up tests. These follow-ups indicated that messages received orally and face-to-face were significantly more likely to occur than those received from multiple channels,  $\chi^2(1, N = 321) = 228.79, p < .01$ , messages that were written,  $\chi^2(1, N = 301) = 281.33, p < .01$ , and messages from the media,  $\chi^2(1, N = 300) = 284.21, p < .01$ . Additionally, follow-up tests revealed that messages received from multiple channels differed significantly from those that were written,  $\chi^2(1, N = 30) = 13.33, p < .01$ , and messages received from the media,  $\chi^2(1, N = 29) = 15.21, p < .01$ . A follow-up test revealed that messages that were received in written form did not differ significantly from



messages received from media,  $\chi^2(1, N = 9) = .11, p = .74$ . In sum, all pairwise comparisons produced significant results except the comparison between written messages and messages from the media. Nonetheless, in support of previous research (Ford & Ellis, 1998; Knapp et al., 1981), an overwhelming majority of memorable messages were received orally, and face-to-face. Moreover, Loftus and Loftus (1976) assert that the hearing memory is stronger than sight, touch, or smell. Thus, individuals may recall a message as memorable based on the fact that they literally “heard” the message, instead of receiving the message via a different channel.

Table 1  
Structure and Form of the Memorable Health Message

	<i>Frequency</i>	<i>Percentage</i>
Medium of message		
Oral/face-to-face	114	90
Multiple channels	10	8
Written	2	1
Media	2	1

*Circumstances Surrounding the Enactment of the Memorable Health Message*

RQ2 focuses on the circumstances surrounding the enactment of the memorable health message. Circumstances surrounding the message include the location of the message reception, presence of others, message target, events preceding the message, receiver’s response, result of the message, likelihood of recalling the message, the circumstances under which it has been recalled, and message novelty (see Table 2).

*Location of the message reception.* Chi-square tests revealed that significantly more respondents recalled the message being received at home (61%), rather than in class/school (8%), at a social function (18%), at college (12%), or those that could not recall (2%),  $\chi^2(4, N = 127) = 140.21, p < .01$ . Pairwise comparisons were conducted to test for significance. These follow-up tests indicated that the proportion of messages that were received at home differed significantly from the proportion of messages received at class/school,  $\chi^2(1, N = 228) = 126.75, p < .01$ , at a social function,  $\chi^2(1, N = 249) = 89.16, p < .01$ , at college,  $\chi^2(1, N = 244) = 97.20, p < .01$ , and those that could not recall,  $\chi^2(1, N = 206) = 178.95, p < .01$ . Follow-up tests revealed that there was not a significant difference between messages received in class/school and those received at a social function,  $\chi^2(1, N = 79) = 5.58, p = .02$ , or messages received in college,  $\chi^2(1, N = 74) = 3.46, p = .06$ . However, there was a significant relationship between messages received in class/school, when compared to those respondents who could not recall the location of the message reception,  $\chi^2(1, N = 36) = 13.44, p < .01$ . When comparing the relationship between messages received at a social function and messages received in college, follow-up tests indicated that there was not a significant difference,  $\chi^2(1, N = 95) = .26, p = .61$ . There was, however a significant difference between those who received the message at a social function, compared to those who could not recall,  $\chi^2(1, N = 57) = 32.45, p < .01$ , and those who received the message in college, compared to those who could not recall,  $\chi^2(1, N = 52) = 27.77, p < .01$ .

In sum, the finding that the majority of messages were received at home (61%), supports previous studies (Knapp et al., 1981) which found that most messages were communicated in a private setting. This finding makes sense given the likely preference for health issues to be discussed in private. Pairwise

comparisons revealed that there was not a significant difference between messages received in class/school, at a social function, or messages received in college. It may be that there is overlap between these three categories. In other words, it is likely that when respondents noted receiving the message at a social function, they could have also been in class, or at college. However, because the majority of respondents received the messages at home, these details may not necessarily be critical in understanding location of message reception.

*Presence of others and message target.* The presence of others at the time of the message reception did not appear to be an issue, as sixty-one percent of respondents report others being present, while thirty-nine percent report that they were alone,  $\chi^2(1, N = 127) = 5.74, p = .02$ . This finding is surprising given the emphasis on privacy in disclosing health topics. It may be that participants included the sender of the message as another person present. However, if others were present at the time the message was sent, significantly more participants reported that the message was intended for them alone (57%), than the recipient and others (40%), and those that could not recall (3%),  $\chi^2(2, N = 124) = 59.73, p < .01$ . Follow-up tests indicated that there was a significant difference between those who reported the message as being intended for them alone, compared to those who reported the message was intended for them and others,  $\chi^2(1, N = 316) = 9.92, p < .01$ , and those who could not recall,  $\chi^2(1, N = 194) = 163.32, p < .01$ . Additionally, follow-up tests revealed that there was a significant difference between respondents who indicated the message was intended for themselves and others, and those who could not recall,  $\chi^2(1, N = 138) = 107.86, p < .01$ . In sum, all pairwise comparisons revealed significant differences with regard to message target, and perhaps most notably, fifty-seven percent of respondents believed the message was intended for them alone,

regardless of others' presence. It may be that an important factor in memorability is that the recipients viewed themselves as the primary target of the message.

*Events preceding the message.* The majority of respondents reported that they were engaged in conversation just before the message was sent (52%), followed by conversation at dinner (15%), cannot recall (12%), packing (10%), a social function (9%), and lastly preparing to leave (less than 1%). Chi-squares reveal significance,  $\chi^2(5, N = 124) = 121.23, p < .01$ . When considering the events preceding the message, pairwise comparisons indicated that there was no significant difference between eating dinner and packing,  $\chi^2(1, N = 72) = .06, p = .81$ , attending a social function,  $\chi^2(1, N = 60) = 1.67, p = .20$ , or those who could not recall,  $\chi^2(1, N = 69) = .01, p = .90$ . However, there was a significant difference between dinner and conversation,  $\chi^2(1, N = 219) = 101.37, p < .01$ , and getting ready to leave,  $\chi^2(1, N = 41) = 20.51, p < .01$ . Follow-up tests indicated that there was a significant difference in packing and conversation,  $\chi^2(1, N = 221) = 97.78, p < .01$ , and getting ready to leave,  $\chi^2(1, N = 43) = 22.35, p < .01$ . There was not a significant difference between packing and a social function,  $\chi^2(1, N = 62) = .01, p = .13$ , and those who could not recall,  $\chi^2(1, N = 71) = .28, p = .72$ . Follow-up tests revealed that there was a significant difference between conversation and a social function,  $\chi^2(1, N = 209) = 120.96, p < .01$ , getting ready to leave,  $\chi^2(1, N = 190) = 166.76, p < .01$ , and those that could not recall,  $\chi^2(1, N = 218) = 103.21, p < .01$ . Additionally, there was a significant difference in social function and getting ready to leave,  $\chi^2(1, N = 31) = 11.65, p < .01$ , but not a significant difference between those who could not recall,  $\chi^2(1, N = 59) = 1.37, p = .24$ . Finally, follow-up tests revealed that there was a significant difference between those who recalled receiving the message as they were getting ready to go out, compared to those who could not recall the activities

preceding the message enactment,  $\chi^2(1, N = 40) = 19.60, p < .01$ . Most recipients were engaged in conversation preceding the message the reception. These findings reinforce the importance of one-on-one, face-to-face interactions, and their positive relationship to memorability. Moreover, it is likely, that the respondents who reported other activities were also engaged in conversation. In other words, respondents who noted eating dinner at the time of message reception were most likely conversing over dinner, as were those who were packing, or at a social function.

*Immediate Receiver's response.* Seventy-six percent of respondents reported responding positively to the message, followed by responding neutrally (18%), negatively (5%), and those that could not recall (2%). Chi-squares reveal significance,  $\chi^2(3, N = 123) = 175.31, p < .01$ . All pairwise comparisons were significant. There was a significant difference between those who responded positively and those who responded negatively,  $\chi^2(1, N = 260) = 196.45, p < .01$ , neutrally,  $\chi^2(1, N = 300) = 115.32, p < .01$ , and those who could not recall,  $\chi^2(1, N = 247) = 231.26, p < .01$ . Follow-up tests indicated significant difference between those who responded negatively and those who reported responding neutrally,  $\chi^2(1, N = 74) = 21.63, p < .01$ , and those who could not recall,  $\chi^2(1, N = 21) = 8.05, p < .01$ . Finally, significant difference was found between those how responded neutrally, and those who could not recall,  $\chi^2(1, N = 61) = 46.05, p < .01$ .

*Lasting Message Result.* Significantly more respondents reported that the message resulted in a positive experience, or a life lesson (86%), followed by no effect (7%), negative/adverse effect (5%), and lastly those that could not recall (2%),  $\chi^2(3, N = 123) = 246.33, p < .01$ . Pairwise comparisons were conducted to determine significance between each pair of categories. These follow-up tests revealed that

there was a significant difference between those who perceived the message to have a positive result and those who perceived the message to have a negative result,  $\chi^2(1, N = 294) = 255.36, p < .01$ , no effect,  $\chi^2(1, N = 306) = 224.327, p < .01$ , and those who could not recall,  $\chi^2(1, N = 306) = 224.327, p < .01$ . However, there was no significant difference when comparing those who perceived the message negatively, compared with those who reported it had no effect,  $\chi^2(1, N = 32) = 4.50, p = .03$ , or those who could not recall,  $\chi^2(1, N = 15) = 1.67, p = .20$ . Finally, follow-up tests indicated that there was a significant difference between those who recalled the message was ineffectual, and those who could not recall,  $\chi^2(1, N = 27) = 10.70, p < .01$ . These findings suggest that messages perceived as positive are generally more memorable to the recipient. Moreover, these results support previous findings concluding that messages usually result in a positive experience, or a life-long lesson (Knapp et al., 1981). It makes sense that students who respond to the message in a positive manner (76%) will also view the message as having a positive result (86%).

