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THE HEART OF THE MATTER: THE FUNCTION AND RELATIONAL EFFECTS OF  
HUMOR FOR CARDIOVASCULAR PATIENTS

By

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BA, University of Colorado, Boulder, CO, 2008

Thesis

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The Heart of the Matter: The Function and Relational Effects of Humor for Cardiovascular Patients

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This study examined the possibility that cardiovascular patient health is enhanced by the intentional communication of humor and associated increases in relationship satisfaction. In an effort to study the relationship between these variables it was predicted that relationship satisfaction mediates the effects between humor functions and health. Questionnaire data was collected from members of two national support groups for patients of cardiovascular disease. Findings support humor functions distinguished in previous studies and support the hypothesis that relationship satisfaction mediates health. Specifically, distancing humor negatively predicted relationship satisfaction and health. These findings offer new insight into the variability of humor effects.

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Thank you to my family for teaching me what is most important. Thanks Dad for teaching me that courage is simply a matter of pedaling through it. Thanks Mom for teaching me to follow my heart because you will love me forever and like me for always. Thanks Big Z for teaching me that strength is not measured in size. Thanks Bailey, for training me to know when *I* needed to outside.

And finally, thank you to my lovely wife for all that you have sacrificed to join me in this adventure. You have taught me true love. I love you with all heart and I am excited for our next adventure.

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## The Heart of the Matter: The Function and Relational Effects of Humor for Cardiovascular Patients

*“Through humor, you can soften some for the worst blows that life delivers. And once you find laughter, no matter how painful your situation might be, you can survive it.” – Bill Cosby*

Humor is a social mechanism by which the physical, mental, and social states of a person’s well-being are enhanced. Many studies have found that humor carries physiological benefits by moderating levels of stress (Bennett & Lengacher, 2009), stimulating their cardiovascular system (Bennett & Lengacher, 2008), and increasing their longevity (Martin, 2001; 2002). Humor also benefits psychological states enhancing life satisfaction and emotional well-being (Lefcourt, 2001), which enhances one’s ability to cope with traumatic health events (School & Ragan, 2003). Humor also has social benefits including tension reduction, coping efficacy, and expressions of warmth (Wuerffel, 1986). Most importantly, humor is a tool that can be used to increase life satisfaction (Szabo, 2003). Considering the wide range of health benefits that humor provides, we argue that patient health after the experience of a medically treated cardiovascular event is enhanced by the intentional communication of humor and its associated increases in relationship satisfaction.

Cardiovascular disease is a cardiac manifestation of arteriosclerosis, otherwise known as “clogging of the arteries” (Blake, 1958, p. 827). Cardiovascular disease affects an estimated 81,100,000 American adults, which is more than one in three people (American Heart Association, 2010, p. 5). Arteriosclerosis impairs blood supply to vital organs and diminishes the ability of the heart to function efficiently. Medical indicators of arteriosclerosis include increased cholesterol levels, lesions of the arteries, and even congestive heart failure (Blake, 1958). Management of this disease is unlike many in that most cardiovascular patients maintain a sense of empowerment and control when diagnosed with cardiovascular disease (American Heart Association, 2010). For instance, cardiovascular disease is often managed and sometimes

reversed through patient initiated activities such as dieting, exercising, and social interaction (American Heart Association, 2010).

“Health” is a more subjective concept, and defined differently within various models of medicine. For instance, from a Western Biomedical perspective, the physician and the medicine are the healer, and being healthy is being free of disease and illness (Meza & Fahoome, 2008). This conceptualization of health focuses on the behaviors of the doctor and the medical treatments, but does not account for behaviors that are initiated or enacted by the patient. Thus, it fails to account for the social and psychological process such as the functions of humor and relationship satisfaction that contribute to health.

Another conceptualization of health stems from the perspectives of Eastern Medicine. Beginning with ayurveda, the ancient medical system of India, it is believed that health involves the interrelation between the body’s various functions (Jayasundar, 2010). Unlike, the Western biomedical perspective, ayurveda posits that optimum health must involve the body as a whole entity and not the emphasis of individual parts within in the mechanical system (Jayasundar, 2010). Additionally, Traditional Chinese Medicine posited that health is a mutual balance between the human body and the outside world (Xutian, Zhang, & Louise, 2009). Ranging from the body’s connection to its surroundings, to the body’s spiritual connection with the outside world, greater health is a result of proper balance between the mind, body, and spirit (Xutian, et al., 2009). These traditional Eastern Medicine perspectives have given rise to the more modern alternative medical practices.

Recent modern alternative medical practices have found that the spiritual element of health is a characteristic that contributes to a patient’s well-being (Wendler, 1996). For example, one study of cardiovascular health measured spiritual coping and found that private prayer decreased depression following surgery (Ai, Dunkle, Peterson & Bolling, 1998). Another notion

of modern alternative medicine implies that the body can heal itself. For instance, one approach found that thermal therapy by means of sauna bathing had beneficial effects for cardiovascular patients (Saadat et al. 2009). Saadat et al. (2009) argue that “Physiological reactions caused by a warm environment resemble those used in the modern pharmacological treatment of chronic heart failure” (p. 150). In this case, healing occurs in a natural setting in which the body is the main contributor to one’s health. This notion that the body can heal itself is also apparent in more modern alternative medicine studies including, meditation (Porter, 2000), acupuncture (Lin et al., 2008), and herbal remedies (Tam et al. 2009), all of which have been found to contribute to cardiovascular health benefits. Ultimately, Eastern Medicine proposes that optimum health requires the body, mind, and spirit to work in coordination. In doing so, non-pharmaceutical approaches are used for their preventative, maintenance, and recovery strategies. These strategies offer great variety, and the body, mind, and spirit ultimately function together to enhance one’s health.

Although both the biomedical and alternative perspective have provided great insight into cardiovascular recovery, they tend to neglect the social dimensions of health. According to Engel (1977), the biopsychosocial model is a framework to understanding health from not only its biological dimensions, but also its social, psychological, and behavioral dimensions. The philosophy behind the biopsychosocial model is the notion that health is constituted by a relationship between the biochemical processes, the psychological state, and the social factors that influence one’s well-being. These three dimensions are interrelated and work together simultaneously. For instance, the treatment of chronic illness not only requires biochemical treatment, patients also require social support from family members, friends, and medical staff (Goldsmith, 2004). Therefore, effective treatment must consider the cultural, social, and psychological considerations that are diffused in illness (Engel, 1977).

Using the biopsychosocial perspective, health can be conceptualized as exhibiting three primary characteristics. First, health is biologically characterized by an antecedent trauma in which pain is recurring (cardiovascular disease). Second, health is characterized by its social construct, in which the patient has a therapeutic relationship with another person, who aids the patient's emotional understanding, and helps improve the patient's relationship with self and others. With the aid of a companion, the patient begins adapting behaviors to manage the traumatic experience such as asking for help, establishing trust and intimacy, and exhibiting self-care. Third, health is characterized by a psychological construct, in which health is characterized by the patient's ability to articulate their purpose/meaning/mission in life. From this perspective, health can be seen as "Quality of Life" and "Self-Integration" as it gets manifest through physical, psychological, and social characteristics. To the extent that a patient is able to enhance their quality of life or self-integration through these three dimensions (i.e. biological, psychological, social), one can observe health through the biopsychosocial perspective.

Unlike health, the definition of humor is more widely agreed upon. Most researchers agree that humor is a deliberate and strategic communicative event (Lynch, 2002; Lefcourt, 2001; Graham, Papa, & Brooks, 1992). Palmer (1994) extends this definition by claiming that humor is "Anything that is actually or potentially funny" (p. 3). The key distinction here is that "potentially funny" includes the intent to be funny. Therefore, humor's existence does not solely rely on the recipient's interpretation, but more so the deliberate intent of the initiator. In fact, the intended message is the basic component of humor (Lynch, 2002).

Humor is an operational activity that is designed to fulfill a specific purpose or goal (Graham et al., 1992, p. 163). Given that cardiovascular patients use humor to intentionally and strategically fulfill a desired health need, humor consequently exhibits a situational function. This function is intended to aid the patient's health directly, or influence their relationship with

their companion. Martin (2001) suggests that humor allows distancing oneself from the medical situation, which is ultimately conducive to coping. Meanwhile, humor may also serve the function of uniting a group of people, and hence, establishing a social support network (Mettee, Hrelec & Wilkens, 1971). Consequently, a function may be self or other-oriented, but nonetheless, the function of humor serves as a monumental purpose in one's health.