*Likelihood of recalling message and circumstances of recollection.* When asked if they had thought about the message again, significantly more respondents reported that they have thought about the message (91%), than those who have not thought about the message (9%),  $\chi^2(2, N = 127) = 83.54, p < .01$ . Furthermore, when asked about the circumstances that they had thought about the message, significantly more respondents reported recalling the message when engaging in the behavior that was the focus of the message (67%), followed by those who think of the message constantly (20%), those who have not thought of the message at all (7%), those who recall the message when hearing stories from others (5%), or those who could not recall (less than 1%),  $\chi^2(4, N = 126) = 190.19, p < .01$ . Pairwise comparisons were conducted to assess the significance of each variable. These follow-up tests revealed

that there were significant differences between those who thought about the message constantly, compared with those who thought of the message when engaging in the behavior,  $\chi^2(1, N = 289) = 68.72, p < .01$ , hearing stories from others,  $\chi^2(1, N = 89) = 39.12, p < .01$ , those who could not recall,  $\chi^2(1, N = 75) = 71.05, p < .01$ , and those who have not thought of the message again,  $\chi^2(1, N = 97) = 26.81, p < .01$ .

Significant difference was also indicated between those who recalled the message when engaging in that behavior, and hearing stories from others,  $\chi^2(1, N = 230) = 173.91, p < .01$ , those who could not recall,  $\chi^2(1, N = 216) = 212.19, p < .01$ , and those who have not thought of the message again,  $\chi^2(1, N = 238) = 154.89, p < .01$ . Follow-up tests indicated that there was a significant difference between those who recalled the message when hearing stories from others, and those who could not recall,  $\chi^2(1, N = 16) = 12.25, p < .01$ , but not a significant difference between hearing stories and those who have thought about the message again,  $\chi^2(1, N = 38) = 1.68, p = .19$ . Finally, follow-up tests revealed that there was a significant difference between those who could not recall, and those who have not thought about the message again,  $\chi^2(1, N = 24) = 20.17, p < .01$ . In sum, the majority of respondents reported recalling the message again, and more specifically, most recall the message when engaging in the behavior that was addressed in the message.

*Message novelty.* When respondents were asked if the message was new to them, significantly more respondents reported that they had heard the message before (85%), compared with those who recalled the message as new (14%), and those who could not recall (less than 1%),  $\chi^2(2, N = 127) = 156.21, p < .01$ . All pairwise comparisons were significant. Follow-up tests indicated that there was a significant difference between those who reported the message as new, compared to those who reported they had heard the message before,  $\chi^2(1, N = 328) = 152.98, p < .01$ , and

those who could not recall,  $\chi^2(1, N = 54) = 46.30, p < .01$ . There was also a significant difference between those who had heard the message, and those who could not recall,  $\chi^2(1, N = 278) = 270.06, p < .01$ . These findings indicate that one key to memorability is repetition.

Table 2  
Circumstances Surrounding the Enactment of the Memorable Health Message

	<i>Frequency</i>	<i>Percentage</i>
Location of message reception		
Home	77	61
Class/school	10	8
Social function	23	18
College	15	12
Cannot recall	2	2
Presence of others		
Yes	77	61
No	50	39
Intention of message		
You alone	72	57
You and others	49	40
Cannot recall	3	3
Events preceding message		
Dinner	18	15
Packing	13	10
Conversation	65	52
Social Function	11	9
Preparing to leave	2	1
Cannot recall	15	12
Result of message		
Positive/life lesson	106	86
Negative/adverse effects	6	5
No effect	9	7
Cannot recall	2	2
Receiver's response to message		
Positive	93	76
Negative	6	5
Neutral	22	18



Table 2-Continued

Cannot recall	2	2
Message recollection		
Yes	115	91
No	12	9
Circumstances of message recollection		
Constant	25	20
When engaging in that behavior	85	67
When hearing stories of others	6	5
No recollection	9	7
Cannot recall	1	1
Message new		
New	18	14
Heard before	108	85
Cannot recall	1	1

### *Source of the Memorable Health Message*

RQ3 of this thesis was interested in the source of the message, and the nature of that relationship. More specifically, this research question addressed who the source was, the length of that relationship, the amount of contact, typical/atypical comment from source, reciprocal nature of the advice, and type of advice offered to the sender (see Table 3).

*Source.* When respondents were asked who the source of the message was, the majority of participants revealed the source was their mother (37%), followed by parents (21%), a relative (13%), father (13%), peer (9%), media/public speaker (6%), and those that could not recall (less than 2%). Chi-squares report significance  $\chi^2(6, N = 127) = 74.57, p < .01$ . All pairwise comparisons regarding the mother and other sources were significant. Follow-up tests revealed that there was a significant difference between the mother and father,  $\chi^2(1, N = 173) = 52.17, p < .01$ , parents,  $\chi^2(1, N = 208) = 17.31, p < .01$ , media/public speaker,  $\chi^2(1, N = 152) = 88.53, p <$

.01, and those who could not recall,  $\chi^2(1, N = 139) = 119.72, p < .01$ . Clearly, significantly more respondents reported the mother as the source of the message, compared to any other source reported. Follow-up tests revealed that there was a significant difference between the those who reported the father as the source of the message compared with those who reported parents,  $\chi^2(1, N = 113) = 10.84, p < .01$ , media/public speaker,  $\chi^2(1, N = 57) = 7.74, p < .01$ , and those who could not recall,  $\chi^2(1, N = 44) = 26.27, p < .01$ . There was not a significant difference between those who reported the source as their father compared with another relative,  $\chi^2(1, N = 70) = .91, p = .34$ , or a peer,  $\chi^2(1, N = 68) = 1.47, p = .23$ . Follow-up tests indicated that there was a significant difference between those who reported that their parents were the source of the message, compared to those who specified the source as media/public,  $\chi^2(1, N = 92) = 34.09, p < .01$ , another relative,  $\chi^2(1, N = 105) = 17.61, p < .01$ , peer,  $\chi^2(1, N = 103) = 19.66, p < .01$ , and those who could not recall,  $\chi^2(1, N = 79) = 60.27, p < .01$ . There was a significant difference between media/public speaker and those who could not recall,  $\chi^2(1, N = 23) = 7.35, p < .01$ , however, follow-up tests revealed there was not a significant difference between media/public speaker and a relative,  $\chi^2(1, N = 49) = 3.35, p = .06$ , or peer  $\chi^2(1, N = 47) = 2.57, p = .12$ . Follow-up tests indicated that there was a significant difference between those who reported the source was a relative, compared with those who could not recall,  $\chi^2(1, N = 36) = 18.78, p < .01$ , but no significant difference between relative and peer,  $\chi^2(1, N = 60) = .07, p = .80$ . Lastly, follow-up tests revealed that there was a significant difference between those who reported the source was a peer, compared to those who could not recall,  $\chi^2(1, N = 34) = 16.94, p < .01$ .

In sum, these findings support previous research (Knapp et al., 1981; Ford & Ellis, 1998; Ellis & Smith, 2004; Smith, Ellis & Yoo, 2001) in which the parent, and

more specifically, the mother is the primary source of the message. Additionally, we know from previous research that health topics are generally regarded as “mother topics” as mothers are generally the main persons in charge of their family’s health (Harrison, Maguire, & Pitceathly, 1995; Holladay, 2001). Given that the messages recalled for this study are specifically health messages, it follows that the mother is most often reported as the source.

*Length of relationship.* The majority of respondents reported having known the source for their entire life (77%), followed by ten years or less (9%), one year or less (7%), five years or less (6%), and those that could not recall (less than 1%). Chi-squares indicated that significantly more participants have known the source of the message for their entire life,  $\chi^2(4, N = 124) = 250.68, p < .01$ . Pairwise comparisons were conducted to assess significance between each pair of variables. These follow-up tests revealed that there is no significant difference between those who reported knowing the source for one year or less compared with those who indicated knowing the source for five years or less,  $\chi^2(1, N = 50) = .08, p = .78$ , or ten years or less,  $\chi^2(1, N = 47) = .53, p = .47$ . There was, however, a significant difference between those one year or less, and entire life,  $\chi^2(1, N = 275) = 180.83, p < .01$ , and those who could not recall,  $\chi^2(1, N = 29) = 18.24, p < .01$ . When comparing those who reported knowing the source for five years or less and all other categories, there was no significant difference between those who reported ten years or less,  $\chi^2(1, N = 45) = .20, p = .66$ , but there was significant difference between entire life,  $\chi^2(1, N = 273) = 185.44, p < .01$  and those who could not recall,  $\chi^2(1, N = 27) = 16.33, p < .01$ . Follow-up tests revealed that there was a significant difference between those who recalled knowing the source for ten years or less, compared with entire life,  $\chi^2(1, N = 270) = 192.53, p < .01$ , and those who could not recall,  $\chi^2(1, N = 24) = 13.50, p < .01$ .

Significant difference was also noted between those who reported knowing the source for their entire life, and those who could not recall,  $\chi^2(1, N = 252) = 240.14, p < .01$ . In sum, pairwise comparisons revealed that the only category in which all chi-squares resulted in significant difference was those who reported knowing the source their entire life. This finding is not necessarily surprising given that in the previous results it was noted the source of the memorable health message is most often reported as the mother; someone they have known for their entire life.