The following literature review will provide a literature base supporting the argument that cardiovascular patient health is enhanced by the intentional communication of humor and associated increases in relationship satisfaction (represented in figure 1). This argument is derived from a set of relationships between three variables: (a) Humor and health benefits (b) humor and relational satisfaction, and (c) relational satisfaction and health. Through a combination of existing research in the field of health and personal relationships communication, this study investigates the relationships between these three variables in hopes of determining how humor influences health.

### **Review of Literature**

Research indicates that humor has a wide range of health benefits. These health benefits tend to lie within three interrelated main categories: physiological (Martin, 2001; 2002), psychological (School & Ragan, 2003), and social (Alberts, 1990; Wuerffel, 1986). Humor may increase the pain tolerance of a patient (physiological), which then in turn influences the attitude of the patient (psychological perspective). Although these health categories are divided for explanatory purposes, they can be conceptualized as interrelated under the general rubric of human well-being.

#### **The Physiological Benefits of Humor**

Individuals who initiate humorous dialogue display numerous physiological health benefits. One such benefit is an increase in immune system functioning. Bennett and Lengacher

(2009) claim that a sense of humor moderates the effects of stress corresponding to immunoenhancement. In this case, the use of humor or exposure to humor can increase immune system function particularly by increasing the number of Natural Killer (NK) cells in the body. These NK cells are capable of killing leukemia, carcinomas, sarcomas, melanomas, and other viral infections (Bennett & Lengacher, 2009). Such results suggest that as cardiovascular patients progress through instances of perceived qualities of life, humor can increase their infection resistance by aiding in the function of their immune system. When considering the physical recovery of bypasses, stints, angiograms and other cardiovascular procedures that often co-occur with infections, humor's enhancement of the immune system can greatly enhance the patient's health.

Most importantly, humor induces laughter, which directly benefits the cardiovascular system (Bennett & Langacher, 2008). Bennett and Langacher (2008) claim that laughter can lead to acute change in cardio-respiratory functioning similar to that of an aerobic exercise. Laughter stimulates the heart rate, respiratory rate, oxygen consumption and blood circulation (Bennett & Lengacher, 2009, p. 38). Also similar to an aerobic exercise, the heart rate and blood pressure decrease allowing a period for muscle relaxation following an episode of laughter (Bennett & Lengacher, 2009, p. 39). As a result, humor and laughter stimulate physiological responses from the body that both directly enhance the cardiovascular system and aid the body's immune system. Such positive physiological effects serve as catalysts for enhancing health and patient longevity (Martin, 2002).

### **The Psychological Benefits of Humor**

Humor benefits the psychological perspective of patients and their social system. Humor helps patients remember their youth, escape their role of a patient, and connect personally with their provider (Scholl & Ragan, 2003). By utilizing humor, patients momentarily escape the

somber and melancholy mental states associated with hospital stays, and instead, can begin to feel vibrant, social, and animated. Hasan and Hasan (2009) found compelling cross-cultural results that laughter influences life satisfaction and emotional well-being. These findings are particularly important and relevant to individuals of chronic diseases because the use of humor positively adjusts the psychological perspective enhancing the patient's health (Lefcourt, 2001).

Studies also show that exposure to humor results in increased pain threshold or tolerance (Martin, 2001; 2002). In a recent study by Stuber et al. (2009), children between the ages of seven and thirteen were asked to place their arm in a cooler of cold water for as long as they felt able. Pain tolerance was measured by the amount of time children would place their hand in the cooler. The results of the study demonstrated that children treated with humor intervention had an increase in pain tolerance. Such results were also consistent with adults. These studies suggest that humor might increase the pain tolerance of cardiovascular patients alike. As patients endure perceived changes in health, humor influences their ability to withstand pain, which in turn, accelerates the healing process (Scholl & Ragan, 2003).

Humor is also a coping strategy for many long-term life events (Wanzer, Sparks, & Frymier, 2009). Humorous communication between patients and companions serves as a sense-making tool, allowing individuals the social capability to manage, cope, and recover from traumatic experiences (McCarthy & Addington-Hall, 1997). Recent research indicates that patients utilize humorous messages to cope with chronic illness such as breast cancer and orthopedic surgeries (Lefcourt, 2001). When patients endure the longevity of a chronic health condition, their attitude and recovery process is contingent upon their coping efficacy. Because humor increases coping efficacy, patients alleviate symptoms of depression by initiating humorous messages that induce positivity (Martin, 2002).

One study investigating widowed men and women during the course of their bereavement found that humor enhances positive emotions and serves as a coping strategy (Lund, Utz, Caserta, & de Vries, 2009). Humor as a coping strategy provides the opportunity to minimize grief and distress associated with medical events, which may be useful in strengthening the patient-companion relationship (Lund et al., 2009). Cardiovascular patients who perceive poor health can experience grief and depression much like those suffering from bereavement. In fact, many of those who are widowed and cardiovascular patients share similar negative psychological impacts including fear, anxiety, loneliness, and anger (The American Heart Association, 2010). As the research has demonstrated, humor serves as a psychological tool for widowed men and women that aids them through the bereavement (Lund, et al., 2009). Therefore, if cardiovascular patients and those who are widowed share similar psychological symptoms, then it is likely that humor demonstrates similar psychological benefits for patients managing cardiovascular disease.

### **The Social Benefits of Humor**

Humor benefits relationships. Research investigating interpersonal conflict has found that humor could be a useful tool for handling persistent problems in relationships such as inflexibility (Alberts, 1990, p. 117). For example, humor benefits larger systems such as families by expanding their communicative repertoire (Wuerffel, 1986). Specifically, Wueffel (1986) found that cohesive families utilize humor for a variety of social purposes including, entertainment, to express warmth, and to help cope with difficult situations” (p. 110). Such research indicates that healthy families are more strongly associated with high levels of humor because humor helps the family maintain a positive outlook during difficult times (Wuerffel, 1986). This data demonstrates that humor is used in difficult situations to promote social well-being, therefore suggesting that cardiovascular patients could utilize humor to accomplish similar goals.



Humor is also used on an individual basis to intentionally enhance qualities of interaction. The use of intentional humor has been found to help nurses manage stressful interactions and work conditions (Wanzer, Booth-Butterfield, & Booth-Butterfield, 2005) increase student learning during student-teacher interactions (Wanzer & Frymier, 1999), and help married partners manage conflict (Alberts, 1990). As such, humor is intentionally used in a variety of contexts to enhance the social interaction. These positive effects of humor as an interactional coping mechanism plausibly span a wide range of chronic illnesses including cardiovascular disease. Based on these studies, it is reasonable to expect that humor can be a valuable communicative tool that enhances a patient's relational satisfaction with their companion, which can ultimately promote the patient's health.

### **The Intentional Functions of Humor**

Graham et al. (1992) note that humor might be a form of communication that fulfills many interpersonal functions (p. 175). In fact, Graham et al. (1992) describe 24 possible functions of humor (p. 167). These functions are contingent upon the contextual components of interaction (e.g. relationship type, setting, subject of conversation) (Meyer, 2000). For instance, Graham et al. (1992) note that humor can function as a tool of diversion allowing individuals to avoid disclosing personal information. On the other hand, Graham (1995) also notes that humor also serves as a way of developing friendships by exhibiting expressiveness. These examples imply that humor is not a set characteristic or trait, but instead an adaptable communicative behavior that is a situational, strategic, and impactful relational management tool for cardiovascular patients. These functions of humor are not necessarily mutually exclusive, as one can use humor as a tool to limit social distance and also divert their attention away from negative affects.

Humor functions can be organized into either self-oriented, or other-oriented. These two basic distinctions between the orientations of humor are derived from the humor functionality research. Graham et al. (1992) found that the function of humor has a positive or negative social effect (e.g. develop friendships, demean others), or an expressive function, which seeks to accomplish more self-oriented goals (disclose information, express feelings). Within these two categories exist five subcategories, which provide a framework for better understanding cardiovascular patient's function of humor as both a health and relational device. This division allows for a more detailed level of insight as to the intent of the humorous message. In other words, is the intent of the humor designed to primarily impact the patient or their companion? Although these distinctions are not mutually exclusive, their differences are significant in that they illuminate the strategic intent of utilizing humor and help ascertain the extent to which the functions of humor influence relationship satisfaction.