*Amount of contact.* Given the nature of these relationships, it makes sense that the majority of respondents indicated that the source is someone with whom they have regular contact (83%), compared to those who reported not having regular contact with the source (17%),  $\chi^2(1, N = 127) = 54.23, p < .01$ . More specifically, when asked how often the source and the recipient engaged in conversation, seventy-three percent of respondents reported everyday, followed by weekly (15%), yearly (6%), cannot recall (4%), and monthly (2%). Chi-squares reveal significance,  $\chi^2(4, N = 126) = 227.89, p < .01$ . Pairwise comparisons were conducted as follow-up tests. These follow-up tests revealed that there was a significant difference between those who reported speaking with the source daily, compared with weekly,  $\chi^2(1, N = 294) = 122.79, p < .01$ , monthly,  $\chi^2(1, N = 245) = 233.15, p < .01$ , yearly,  $\chi^2(1, N = 73) = 13.16, p < .01$ , and those who could not recall,  $\chi^2(1, N = 253) = 210.91, p < .01$ . Follow-up tests further indicated that there was a significant difference among those who reported speaking with the source weekly compared with monthly,  $\chi^2(1, N = 55) = 43.66, p < .01$ , yearly,  $\chi^2(1, N = 73) = 13.16, p < .01$ , and those who could not recall,  $\chi^2(1, N = 63) = 26.68, p < .01$ . There was a significant difference between monthly and yearly,  $\chi^2(1, N = 24) = 13.50, p < .01$ , but no significant difference between monthly and those who could not recall,  $\chi^2(1, N = 14) = 4.57, p = .03$ .

Lastly, follow-up tests indicated that there was no significant difference between those who reported speaking with the source yearly, compared with those who could not recall,  $\chi^2(1, N = 32) = 3.13, p = .08$ . In sum, all pairwise comparisons evaluating the relationships between everyday exchanges were significantly different than all other categories. This finding reinforces the notion that the source and recipient have a generally close relationship, in which circumstances to engage in personal health conversations are abundant.

*Typical/atypical comment.* When respondents were asked if the message was typical of the health comments usually observed between the source and the recipient eighty-four percent indicated that yes, this is typical, compared to those who respond no the message is not typical (15%), followed by those who could not recall (2%). Chi-squares indicate significance,  $\chi^2(2, N = 123) = 143.76, p < .01$ . All pairwise comparisons were significant. Follow-ups revealed that there was a significant difference between those who indicated that such messages were typical compared with those who reported they were atypical,  $\chi^2(1, N = 320) = 162.45, p < .01$ , and those who could not recall,  $\chi^2(1, N = 278) = 262.63, p < .01$ . Additionally, there was a significant difference between those who reported the messages were not typical, and those who could not recall,  $\chi^2(1, N = 50) = 35.28, p < .01$ . In sum, most respondents (84%) reported that the message was typical of messages generally communicated by the source.

*Reciprocal nature of advice.* The memorable messages did not seem to be reciprocal in nature as sixty-three percent of respondents reveal that they have not offered advice to the person, while only thirty-three percent have offered advice, less than one percent could not recall,  $\chi^2(2, N = 124) = 72.87, p < .01$ . All pairwise comparisons were significant. Follow-up tests indicated that there was significant

difference between those who reported they had given advice to the source, compared with those who had not,  $\chi^2(1, N = 324) = 15.12, p < .01$ , and those who could not recall,  $\chi^2(1, N = 130) = 118.28, p < .01$ . Likewise, there was a significant difference between those who reported they had not given advice, compared with those who could not recall,  $\chi^2(1, N = 200) = 188.18, p < .01$ . Given that previous research finds the source to be someone of a higher status (Knapp et al., 1981), it makes sense that respondents generally reported having not given the source advice.

*Type of message given to source.* Of the thirty-three percent of respondents who did provide health messages to the source, most were messages regarding physical health (87%), followed by mental health (9%), and less than one percent could not recall,  $\chi^2(2, N = 45) = 147.90, p < .01$ . Follow-up tests revealed there was a significant difference between those who had given physical advice compared to mental advice,  $\chi^2(1, N = 124) = 77.45, p < .01$ , and those who could not recall,  $\chi^2(1, N = 114) = 102.32, p < .01$ . However, there was no significant difference between mental advice, and those who could not recall,  $\chi^2(1, N = 16) = 6.23, p = .01$ . Most messages given to the sender regarded physical health. It may be that because the majority of the senders are older than the recipient, the recipient may feel as though they have more recent knowledge or understanding of recent medical and/or exercise techniques. However, because only thirty-three percent of respondents even indicated that they have given health advice to the sender, the type of advice may not be important to our understanding of the characteristics of the source. A more important point could be that few recipients give health messages to the source; perhaps due the fact that the source is someone of higher status, and giving advice may be viewed as inappropriate to most.

Table 3  
Source of the Memorable Health Message

	<i>Frequency</i>	<i>Percentage</i>
<b>Source of message</b>		
Mother	47	37
Father	16	13
Mother and Father	27	21
Media/public speaker	7	6
Other Relative	17	13
Peer	11	9
Cannot recall	2	2
<b>Length of relationship with source</b>		
1 year or less	9	7
5 years or less	8	6
10 years or less	11	9
Entire life	95	77
Cannot recall	1	1
<b>Regular contact with source</b>		
Yes	105	83
No	22	17
<b>Frequency of interactions with source</b>		
Daily	92	73
Weekly	19	15
Monthly	2	2
Yearly	2	6
Cannot recall	5	4
<b>Typical of health comments usually observed from source</b>		
Yes	103	84
No	18	15
Cannot recall	2	2
<b>Health advice reciprocal in nature</b>		
Yes	45	36
No	78	63
Cannot recall	1	1
<b>Form of advice offered to sender</b>		
Physical health	39	87
Mental health	4	9
Cannot recall	2	4

### *Content and Effects of the Memorable Health Message*

The RQ4 of this thesis focused on the content of the memorable health message. More specifically, RQ4 examined the topic of the message, purpose of the message, the tone, the characteristics creating memorability and the overall effect of the message (see Table 4).

*Topic.* Within any given message there exist two meanings; the manifest meaning, which is the actual semantic meaning of the message, and the latent, which is the inferred meaning (Wilson, 1989). The focus of this category is the manifest meaning, or the actual content of the message. When examining the health messages received by college students, several topics were noted. Most respondents recalled a message about illness/injury (20%) and multiple health topics (20%), followed by weight issues (15%) and non-health topics (15%), drinking (14%), sexual behaviors (13%), and mental health issues (3%). Chi-square tests revealed significant difference,  $\chi^2(6, N = 330) = 43.55, p < .01$ . Pairwise comparisons were conducted as follow-up tests. These tests revealed that there was no significant difference between messages categorized as sexual behaviors compared with drinking,  $\chi^2(1, N = 90) = .40, p = .53$ , weight issues,  $\chi^2(1, N = 95) = .01, p = .92$ , illness/injury,  $\chi^2(1, N = 114) = 2.84, p = .09$ , non-health related topics,  $\chi^2(1, N = 98) = .04, p = .84$ , or multiple health messages,  $\chi^2(1, N = 114) = 2.84, p = .09$ . There was however, a significant difference between sexual issues and mental health,  $\chi^2(1, N = 59) = 23.20, p < .01$ . Follow-up tests revealed no significant difference between drinking messages compared with weight topics,  $\chi^2(1, N = 89) = .28, p = .59$ , illness/injury  $\chi^2(1, N = 108) = 5.33, p = .02$ , non-health related messages,  $\chi^2(1, N = 92) = .70, p = .40$ , or multiple messages,  $\chi^2(1, N = 108) = 5.33, p = .02$ . There was a significant difference between drinking messages and mental health messages,  $\chi^2(1, N = 43) = 18.13, p <$



.01. Pairwise comparisons revealed no significant difference between weight messages compared with illness/injury,  $\chi^2(1, N = 113) = 3.20, p = .07$ , non-health messages,  $\chi^2(1, N = 97) = .09, p = .76$ , or multiple messages,  $\chi^2(1, N = 113) = 3.20, p = .07$ . There was a significant difference between weight and mental health messages,  $\chi^2(1, N = 58) = 22.35, p < .01$ . Pairwise comparisons between mental health and illness/injury,  $\chi^2(1, N = 77) = 39.23, p < .01$ , non-health,  $\chi^2(1, N = 61) = 24.93, p < .01$ , and multiple health messages,  $\chi^2(1, N = 77) = 39.29, p < .01$  were all significant. There was no significant difference between illness/injury compared with non-health messages,  $\chi^2(1, N = 116) = 2.21, p = .14$  or multiple messages,  $\chi^2(1, N = 132) = .00, p = 1.0$ . No significant difference was revealed between non-health and multiple health messages,  $\chi^2(1, N = 116) = 2.21, p = .14$ . In sum, the topics of the memorable messages tend to be fairly evenly distributed regarding sexual behaviors, drinking, weight, illness/injury, non-health related, and multiple health topics. The only notable exception is messages about mental health. It appears as though this topic is the least addressed, accounting for only three percent of messages. This is surprising given the rise of this health problem on campus (Archer & Cooper, 1998; Kitzrow, 2003).

*Purpose.* When asked about the purpose of the message, most respondents perceived the message as a form of protection (45%), followed by advice (43%), encouragement (10%), and two percent could not recall,  $\chi^2(3, N = 124) = 72.72, p < .01$ . Follow-up tests revealed that there was a significant difference between messages perceived as encouragement compared with protection,  $\chi^2(1, N = 170) = 58.82, p < .01$ , advice,  $\chi^2(1, N = 184) = 70.63, p < .01$ , and those who could not recall,  $\chi^2(1, N = 42) = 18.67, p < .01$ . There was no significant difference between messages of protection, and advice,  $\chi^2(1, N = 284) = .69, p = .41$ , but there was

difference between protection, and those who could not recall,  $\chi^2(1, N = 142) = 115.38, p < .01$ . Follow-up tests additionally revealed significant difference between messages of advice, and those who could not recall,  $\chi^2(1, N = 156) = 129.26, p < .01$ . These findings indicate that the majority of students perceive the message as a form of protection from the potential threats encountered in college, or advice about how to handle risky health encounters. As mentioned previously, there was no significant difference between protection and advice. It may be these two variables have essentially the same purpose. In other words, messages that are designed to protect, may also function as advice and vice-versa.