The health benefits of humor following a cardiovascular event can be explained by the numerous sub-functions it serves related to cardiovascular recovery. These functions are derived from interactive goals, such as disclosing information to a companion, getting conversation started, or even avoiding conversation about their medical event. For instance, humor functioning as an avoidance tool can affect relationship satisfaction. When a patient uses humor to avoid the situation, the companion may demand more information creating a demand-withdraw cycle, resulting in a dissatisfied relationship (Caughlin & Scott 2010). By accomplishing such goals as avoidance, the patient fulfills an individual or other-oriented desire, which influences the rate of recovery. Ultimately, the various functions of humor provide insight as to how both humor and its association with relational satisfaction may enhance a patient's health.

**Self-oriented functions of humor.** Self-oriented humor is designed to benefit the patient. Although social group benefits may result, the primary intent of the humorous message is to benefit the patient exemplified by three metaphorical functions: Distracter, antidote, and regulator.

***Humor as a distracter.*** Humor can be a device that strategically diverts attention (Graham et al., 1992). A common theme among existing research is that individuals use humor as a tool of diversion from the stresses of everyday life. In this case, humor is used to temporarily distract individuals from tension filled situations or perceived moments of instability (Graham et al. 1992). For example, Alberts (1990) found that the use of humor dissipated anger or tension when couples were engaged in conflict (p. 111). For these couples, humor served to release conversational tension or unused energy in an attempt to distract the individual from their current perspective, emotion, or attitude (Graham et al., 1992, p. 162). Through laughter, jokes, and play, the couple in conflict released nervous energy allowing them to escape or divert themselves from the tension filled moment (Alberts, 1990). This finding is particularly salient to cardiovascular disease patients, as some may accumulate stress or unused emotional energy (e.g. fear of surgery or mortality). Consequently, cardiovascular patients may use humor to distract themselves from the high levels of stress or fear often associated with chronic illnesses.

Chronic illness typically produces tension, or perceived moments of instability; therefore, patients use humor to escape the role of the patient and relieve tensions associated with the illness (Scholl & Ragan, 2003). In doing so, patients temporarily redirect their concerns and momentarily release high levels of anxiety (Graham et al., 1992, p. 166). However, the distracter function does not imply that humor solves or cures feelings of discomfort. Instead, it “diverts” the patient’s frame of thinking and subsequently intentionally avoids the current state of being. Humor functioning as a distracter then benefits the patient by allowing the opportunity to escape

and relieve the nervous energy associate with being a patient. Distracting humor reframes their mindset into a more optimistic approach and allows patients to distance themselves from the illness.

***Humor as an antidote.*** Humor as an antidote is different from the distracter function primarily in its intent. Unlike the distracter function, humor as an antidote is used to address and cure the current state of being. By its very means, this functionality emphasizes humor as a coping mechanism (Smith, Ascough, Ettinger, & Nelson, 1971). Much like the use of an antidote, humor corrects, fixes, or instills a sudden happiness increment (e.g. feeling of superiority, relief, or arousal) (La Fave, Haddad, & Maesen, 1976). The antidotal function of humor produces a desired outcome that reflects the patient's need at that particular moment. For instance, the lifestyle changes caused by cardiovascular disease (e.g. new eating habits, exercise, medications, doctor visits) can produce negativity and resistance on the part of the patient. In order to alleviate the discomfort caused by change, the patient can resort to antidotal humor to instill psychological positivity. As such, the antidotal function of humor has a positive emotional effect when properly executed to meet the needs of the patient. Ultimately, the implementation of antidotal humor can serve as a preventative or reactive medicine minimizing the discomfort and increasing the cardiovascular patient's health.

Humor functioning as an antidote can also increase psychological well-being of the patient when introduced to new and challenging medical information. For example, Graham et al. (1992) found that new employees use humor when introduced to new work settings as a way of managing change. These employees used humor to reduce the anxiety and apprehension associated with the introduction of new information (Graham et al., 1992). Much like new employees, cardiovascular patients endure overwhelming amounts of new information during each medical visit. Patients ease moments of anxiety and stress through the use of humor

functioning as an antidote. Eventually, humor's antidotal functions can aid the patient by minimizing the discomfort of drastic lifestyle changes associated with cardiovascular disease.

***Humor as a regulator.*** Humor functions to provide a patient with a sense of control (Graham et al., 1992, p. 166). Goodchilds' (1959) observations of small group decision making support that idea humor demonstrates social control. Goodchilds (1959) found that individuals use humor to portray a facade of competence and power. Specifically, humor is used to regain control of a conversation and as such, demonstrates social dominance. For instance, Obrdlik, (1942) claims that disclosing information using humor introduces new topics and asserts control of the conversation (Obrdlik, 1942). Humor in this instance, empowers an individual to extend the boundaries of the conversation and implement new social norms (Meyer, 2000). As mentioned earlier, a cardiovascular patient's social well-being is a manageable element of health that they can effectively control. Thus, patient-initiated humor provides the patient a way of controlling conversation about their health, much like Goodchilds, Orrick, and Meyer's research suggests (1959; 1942; 2000).

To illustrate, humor functioning as a regulator provides the patient the opportunity to extract necessary information from their physician, nurses, and companions helping the patient to preserve and exhibit control over the social elements of their health (Graham et al. 1992, p. 166). Using this function of humor allows the patient to maintain conversation with the physician and acquire information that might otherwise be difficult to obtain. A patient might also want to limit the amount of medical related conversation they have with their partner to reduce concern or worry. In this case, humor regulates control of what information the patient discloses as they carefully navigate conversational topics. Ultimately, utilizing this function of humor does not necessarily eradicate negative feelings, but rather provides the individual with a perceived sense

of control over social and physical health. The individual using the humor is regulating the communication and consequently retaining control over their health via social interaction.

**Other-oriented functions of humor.** Other-oriented humor is designed to benefit the members within the social group, including companions, family members, physicians, and technicians. Patients are likely to utilize humor most frequently with individuals they feel most comfortable with during a medical event. In this case, other-oriented functions of patient initiated humor are intended to maintain or manage an existing relationship with a companion. Thus, this study will investigate the other-oriented functions of humor as it pertains to the primary companion of the cardiovascular patient.

*Humor as a social magnet.* Research suggests that humor can either create or decrease distance between two individuals (Cheatwood, 1983, as cited by Graham et al., 1992, p. 165). Meyer (2000) notes that humor serves to differentiate and contrast communicator's views, opinions, and social groups. For instance, bullying humor is often used to demonstrate power and egocentricism, but it also serves to invoke alliances and distinctions (Meyer, 2000). Although it is not expected that cardiovascular patients commonly use humor to distance themselves from their companion, it is important to consider the possibility. For instance, it is feasible to consider that the patient desires greater independence and autonomy during recovery. Therefore, the patient may employ humor to create social space between themselves and their companion. However, the social support of a companion has been found to enhance health (Kawachi & Berkman, 2001) and therefore, the uniting aspect of humor is arguably most salient to social health.

Humor is a cohesive device that unites people to establish a sense of closeness. Humor as a social magnet is attributed to humor increasing liking, creating a sense of commonality, and decreasing social distance (Mettee et al., 1971). Research shows that humor is an antecedent to

interpersonal attraction increasing liking and attraction (Kane, Suls, & Tedeschi, 1977 as cited in Graham et al., 1992, p. 165; Mettee et al., 1971). One possible explanation is that humor establishes a sense of commonality. As Graham et al. (1992) state, “Humor allows group members to share common experiences and to probe the attitudes, perceptions and feelings of other group members in a non-threatening manner” (p. 166). Humorous messages are then used to detect commonality and negotiate self-disclosure. Therefore, liking and personal attraction is a result of commonality stimulated by the use of humor.

Humor also enhances social solidarity, possibly by enhancing identification and building group cohesiveness (Meyer, 2000). For instance, mutual teasing between individuals provides solidarity by helping them to realize that they share a common perspective (Graham et al., 1992, p. 166). Obrdick (1942) also found that humor helps build community and reinforces group cohesion. Humor in the form of teasing can establish camaraderie, or it can hallmark that such a relationship has been achieved, as it serves to create and remind the partners of their bonding (Alberts, 1990, p. 109). Therefore, as individuals become more familiar with one another, relational teasing and play indicate intimacy or a point of escalation in the relationship. Casado-Kehoe, Vanderbleekm, and Thanasiu (2007) also suggest that teasing and play in intimate relationships can enhance communication and social bonding. Indeed the integration of humor, particularly teasing, can provide a greater sense of connectedness and unity especially with regard to providers and their patients (Scholl & Ragan, 2003).