*Tone.* The majority of respondents reported that the tone of the message was serious (40%), followed by a combination of tones (29%), relaxed (22%), humorous (8%), scary (less than 1%), and lastly those that could not recall (less than 1%),  $\chi^2(5, N = 126) = 128.67, p < .01$ . Pairwise comparisons revealed that there was a significant difference between messages that were serious compared with humorous,  $\chi^2(1, N = 156) = 86.26, p < .01$ , combination of tones,  $\chi^2(1, N = 232) = 6.90, p < .01$ , no recall,  $\chi^2(1, N = 139) = 127.26, p < .01$ , scary,  $\chi^2(1, N = 138) = 130.12, p < .01$ , and relaxed  $\chi^2(1, N = 209) = 18.99, p < .01$ . When comparing messages that were considered humorous in tone, pairwise comparisons indicated a significant difference between messages with a combination of tones,  $\chi^2(1, N = 116) = 49.79, p < .01$ , no recall,  $\chi^2(1, N = 23) = 12.57, p < .01$ , scary,  $\chi^2(1, N = 22) = 14.73, p < .01$ , and relaxed,  $\chi^2(1, N = 93) = 31.20, p < .01$ . Follow-up tests revealed a significant difference between messages with a combination of tones compared with no recalls,  $\chi^2(1, N = 99) = 87.36, p < .01$ , and messages perceived as scary,  $\chi^2(1, N = 98) = 90.16, p < .01$ . There was no significant difference between messages with a combination of tones, and messages that were relaxed in tone,  $\chi^2(1, N = 169) = 3.13,$

$p = .08$ . Follow-up tests additionally revealed significant difference between messages scary in tone, and messages relaxed in tone,  $\chi^2(1, N = 75) = 67.21, p < .01$ . Supporting previous findings, the majority of messages were reported as serious in tone, followed by relaxed, and humorous. Only one respondent reported the message as scary in tone, suggesting that while messages may be about serious issues, the recipient does view the message as frightening, but instead a message made with his/her best interests in mind.

*Memorability.* When asked about what made the message memorable fifty-four percent of participants reported that the lasting impact of the message made it memorable, followed by the relationship they had to the source (30%), repetition (9%), and those that could not recall (7%). Chi-squares revealed significance,  $\chi^2(3, N = 123) = 73.52, p < .01$ . Follow-up tests revealed that there is a significant difference between repetition compared with relationship to source,  $\chi^2(1, N = 120) = 32.03, p < .01$ , and lasting impact,  $\chi^2(1, N = 210) = 110.02, p < .01$ . There was no significant difference between relationship to source and those who could not recall,  $\chi^2(1, N = 53) = .47, p = .49$ . Pairwise comparisons indicated that there was a significant difference between relationship to source compared with lasting impact,  $\chi^2(1, N = 272) = 29.78, p < .01$ , and no recall,  $\chi^2(1, N = 115) = 39.04, p < .01$ . Significant difference was also noted between lasting impact and no recall,  $\chi^2(1, N = 205) = 120.24, p < .01$ . The majority of respondents reported the lasting impact of the message as primary reason for memorability, which supports previous research suggesting that one of the key features or memorable messages is being able to recall the message for long periods of time (Knapp et al., 1981).

*Effect of Message.* In terms of the impact the message has had on their life, forty-five percent of respondents reported that the message made them live healthier,

followed by act more responsibly (28%), no effect (18%), recalling the message during “tough” times (5%), negative/adverse effects (2%), and those that could not recall (2%),  $\chi^2(5, N = 122) = 147.90, p < .01$ . Pairwise comparisons revealed that there was a significant difference between recalling the message in “tough” times compared with acting more responsibly,  $\chi^2(1, N = 103) = 43.58, p < .01$ , living healthier,  $\chi^2(1, N = 160) = 96.10, p < .01$ , and no effect,  $\chi^2(1, N = 75) = 20.29, p < .01$ . There was no significant difference between recalling the message in “tough” times compared with negative/adverse results,  $\chi^2(1, N = 26) = 3.85, p = .05$ , or cannot recall,  $\chi^2(1, N = 25) = 4.84, p = .03$ . Pairwise comparisons indicated a significant difference between acting more responsibly compared with living healthier,  $\chi^2(1, N = 227) = 14.31, p < .01$ , negative/adverse results,  $\chi^2(1, N = 93) = 63.75, p < .01$ , and no recall,  $\chi^2(1, N = 92) = 66.13, p < .01$ . There was no significant difference between acting more responsibly and no effect,  $\chi^2(1, N = 142) = 5.52, p = .02$ . Follow-up tests revealed significant difference between living healthier compared with no effect,  $\chi^2(1, N = 199) = 36.31, p < .01$ , negative/adverse effects,  $\chi^2(1, N = 150) = 119.71, p < .01$ , and no recall,  $\chi^2(1, N = 149) = 122.32, p < .01$ . There was a significant difference between no effect compared with negative/adverse effects,  $\chi^2(1, N = 65) = 36.94, p < .01$ , and no recall,  $\chi^2(1, N = 64) = 39.06, p < .01$ . Pairwise comparisons revealed no significant difference between negative/adverse effects and no recall,  $\chi^2(1, N = 15) = .07, p = .80$ . In sum, nearly half of the messages resulted in the recipient living a healthier life, which was likely the goal of the initial health message. This would lead us to believe that the recipient viewed the message as effective because they were living a healthier life because of that message. Also important to understanding the results was the finding that a notable amount (28%) of respondents indicated that the message made them act more responsibly. It may be that these two results are not

necessarily different from one another. In other words, students who reported the message made them live healthier may also have perceived this as acting more responsibly and vice-versa. If this is the case, then nearly seventy-five percent of respondents viewed the message as having a positive, and perhaps more importantly, a proactive result.

Table 4  
Content and Effects of the Memorable Health Message

	<i>Frequency</i>	<i>Percentage</i>
Message topic		
Sexual behaviors	17	13
Drinking	18	14
Weight issues	19	15
Mental health	4	3
Illness/injury	25	20
Non-health/universal	19	15
Multiple health topics	25	20
Purpose of message		
Encouragement	12	10
Protection	56	45
Advice	53	43
Cannot recall	3	2
Tone of message		
Serious	50	40
Humorous	10	8
Combination of tones	36	29
Scary	1	1
Relaxed	28	22
Cannot recall	1	1
Characteristics making message memorable		
Repetition	11	9
Relationship to source	37	30
Lasting impact	67	54
Cannot recall	8	7

Table 4-Continued

Characteristics making message memorable		
Repetition	11	9
Relationship to source	37	30
Lasting impact	67	54
Cannot recall	8	7
Effect of message on life		
Recall message at "tough" times	6	5
More responsible	34	28
Live healthier	55	45
Negative/adverse effects	3	2
No effect	22	18
Cannot recall	2	2

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#### Summary of One-Sample Chi-Squares

The results of the chi-square tests revealed findings generally supporting previous research. Chi-squares are a useful statistic for this research because they reveal which frequencies of answers are significantly higher or lower than those expected by chance. Moreover, pairwise comparisons improve our understanding of the variables by specifically assessing two levels of each variable at a time determining if the frequencies of the variable levels differ significantly from those expected by chance. This form of analysis provides us with data which we can then compare with previous research about memorable messages. As demonstrated in this thesis, memorable messages seem to demonstrate consistent features regardless of the context in which they are applied and studied. However, thus far few researchers have approached the study of memorable messages interpretively. An interpretive analysis is useful because it examines the actual words as a body of messages in order to gather interpretive or latent themes. Hence, the following section will discuss interpretive conclusions about the embedded meanings within the health messages.

## Interpretive Findings of Memorable Health Messages

This section will elaborate on the content of the memorable messages. As noted, within any given message there exist two meanings; the manifest, which is the actual semantic meaning of the message, and the latent, which is the inferred meaning (Wilson, 1989). This section focuses on the latent, or meta-meaning of the memorable health message. As communication scholars understand meta-communication as communicating about communication, meta-messages are the deeper messages within a given message. Rooted in grounded theory based assumptions (Glaser & Strauss, 1967), three oppositions emerged across the set of messages.

While message topics ranged from weight issues, to germs, to drinking, drugs, and stress, underlying meta-messages are evident in the messages as well. These meta-messages can be classified into three oppositions that appear as overarching themes: (1) fear appeals versus affirming messages, (2) health oriented messages versus vanity oriented, and (3) catchy/unique phrases versus universal expressions.

### *Fear Appeals versus Affirming Messages*

Fear is defined as a negatively valenced emotion, accompanied by a high level of arousal (Horowitz, 1972). Fear appeals attempt to capture this negative emotion in order to arouse fear in the recipient, with the ultimate goal of “scaring” the recipient into behaving in a desired way. Research regarding fear appeals is mixed. Witte and Allen (2000) suggest that high levels of threat and efficacy are imperative to promoting attitude, intention, and behavior change, while low threat fear appeals are ineffective. Others assert that fear appeals tend to backfire (Finckenauer, 1982). In opposition of fear appeals are affirming messages. Affirming messages are messages

that validate another's self-image and function to acknowledge or endorse the individual. Instead of utilizing fear tactics to persuade an individual, affirming messages tend to focus more on providing social support to the recipient. Previous research has demonstrated the utility of social support and its connections to desirable life outcomes such as physical health, and emotional well-being (Albrecht & Adelman, 1987). Thus, affirming messages could potentially provide social support to the recipient, and in doing so promote positive life choices.

Twenty-three messages exemplified the category of fear appeals. Fear appeals tended to involve a threat accompanying a warning message. For instance, "One out of every three people at State University has an STD" (participant 007), "Don't drink to the point of alcoholism (participant 035)", "Watch out for the freshman-15" (participant 039), "Smoking will kill you" (participant 095), and "Don't walk around bare-footed. You can catch meningococcal virus" (participant 127). Despite the fact that previous research reports that fear appeals are generally less effective than other strategies (Lee & Ferguson, 2002), it is clear that individuals were utilizing this approach as a means of protecting, or warning new college students. Furthermore, Knapp et al. (1981) suggests that memorable messages are often perceived as commands, demanding the attention of the recipient. As the majority of the messages in the study were sent from parents, it may be that fear appeals are the strategy they are most accustomed to, and consequently the children are most familiar with, and therefore may be more effective than in other situations when the relationship is not that of a parent and child.

In contrast to messages delineating fear were affirming messages. Seventeen messages illustrated affirmation, which tended to express feelings of love, and/or caring, with less threat involved. For example, "Eat healthy and regularly to help



with studies” (participant 044), “Make sure to take vitamins in order to stay healthy” (participant 045), “Please make the right choices while you are away at school. Put your school work before your social life” (participant 052), “Be careful. Have fun, but use your judgment” (participant 086), and “Dr. Brown at State University in a holistic class told everyone that a healthy body and mind can do extraordinary things” (participant 099). Affirming messages tend to align with previous research on memorable messages, which emphasized the counseling relationship between the sender and receiver (Ellis & Smith, 2004). The messages noted above support studies suggesting that memorable messages often leave the recipient with feelings of empowerment (Keeley, 2004). Additionally, we know that there is a strong link between social support and memorable messages (Ford & Ellis, 1998; Miller & Ray, 1994), which are similar to messages that communicate affirmation. It may be that communicating affirming messages is a form of providing social support to college students before leaving home to attend college.

### *Health Oriented Messages versus Vanity Oriented Messages*

Health oriented messages were interpreted as messages that provided guidance about how to handle one’s physical, and/or mental health, and were generally concerning a specific health behavior. These health oriented messages involved topics such as drinking, sexual behaviors, weight issues, illness, injury, or mental health. In contrast to health oriented messages were vanity oriented messages. Vanity oriented messages can be understood as messages pertaining to one’s outward appearance. As previous research has suggested college students are frequently challenged with weight issues, and eating disorders (Frith & Gleeson, 2004; Law & Labre, 2002). However despite these trends, it appears as though students are still

receiving messages regarding weight loss, and more specifically, the “freshmen-15”.

Fifty-four messages were classified as health oriented. Health oriented messages include “Eat lots of veggies, it’s good for your prostate” (participant 010), “Keep your room clean and wash your hands a lot to prevent you getting sick in the dorms” (participant 029), “Make sure to take vitamins in order to stay healthy” (045), “Get a meningitis vaccine” (participant 061), and “Always use protection. Smoking kills” (071). Consistent with previous research these health messages are generally action-oriented, and serious in tone (Knapp et al., 1981). Such health oriented messages communicate that the recipient should engage in a particular action in order to maintain a healthy lifestyle. Messages such as “make sure to take vitamins in order to stay healthy” tell the recipient more than just to take vitamins, but also that the sender cares for the recipient, and they may be aware of the potential health risks the students are likely to encounter in college and choose to warn them accordingly.

In opposition of health oriented messages, were vanity oriented messages. Fifteen messages were categorized as vanity oriented, and tended to revolve around weight gain. Vanity oriented messages usually mention the “Freshman-15” and included messages such as “Before coming to college, my sister warned me of the freshman-15. She suggested that I drink only diet soda and make use of the Recreation Center so that I don’t get fat my first year” (participant 017), “You won’t gain weight if right off the bat you get in the habit of working out” (032), “Remember, watch out for the freshman-15” (participant 039), and “Do not eat late at night or you will gain more than the freshman fifteen” (participant 077). The majority of vanity oriented messages tended to reflect the common phrase “freshman-15”. Such reports are problematic given the numerous weight issues, and disordered eating habits challenging college students today (Hoerr et al., 2003). Messages geared

towards weight gain tended to contain a manifest message of exercise, trans-fats, or late night snacking, while also communicating a latent message emphasizing an attractive physical appearance. Thus, the meta-message of the aforementioned vanity oriented messages is one referencing standards of beauty and attractiveness, and not necessarily health.

### *Catchy Health Oriented Phrases versus Universal Expressions*

Memorable messages tend to articulate behavioral injunctions through use of linguistic devices such as colloquialisms and “rules of thumb” (Barge & Schlueter, 2004). These types of health messages can be understood as catchy health phrases. Catchy health phrases include sayings typical of the college student vernacular. These phrases are well-understood by college students, and it appears others as well, as these sayings are being delivered by sources other than college students such as parents, and teachers. In opposition to catchy health phrases are universal expressions. Universal expressions can be understood as proverbs, or injunctions that function to guide life decisions (Knapp et al., 1981). Universal expressions are cross-sectional and applicable to many instances, not just health messages. However, previous research has revealed that such proverbs are often messages regarding obeying the law and living a healthy life (Ellis & Smith, 2004).

Nineteen messages were classified as catchy health phrases. Examples of this category include “Safe sex” (participant 004), “Keep it wrapped up” (046), “Beware of the freshman-15” (participant 057), “Don’t be a fool, wrap up your tool!” (participant 058), and “Your weekly drinking habits should begin on “Thirsty-Thursday” and no earlier” (participant 126). These catchy health oriented phrases support previous research characterizing memorable messages in terms of their

brevity, simplicity, and functioning as life-long injunctions (Knapp et al., 1981). These messages may be more effective because of their humorous nature (Lee & Ferguson, 2002) and seem to exhibit a personal focus (Knapp et al., 1981), both of which are key features of memorability. Deeper meanings can be understood in these messages. These catchy phrases utilize humor in order to converse about an issue the sender may likely be genuinely concerned about. It can be gathered from these messages that the sender recognizes that the recipient is liable to engage in these activities, and in order to counter the likely negative consequences of these activities, the source employs humor, while simultaneously showing love, and concern. These messages also tend to revolve around issues that are difficult to discuss, or potentially embarrassing topics, such as sexuality. It may be the source uses humor as a tool to discuss an uncomfortable topic.

Different from catchy health messages, several universal expressions were evident as well. Six universal expressions were noted in the data. These aphorisms are messages applicable to a variety of situations, and generally well-known. For instance, “Don’t bite off more than you can chew” (participant 003), “Know who you are and don’t compromise yourself to anyone” (participant 009), “Go in with an open mind and take it with a grain of salt” (participant 059), and “Be cautious” (participant 089). These universal aphorisms support previous research suggesting that most memorable messages function as injunctions guiding behavior, that are applicable in multiple situations (Knapp et al., 1981; Stohl, 1986). Evident in these aphorisms seems to be a degree of uncertainty in the source of the message. That is, the source may be unsure of exact advice, or encouragement to give to the new college student, and consequently may fall back on a well-known, all-encompassing phrase. This is not necessarily problematic, and given that several students were able to recall such

messages, they may be helpful in the context of managing health behaviors.

### Summary of Interpretive Analysis

The interpretive analysis of this thesis was designed to understand the emergent themes of the health messages recalled by students prior to attending college. More specifically, the purpose was to look beyond the obvious manifest messages of weight issues, germs, drinking, drugs, and stress, in order to understand the underlying latent meanings, or meta-messages embedded in the reported health messages. These meta-messages were classified into three oppositions that functioned as overarching themes: (1) fear appeals versus affirming messages, (2) health oriented messages versus vanity oriented, and (3) catchy/unique phrases versus universal expressions.

### Summary

This chapter has detailed the results of this thesis. This chapter was composed of two sections: (1) results of one sample chi square tests, and (2) an interpretive analysis of the memorable health messages. These sections detail the findings of the analysis, and offer brief conclusions of the results. The following chapter will elucidate the results of the study in the form of a discussion, drawing broad conclusions of the deeper meanings of these findings.

## CHAPTER V

### DISCUSSION

This study of memorable health messages within the college population integrates previous research with current college student health concerns. This thesis is particularly concerned with a specific health message that students are able to recall from pre-college entry. These memorable health messages can be examined according to the four characteristics of memorable messages: structure and form of the message, circumstances surrounding the message, source of the message, and the content of the memorable message. In addition to these characteristics, this thesis presents the added dimension of an interpretive analysis of the messages. This interpretation assesses the recalled memorable health messages and examines them in order to understand the underlying meta-messages.

The quantitative portion of this study examined the recalled memorable health messages according to the four characteristics of memorable messages. To assess these messages with regard to aforementioned characteristics, one-sample chi-square tests were conducted and the results were analyzed. The tests revealed findings similar to previous studies of memorable messages.

Consistent with previous research, the structure and form of the memorable health message were mostly received orally and face-to-face (90%). Loftus and Loftus (1976) suggest that the hearing memory is our strongest sense, thus, it may be that students recall the message as memorable based on the fact that they literally “heard” the message, instead of receiving the message via a different channel.

When assessing the circumstances surrounding the message one-sample chi-

square tests also revealed results consistent with previous research. Most respondents indicated that they were engaged in conversation before receiving the message, and that their immediate response was positive (76%), as was the long term result of the message (86%). Ninety-one percent of respondents reported recalling the message repeatedly, and more specifically, recalling the message when engaging in the behavior that was the topic of the message (67%). These findings support previous studies, which assert that messages that are perceived by respondents as personally directed, purposeful, and in the recipient's best interest are more likely to be remembered for long periods of time (Ford & Ellis, 1998; Holladay, 2002; Knapp et al., 1981; Stohl, 1986). The location of the message reception was mostly in a private setting such as the home (61%), however, contrasting previous findings, sixty-one percent of the respondents reported that others were present at the time of message reception. Yet, fifty-seven percent of respondents indicated that the message was directed towards them alone. It may be that the others present at the time of the message enactment were aiding in the delivery of the message. For instance, if the mother was delivering the message, the father might have been present providing additional support. Thus, there may actually be multiple senders of the message, but one is viewed as the primary sender. Additionally, because the majority of respondents indicated the message was intended for them alone, the presence of others may not matter. Instead the perception of self as the primary target appears to be the key to the memorability of the message.