Humor as social magnet has important implications for cardiovascular patients. This management of social distance has significant relational implications as it may enhance group solidarity (Kaplan & Boyd, 1965 as cited by Graham et al., 1992, p. 166). Functioning as a social magnet, humor allows the individual to manage and negotiate the role of social support. Whether humor attracts or repels social support, the patient strategically uses humor as a way to manage

such boundaries. This is particularly relevant to patients and their companions, as the patient's use of humor as a social magnet can either attract or distance the patient from their primary support system (their companion).

***Humor as a conversational lubricant.*** Humor aids the flow of conversation or information seeking that would normally not be obtained through ordinary dialogue. Unlike the magnet function, using humor as a conversational lubricant implies that specific information can be acquired through the use of humorous messages that would not necessarily be traditionally socially appropriate. Humor serves a facilitating role for a variety of conversations (Graham et al., 1992, p. 165). By facilitating conversation, humor allows patients to investigate or transmit information in new, creative, and strategic ways that is perceived as socially appropriate. By not using humor, disclosing personal information may seem difficult and even perhaps socially unacceptable (Graham et al., 1992). For example, a companion might ask the cardiovascular patient about their new diet in a humorous manner such as, "How are you enjoying the cardboard diet?" By asking this question in a humorous way, the companion might acquire more information about the patient's feelings, attitudes, and perceptions of the new eating habits. Thus, the companion uses information seeking behaviors in a non-threatening manner (Linstead, 1985 in Graham et al., 1992, p. 16).

This humor function allows the cardiovascular patient to begin difficult conversations with their companion. These difficult conversations can even include topics of great severity including death, and financial obligations (McCarthy & Addington-Hall, 1997). Thus, cardiovascular patients can introduce and expand on taboo topics with their companion that would otherwise traditionally be avoided. Humor then stimulates a new and different way of conversing and allows patients to feel at ease when discussing serious matters.



In sum, humor enhances an individual's health. Yet, it is unclear as to which functions are most strongly associated with greater health. For example, a cardiovascular patient experiencing poor health may use humor as a distracter. In doing so, the patient uses humor to distract herself from the physical challenges associated with recovery (i.e. exercise, rehabilitation, etc.). Meanwhile, as health increases, the same patient could use humor as a conversational lubricant to help her companion better understand the need for additional social support. Ultimately, cardiovascular patients endure physical and mental changes. As the patient's health fluctuates, the function of humor varies as the patients' social needs and goals change to accommodate the situation. However, research provides little guidance on how specific humor functions could correlate to health. To further examine this issue, one hypothesis and a research question are posed:

**H1:** Greater reports of humor functions predict increased reports of health.

**RQ1:** Which functions of humor are associated with greater health among cardiovascular patients?

As patients experience a fluctuation in their health they are likely to utilize functions of humor that best suit their desired needs. Because the aforementioned functions of humor serve as tools to accomplish dynamic self and social goals, patients use different functions to accommodate various stages in health. For instance, a recently diagnosed cardiovascular patient who perceives s/he is not healthy may use humor that functions as a social magnet. In this case, the patient's humor functioning as a social magnet may enhance their social support in hopes of obtaining greater networking and support. However, patients perceiving a different stage of health may require more patient control and individual efficacy deeming humor as a regulator the most appropriate form of communication. To the extent that these patients and their companions manage health through dialogue, humor helps them make sense of their current situation

(Graham et al., 1992, p. 163). This includes a better understanding about the progress of their recovery and the satisfaction of their relationship with their companion. Therefore, patients are likely to adapt and alter the function of humor to accommodate their social needs/goals during various instances of perceived health.