Consistent with previous studies of memorable messages, one-sample chi-squares revealed that the features of the source of the memorable health message tended to align with preceding conclusions. The source was most often the mother, someone whom the recipient had known for his/her entire life, and with whom the

recipient had regular contact. These findings support previous research reporting that the source of a memorable message is usually older, perceived to have higher social status than the receiver (Knapp et al., 1981), and in the recipients regular social network (Ford & Ellis, 1998). Most respondents in this study revealed that the message was typical of the comments communicated by the source, though the advice was generally not reciprocal in nature. That is, the recipient was not likely to provide health advice to the source of the memorable health message. This is consistent with previous research which revealed that upward communication of support towards nurses is difficult due to organizational power constraints (Ford & Ellis, 1998). Similarly, the source of the memorable health message in this study was most often the mother, who is clearly older and of higher status, and consequently exhibits more power than the recipient of the message. Thus, the results regarding the source of the message support previous findings.

The last characteristic that one sample chi square tests assessed was the content of the memorable health message. The messages addressed several topics including in order: illness/injury, multiple health topics, followed by weight issues and non-health topics, drinking, sexual behaviors, and mental health issues. Despite the topic of the message, most respondents perceived the message as a form of protection (45%), or advice (43%). This result is not surprising given that previous research revealed that memorable messages are generally perceived as positive, kind, (Ellis & Smith, 2004; Smith & Ellis, 2001; Smith et al., 2001), and in the best interests of the recipient (Knapp et al., 1981). Respondents reported that most messages were serious in tone (54%), and were memorable because of their lasting impact to make the student live a healthier life (45%). These findings are consistent with previous research suggesting that memorable messages are usually action



oriented, and offer the recipient prescriptions of what to do (Knapp et al., 1981).

In sum, the results of one-sample chi-square tests offer findings similar to previous studies. These tests revealed that the characteristics of memorable health messages tend to coincide with previous research regarding their structure and form, circumstances surrounding the message, source, and the content of the memorable message. These findings provide us with a useful understanding of the recurrent features of memorable health messages. Also important to our comprehension of health messages is an interpretive dimension in which the themes of the memorable health messages can be examined.

The interpretive analysis assessed the latent meanings, or meta-messages of the body of memorable health messages. These meta-messages were classified into three oppositions: (1) fear appeals versus affirming messages, (2) health oriented messages versus vanity oriented, and (3) catchy/unique phrases versus universal expressions. When assessing the opposition between fear appeals and affirming messages, it was noted that twenty-three messages were classified as fear appeals, and seventeen messages illustrated affirmation. This finding contrasts previous research suggesting that messages tend to be serious in tone, yet expressions of kindness (Knapp et al., 1981). One would expect that based on our understanding of memorable messages, that the majority of memorable health messages would be classified as messages of affirmation. Affirming messages could function as social support (Ford & Ellis, 1998), empowering the recipient to behave in a desired way. Yet, fear appeals seemed to be the most commonly utilized technique in delivering the memorable health message. As mothers, relatives, and parents were the most frequently reported source of the message, it is possible that scare tactics, such as fear appeals were the practice that they were most accustomed to using. This could be a

result of their natural position of power, and higher status as disciplinarian of the family. These fear appeals tended to command a desired behavior, frequently addressing weight issues. Such weight issues were a significant area of interest in this study because they comprised the majority of the vanity oriented messages.

Thus, the second opposition that emerged from the data involved health oriented versus vanity oriented messages. Analysis revealed that fifty-four messages were classified as health oriented, and fifteen messages were categorized as vanity oriented. While significantly more respondents reported a message that was health oriented, the number of vanity oriented messages should raise some concerns. Most vanity oriented tended to revolve around the catch phrase “freshmen-15”, and were geared towards weight gain. Given the disordered eating habits challenging college students (Hoerr et al., 2003) a more helpful message may involve advice about healthy eating and not necessarily weight gain. Nonetheless, health and vanity oriented messages both fit the classification of memorable messages as brief, proverb-like statements that facilitate memorability (Knapp et al., 1981). With regard to the proverb-like nature of memorable messages, an additional opposing theme that emerged from the data was an opposition between health oriented messages and universal expressions.

The third opposition that was revealed in the memorable health message data was the opposition between catchy health oriented messages and universal expressions. Nineteen messages were classified as catchy health phrases, while only six universal expressions were noted in the data. This finding is contrast to previous research regarding memorable messages. Previous research suggests that one of the key features of memorable messages is their applicability to numerous contexts and situations (Knapp et al., 1981). Catchy health phrases such as “cover your drink at a

party”, or “safe sex”, are only applicable to a single context. Yet, both the catchy health phrases and the universal expressions noted in the data exhibit features similar to previous research in their brief rule-like nature, simplicity (Knapp et al., 1981), and functioning as injunctions to guide life-long decisions (Ellis & Smith, 2004).

Taken together, the one sample chi squares, and the interpretive analysis elucidate several interesting conclusions. One notable finding is the small number of respondents who indicated that the message topic focused on mental health issues (3%). The majority of respondents indicated the message concerned a physical health issue such as drinking, sexual behaviors, weight, illness or injury. The disregard of mental health issues is alarming given the serious psychological problems challenging today’s college students (Archer & Cooper, 1998; Kitzrow, 2003). Research suggests that the severity of psychological issues is on the rise, with college students increasingly expressing concerns related to suicidality, substance abuse, sexual abuse, depression, and anxiety (Pledge et al., 1998). Stewart-Brown et al. (2000) reported that sixty-two percent of college students surveyed revealed that they worried on a regular basis mostly about study or work problems, followed by money (52%). Given the numerous stressors challenging college students, one would assume that messages regarding mental health would be a main focus before college students leave home to attend college. Yet, this is clearly not the case. It may be that parents are hesitant to discuss mental health issues, or that students are embarrassed to report messages about mental health. Regardless, these findings suggest that mental health issues tend to be overlooked or secreted as memorable health messages.

A second finding that can be gathered from the analysis is regarding the tone of the message. As noted previously, the majority of messages were perceived as serious in tone (40%), followed by a combination of tones (29%), relaxed (22%),

humorous (8%), scary (less than 1%), and lastly those that could not recall (less than 1%). What is noteworthy about this finding is that less than one percent of respondents perceived the message as scary in tone, yet the interpretive analyses counter this finding, revealing that twenty-three messages exemplified fear appeals. It may be that the respondents perceived the message as serious in tone, and not necessarily scary because of the relationship with the source. The source was most often reported as the mother, followed by parents, relative, and father. Thus, the tone of parent-to-child may be perceived by the recipient as serious, and an outsider, such as the researcher, as scary in tone. Moreover, the recipient noted the message had been delivered on multiple occasions, thus it may lose its fear appeal simply because of repetition.

Yet another interesting conclusion that can be drawn from this analysis is that the findings reveal a focus on weight issues in the memorable health messages. The interpretive analysis revealed that fifteen messages were classified as vanity oriented, and were mostly addressing the “freshman-15”. Moreover, descriptive statistics revealed that nineteen students reported weight issues as the topic of the memorable health message (15%). Clearly weight is a health issue that is being addressed before students leave home to attend college. However, the majority of these weight messages revolve around avoiding weight gain. We know from previous research that college students are relatively unhealthy compared to their peers (Stewart-Brown et al., 2000), and contributing to this poor health are their disordered eating habits (Lager & McGee, 2003; Seymour et al., 1997). Research suggests that college students engage in numerous behaviors to avoid weight gain, including, laxatives, bingeing and purging, drugs, and anorexia (Hoerr et al., 2002). Yet, despite this obsession with slenderness, research reports that twenty percent of college students

are overweight, and three percent are considered obese (Levi et al., 2006). These findings indicate that the health messages students are receiving regarding weight issues are largely ineffectual, and are perhaps even harmful to students understanding of weight, and overall health. This leads us to question what kind of message would more effectively produce positive health outcomes with regard to weight. Future research is needed to address this concern.

The present study is beneficial because it goes beyond simply quantitatively assessing the characteristics of memorable messages, and attempts to understand the deeper meanings of the actual health messages. This study is unique in that it is one of the few studies to utilize qualitative methodology (with the exception of Keeley, 2004) to examine memorable messages. Understanding the meta-messages of health messages is useful because it could help parents who are often the source of memorable messages to frame their health message in a more meaningful and effective manner. Attending college is clearly a point of uncertainty for college student, but the position of the parent sending their child off to college should not be overlooked. Understanding the delicate nature of this communicative exchange could be a crucial milestone in sending first-year students to college, with confidence that they are well prepared and informed of potential health risks they are likely to encounter. Likewise, information about memorable health messages could be beneficial to individuals such as physicians or campus personnel in order to fill the gaps of understanding that may exist about college student's health behaviors.

Moreover, this thesis contributes to the growing body of literature on the memorable messages framework. While the framework has been applied to numerous contexts with great applicability, it had never been applied to college students and recalled health messages. As the findings of this thesis revealed,

characteristics of memorable messages tend to have recurrent features regardless of the context. Thus, this thesis supports the use of the memorable messages framework as it is applied to health communication.

### Limitations

While the results of the study offer unique insight about recalled health messages, a few limitations should be noted. One drawback of the study lies in the demographic features of the participants. The majority (89%,  $n = 113$ ) of participants were Caucasian, allowing for limited applicability to today's students, who often come from diverse populations. A second limitation of the study is that the data was coded and classified in categories only by the researcher, allowing for possible biases in the interpretation of the meanings of recalled health messages. A third drawback of this thesis is that gender was not explored as a factor influencing the memorability of the message. As health messages may be gender oriented, further analysis with regard to gender differences may provide increased insight. Additionally, given the limited amount of research using grounded theory based assumptions to investigate memorable messages, it is challenging to find support of the emerging themes evident in the present study. Thus, the results should be interpreted with caution until further research is done in this area.

### Future Research

The interpretations of the present study provide a useful framework for future research. Scholars in health communication may find particular interest in the findings of this study and generate additional themes in their own data. The three oppositions presented in this study are only a first step to interpretive understandings

of memorable health messages. Additionally, future research could expand on the results by utilizing a different method of qualitative inquiry. For instance, in depth interviews could provide a wealth of information about memorable health messages, allowing for the participant to elaborate on the message in greater detail, a feat difficult to accomplish through survey research. Supporting previous studies, the majority of the respondents in this thesis noted their parents and more specifically their mothers as the source of the message. This recurring finding reveals the important role that family plays in communicating health messages. Future research could look specifically at the role of family in college student's health knowledge. Finally, the present study analyzed the memorable health message solely from the recipient's perspective. Future research could examine the memorable health messages from a parent's perspective, assessing similar characteristics. This research offers insight about the memorable health messages recalled by college students, but is only a fleeting glimpse of the embedded meanings of such messages. Future research is needed, if not imperative in order to improve the physical and mental health of today's college students.

### Conclusion

College student's poor health status can be attributed to the numerous health risks challenging them in college. In an attempt to counter these risky health behaviors students often receive health messages in the form of advice about how to manage their health in college. This thesis discusses those memorable health messages and several notable findings regarding the memorability of the message and its effects. As reported in this thesis, students are consistently able to recall a memorable health message, illustrating their lasting impact and memorability.

Moreover, students are generally positive about receiving the health message, and optimistic of their behaviors as result of receiving the message. That is, students are a receptive audience, and typically believe that they live a healthier life as a direct result of receiving this memorable health message. This conclusion illustrates the necessity of engaging in conversations about health before college students are faced with the responsibility of independently managing their health. Clearly memorable health messages are crucial to college student's wellbeing, and thus warrant considerable attention and awareness in order to safeguard the health of today's college students.





## APPENDIX A: HSIRB APPROVAL LETTER

Date: October 8, 2007

To: Autumn Edwards, Principal Investigator  
Linsay Rose, Student Investigator

From: Amy Naugle, Ph.D., Chair

A handwritten signature in cursive script that reads "Amy Naugle".

Re: HSIRB Project Number: 07-10-12

This letter will serve as confirmation that your research project entitled "Communication and Well-being" has been **approved** under the **exempt** category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you may **only** conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: October 8, 2008

## APPENDIX B: ORAL RECRUITMENT SCRIPT

Investigator read aloud to students:

Good morning/afternoon! My name is Lindsey Rose and I am a graduate student and teaching assistant here at Western Michigan University. I would like to invite you to participate in a research project about college students and recalled health messages. If you choose to participate, you will be asked to spend approximately 15-20 minutes of your time filling out a survey. The survey involves responding to open ended questions regarding a specific recalled message, in addition to a brief demographic section. Your responses will be completely anonymous and confidential. Please note that returning the completed survey is an indication of our consent to have your answers used in the study.

Before deciding whether or not you would like to participate, you will have an opportunity to read a consent document and ask questions. Please keep in mind that participation is strictly voluntary and it will not in any way affect your course grade or eligibility.

If you are willing to participate, I will need you to read the informed consent document. After you have completed this, you may begin the survey and place it in the box provided when you are finished. If you are interested in learning how the data is interpreted, please feel free to contact me using the information provided on your copy of the consent form.

Are there any questions regarding participation at this time?

## APPENDIX C: INFORMED CONSENT DOCUMENT

Western Michigan University

School of Communication

Principle Investigator: Lindsey Rose

Study Title: Memorable Health Messages and College Students

### Anonymous Survey Consent

You are invited to participate in a research project entitled Memorable Health Messages and College Students designed to analyze the memorable health messages that are given to college students prior to attending college. The study is being conducted by graduate student, Lindsey Rose of Western Michigan University, School of Communication. This research is being conducted as part of Master's Thesis requirements for Lindsey Rose.

This survey is comprised of 18 open-ended questions and a short demographic section. It will take approximately 15-20 minutes to complete. Your replies will be completely anonymous, so do not put your name anywhere on the form. You may choose to not participate in this survey at any time or refuse to answer any question without prejudice, penalty or risk of any loss of service you would otherwise have. In this case you may return the blank survey into the box provided. Returning the survey indicates your consent for use of the answers you supply. If you have any questions, you may contact Lindsey Rose at (269) 387-3152. You may also contact the Chair, Human Subjects Institutional Review Board (269-387-8293) or the Vice President for Research (269-387-8298) if questions or problems arise during the course of the study.

This consent document has been approved for use for one year by the Human Subjects Institutional Review Board (HSIRB) as indicated by the stamped date and signature of the board chair in the upper right corner. You should not participate in this project if the stamped date is older than one year.

## APPENDIX D: SURVEY INSTRUMENT

### Memorable Health Messages and College Students

Throughout our lives we receive memorable messages intended to help us as we meet challenges such as new careers, failed relationships or illness. These messages may come from family members, friends, teachers, and sometimes even from brief acquaintances or strangers. College students in particular are likely recipients of memorable messages because of the numerous changes and challenges they are likely to encounter throughout college. One specific challenge that college students are apt to meet is health related concerns. Health concerns could include weight gain, drinking habits, drugs use, smoking, sexual behaviors, as well as the usual illness and injury concerns. Because of these many health challenges, college students may be likely recipients of memorable health messages.

The purpose of this survey is to better understand the memorable health messages that you have received **prior to beginning your first year as a college student**. Keep in mind that these methods can be positive or negative, helpful or hurtful, even ambivalent at the time they are received. Please take the time to complete the survey with as detailed responses as you can recall. Feel free to use the back of the page if you need more space to write.

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It is not uncommon for new college students managing the many new experiences of college to think back on their experiences and to recall something someone said to them that had an important effect on them and their ability to cope with their current life circumstances. While you may have received many messages about health related issues prior to entering college, our interest is on a health related message that you remember and recall clearly because it “stuck with you” and had an effect on how you behave or think or feel.

1. Can you recall a health message or piece of advice that someone said to you to you before coming to college? Please record the message as precisely as possible in the space below.

How certain are you of the wording?

1	2	3	4	5
Very certain				Very uncertain

2. How was the memorable message given to you (written, oral, through another person, face to face, email or some other form)?

*Now we would like you to recall the circumstances that surrounded the communication of your memorable message.*

3. Where were you when you received this message?

4. Was anyone else present at the time of the message?

If others were present, was the message intended for you alone or for others as well?

5. What was happening just before the message was sent?

6. What was the result of the message?

How did you respond?

7. Since receiving the message, have you thought about it again?

Under what circumstances have you thought about it?

8. Was this message new to you, or had you heard it before?

If you have heard it before, from whom?

*In this next section we will ask you to provide information about the source (person or sender) of the memorable health related message.*

9. Who was the source of the message?

10. Describe your relationship to that person?

11. How long have you known the person?

12. Is this someone with whom you have regular contact?

At the time of the message, how many times a day or week did you speak with this person?

13. Is this typical of the health behavior/comments you usually observe with the person?

14. Have you offered health advice to this person?

Please explain what health advice you have given to this person.

15. What was the purpose of the message (what did the sender want you to do or understand)?

*Now we would like to ask you to provide information about the content of the memorable health related message.*

16. What was the tone of the message (serious, humorous, scary, relaxed or something different)?

17. What about the message made it especially memorable?

18. Thinking back on the message, how has the message affected your life?



## REFERENCES

- Albrecht, T. L., & Adelman, M. B., & Associates. (1987). *Communicating social support*. Newbury Park, CA: Sage.
- Archer, J., & Cooper, S. (1998). *Counseling and mental health services on campus: A handbook of contemporary practices and challenges*. San Francisco: Jossey Bass.
- Bardo, M. T., Donohew, R. L., & Harrington, N. G. (1996). Psychology of novelty seeking and drug seeking behavior. *Behavior Brain Research*, 77, 23-43.
- Barge, K. J., & Schlueter, D. W. (2004). Memorable messages and newcomer socialization. *Western Journal of Communication*, 68, 233-257.
- Bates, E., Masling, M., & Kintsch, W. (1978). Recognition memory for aspects of dialogue. *Journal of Experimental Psychology: Human Learning and Memory*, 4, 187-197.
- Beier, M. E. & Ackerman, P. L. (2003). Determinants of health knowledge: An investigation of age, gender, abilities, personality, and interest. *Journal of Personality and Social Psychology*, 84, 439-448.
- Bern, E. (1964). *Principles of Group Treatment*. New York: Oxford University Press.
- Booth-Butterfield, M., & Sidelinger, R. (1998). The influence of family communication on the college-aged child: Openness, attitudes and actions about sex and alcohol. *Communication Quarterly*, 46, 295-308.
- Brashers, D. E., Goldsmith, D. J., & Hsieh, E. (2002). Information seeking and avoiding in health contexts. *Human Communication Research*, 28, 258-271.
- Conner-Green, P. A. (1988). Gender differences in body weight perception and weight loss strategies of college students. *Women and Health*, 14, 27-42.
- Denzin, N. K. (1989). *Interpretive interactionism*. Newbury Park, CA: Sage.



- Douglas, K. A., & Collins, J. L. (1997). Results from the 1995 national college health risk behavior survey. *Journal of American College Health, 46*, 55-66.
- Ellis, J. B., & Smith, S. W. (2004). Memorable messages as guides to self-assessment of behavior: A replication and extension diary study. *Communication Monographs, 71*, 97-119.
- Eng, T. R., & Butler, W. T. (1997). *The hidden epidemic: Confronting sexually transmitted diseases*. Washington DC: National Academy Press.
- Finckenauer, J. O. (1982). *Scared straight and the panacea phenomenon*. Englewood Cliffs, NJ: Prentice Hall.
- Frith, H., & Gleeson, K. (2004). Clothing and embodiment: Men managing body image and appearance. *Psychology of Men and Masculinity, 5*, 40-48.
- Ford, L. A., & Ellis, B. H. (1998). A preliminary analysis of memorable support and nonsupport messages received by nurses in acute care settings. *Health Communication, 10*, 37-63.
- Gallagher, R., Gill, A., & Sysko, H. (2000). *National survey of counseling center directors*. Alexandria, VA: International Association of Counseling Services.
- Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. NY: Aldine de Gruyter.
- Glynn, L. M., Christenfeld, N., & Gerin, W. (1999). Gender, social support, and cardiovascular responses to stress. *Psychosomatic Medicine, 61*, 234-242.
- Goldsmith, D. J., & Fitch, F. (1997). The normative context of advice as social support. *Human Communication Research, 23*, 454-476.
- Gundry, L. K., & Rousseau, D. M. (1994). Critical incidents in communication culture to newcomers: The meaning is in the message. *Human Relations, 47*, 1063-1181.

- Handelsman, C., Cabral, R., & Weisfeld, G. (1987). Sources of information and adolescent sexual knowledge and behavior. *Journal of Adolescent Research*, 2, 455-463.
- Harrison, J., Maguire, P., & Pitceathly, C. (1995). Confiding in crisis: Gender differences in pattern of confiding among cancer patients. *Social Science & Medicine*, 41, 1255-1260.
- Heisler, J. M. (2000). The socialization of gender roles through parental memorable messages. Unpublished manuscript.
- Hoerr, S. L., Bokram, R., Lugo, B., Bivins, T., & Keast, D. (2002). Risk for disordered eating relates to both gender and ethnicity for college students. *Journal of the American College of Nutrition*, 21, 307-314.
- Holladay, S. J. (2002). "Have fun while you can," "you're only as old as you feel," "don't ever get old!": An examination of memorable messages about aging. *Journal of Communication*, 52, 681-697.
- Horowitz, I. A. (1972). Attitude change as a function of perceived arousal. *Journal of Social Psychology*, 87, 117-126.
- House, J. S., Landis, K. R., & Umberson, D. (1988). Social relationships and health. *Science*, 241, 540-545.
- Keenan, J. M., MacWhinney, B., & Mayhew, D. (1977). Pragmatics in memory: A study of natural conversation. *Journal of Verbal Learning and Verbal Behavior*, 16, 549-560.
- Keller, M. L. (1993). Why don't young adults protect themselves against transmission of HIV? Possible answers to a complex question. *AIDS Education and Prevention*, 5, 220-233.
- Kitzrow, M. A. (2003). The mental health needs of today's college students:

- Challenges and recommendations. *NASPA Journal*, 41, 167-181.
- Knapp, M. L., Stohl, C., & Reardon, K. K. (1981). "Memorable" messages. *Journal of Communication*, 31, 27-41.
- Lager, E. G., & McGee, B. R. (2003). Hiding the anorectic: A rhetorical analysis of popular discourse concerning anorexia. *Women's Studies in Communication*, 26, 266-295.
- Law, C., & Labre, M. P. (2002). Cultural standards of attractiveness: A thirty-year look at changes in male images in magazines. *Journalism and Mass Communication Quarterly*, 79, 697-711.
- Lee, J. M., & Bichard, S. L. (2006). Effective message design targeting college students for the prevention of binge-drinking: Basing design on rebellious risk-taking tendency. *Health Communication*, 20, 299-308.
- Lee, J. M., & Ferguson, M. A. (2002). Effects of anti-tobacco advertisements based on risk-taking tendencies: Realistic fear vs. vulgar humor. *Journalism & Mass Communication Quarterly*, 75, 945-963.
- Levi, A., Chan, K. K., & Pence, D. (2006). Real men do not read labels: The effects of masculinity and involvement on college students' food decisions. *Journal of American College Health*, 55, 91-98.
- Linder, J. A., & Singer, D. E. (2003). Health related quality of life of adults with upper respiratory tract infections. *Journal of General Internal Medicine*, 18, 802-807.
- Loftus, E., & Loftus, G. (1976). *Human memory: The processing of information*. Hillsdale, NJ: Lawrence Erlbaum.
- McTigue, K., Garret, J., & Popkin, B. (2002). The natural history of the development of obesity in a cohort of young U.S. adults between 1981 and 1998. *Annals*

- of *Internal Medicine*, 136, 857-864.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis (2<sup>nd</sup> ed.)*. Thousand Oaks, CA: Sage.
- Misra, R., & McKean, M. (2000). College students' academic stress and its relationship to their anxiety, time management, and leisure satisfaction. *American Journal of Health Studies*, 16, 41-51.
- Murphy, M. C., & Archer, J. (1996). Stressors on the college campus: A comparison of 1985-1993. *Journal of College Student Development*, 37, 20-28.
- National Center For Communication Statistics. Digest of Education Statistics: 2006. Retrieved August 1, 2007, from <http://nces.ed.gov/programs/digest/d06/>
- Nichol, K. L., D'Heilly, S. D., & Ehlinger, E. (2005). Colds and influenza-like illness in university students: Impact on health, academic and work performance, and health care use. *Clinical Infectious Diseases*, 40, 1263-1270.
- Nonis, S. A., Hudson, G. I., Logan, L. B., & Ford, C. W. (1998). Influence of perceived control over time on college students' stress and stress-related outcomes. *Research in Higher Education*, 39, 587-605.
- Pledge, D., Lapan, R., Heppner, P., & Roehlke, H. (1998). Stability and severity of presenting problems at a university counseling center: A 6-year analysis. *Professional Psychology Research and Practice*, 29, 386-389.
- Reinard, J. C. (2001). *Introduction to communication research (3<sup>rd</sup> ed.)*. New York, NY: McGraw-Hill.
- Rouner, D., & Lindsey, R. (2006). Female adolescent communication about sexually transmitted diseases. *Health Communication*, 19, 29-38.
- Sadovszky, V. V., Keller, M. L., & McKinney, K. (2002). College students' perceptions and practices of sexual activities in sexual encounters. *Journal of*

*Nursing Scholarship*, 34, 133-138.

- Sax, L. J. (1997). Health trends among college freshmen. *Journal of American College Health*, 45, 252-262.
- Seymour, M., Hoerr, S. L., & Huang, Y. (1997). Inappropriate dieting behaviors and related lifestyle factors in young adults: Are college students different? *Journal of Nutritional Education*, 29, 21-25.
- Shannon, C., Story, M., Fulkerson, J., & French, S. (2002). Factors in school cafeteria influencing food choices by high school students. *Journal of School Health*, 72, 229-234.
- Silverman, J. G., Raj, A., Mucci, L. A., & Hathaway, J. E. (2001). Dating violence against adolescent girls and associated substance abuse, unhealthy weight control, sexual risk behavior, pregnancy, and suicidality. *American Medical Association*, 286, 572-579.
- Smith, S. W., & Ellis, J. B. (2001). Memorable messages as guides to self-assessment of behavior: An initial investigation. *Communication Monographs*, 68, 154-168.
- Smith, S. W., Ellis, J. B., & Yoo, J. (2001). Memorable messages as guides to self-assessment of behavior: The role of instrumental values. *Communication Monographs*, 68, 325-339.
- Stewart-Brown, S., Evans, J., Patterson, J., Petersen, S., Doll, H., Balding, J., & Regis, D. (2000). The health of students in institutions of higher education: An important and neglected public health problem? *Journal of Public Health Medicine*, 22, 492-499.
- Stohl, C. (1986). The role of memorable messages in the process of organizational socialization. *Communication Quarterly*, 34, 231-249.

- Strauss, A., & Corbin, J. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, CA: Sage.
- Svanum, S., & Zody, Z. (2001). Psychopathology and college grades. *Journal of Counseling Psychology, 48*, 72-76.
- Thombs, D. L., Olds, S. R., Osborn, C. J., Casseday, S., Glavin, K., & Berkowitz, A. D. (2007). Outcomes of a technology-based social norms intervention to deter alcohol use in freshman residence halls. *Journal of American College Health, 55*, 325-332.
- Wechsler, H., Dowdall, G. W., Davenport, A., & Castillo, S. (1995). Correlates of college student binge drinking. *American Journal of Public Health, 85*, 921-926.
- Wechsler, H., Dowdall, G. W., Maenner, G., Gledhill-Hoyt, J., & Lee, H. (1998). Changes in binge drinking and related problems among American college students between 1993 and 1997: Results of the Harvard school of public health college alcohol study. *College Health, 47*, 57-68.
- Wechsler, H., Lee, J. E., Kuo, M., Seibring, M., Nelson, T. F., & Lee, H. (2002). Trends in alcohol use, related problems and experience of prevention efforts among U.S. college students 1993-2001: Results from the 2001 Harvard school of public health college alcohol study. *Journal of American College Health, 50*, 203-217.
- Weitzman, E. R., & Nelson, T. F. (2004). College student binge drinking and the "prevention paradox": Implications for prevention and harm reduction. *Journal of Drug Education, 34*, 247-266.
- Wilson, H. S. (1989). The craft of qualitative analysis. In H. S. Wilson (Ed.). *Research in nursing* (2<sup>nd</sup> Ed.), 394-428. Menlo Park, CA: Addison-Wesley.

Witte, K., & Allen, M. (2000). A meta-analysis of fear appeals: Implications for effective public health campaigns. *Health Education and Behavior*, 27, 591-615.