Companionship is one of the most important aspects of recovery from a cardiovascular event. Companions offer caregiving, support, and positive interaction experiences. Humor plays a crucial role in relationship development and maintenance between a patient and their companion (Graham & Rubin, 1987 as cited in Graham et al., 1992, p. 161). In fact, humor research indicates that humor has a positive or negative effect on relationship satisfaction level depending on its function (Canary, Stafford, Hauser, & Wallace, 1993). One possible function of humor is an attempt to enhance social closeness, unity, and solidarity (humor as a social magnet). Humor can then increase liking and attraction and in doing so plays an important role in the development of interpersonal relationships (Graham & Rubin, 1987, as cited in Graham et al., 1992, p. 165). As cardiovascular patients incorporate humor into their stages of health, the interaction demonstrates commonality resulting in increased satisfaction levels between patient and companion.

Additional functions of humor are also indicative and conducive to relationship satisfaction. For instance, humor used as a conversational lubricant can help initiate the patient's disclosure of their medical or emotional status to their companion (Graham et al., 1992, p. 175). Disclosing information during this stage allows conversation to ensue and hence can increase relational satisfaction between the patient and their companion.

In contrast, humor used as a distracter may serve as a communicative barrier for the patient's companion, subsequently increasing uncertainty, curiosity, and concern. Dissatisfaction will likely ensue, and the patient-companion relationship satisfaction levels will plummet. In

both examples, social support fluctuates due to the function of humor, which alters the patient's health. As with functions and health, it is still unclear as to how functions are associated with relational satisfaction. In particular, few studies have associated specific humor functions with relationship satisfaction levels, especially for chronically ill patients. As Martin (2001) suggests, future research should distinguish between types of humor that are conducive to greater relationship satisfaction (p. 516). Thus, this study is guided by a second hypothesis and research question:

**H2:** Increased reports of humor functions positively predict greater relational satisfaction.

**R2:** Which functions of humor are associated with greater relational satisfaction?

### **Relationship Satisfaction and Health**

Personal relationship research has made claims suggesting that social support is related to many health aspects. First, social support has been linked to physiological benefits. Research has noted that social support is associated with reduced incidence of various diseases (Goldsmith, 2004). Additionally, social support has also been found to expedite recovery from illness and increase longevity (Goldsmith, 2004). In comparison to solitary individuals, those with social support live longer, healthier lives (Seeman, 2001). Most importantly, social support and relational satisfaction have been linked to cardiovascular stimulation (Uno et al., 2002). Uno et al. (2002), found that relationship quality correlates with cardiac contractility and output. As such, relationships stimulate the cardiovascular system, enhance health, and increase longevity.

Secondly, social support has been linked to psychological benefits. Many studies have found that those with few close relationships and smaller social networks are linked to symptoms of depression (Kawachi & Berkman, 2001). Therefore, access to social support enhances positive affective states and stimulates health-promoting behaviors (Kawachi & Berkman, 2001). For instance, Suwannimitr, et al, (2010) found that patients with adequate social support became

more self-determinant and benefited from self-care activities. In this case, personal relationships have been found to empower the patient with both knowledge of self-care and greater coping efficacy (Goldsmith, 2004).

Supportive relationships such as family and communal relationships also serve as resources valuable to improving psychological well-being (Reich, Lounsbury, Zaid-Muhammad, & Rapkin, 2010). These supportive social networks aid the mental health of the patient by warding off loneliness, hopelessness, and reinforcing positivity (Reich et al., 2010). Without social support, the patient may lack the much needed comfort, aid, and information needed to make a proper recovery. Ultimately, social involvement serves as a stress-buffer providing positive affective experiences, which enhance psychological well-being (Goldsmith, 2004).

Finally, relationships benefit social health. Goldsmith (2004) claims that personal relationships expand access to additional types of social support. For example, a patient's personal relationship with their companion may expand their social support network with hospital staff. The extension of social support increases access to various functions of support including tangible support (e.g., offers of good and services), informational support (e.g. advice) and emotional support (e.g., expressions of care and concern) (Goldsmith, 2004). Additionally, relationship development and maintenance has been found to boost the patient's social well-being (Canary, et al., 1993). With extended social networks and increased relational satisfaction, patients are better able to cope with various illnesses (Lefcourt, 2001). Thus, it is evident that relationships benefit a patient's physiological, psychological, and social health.

If the function of humor influences both the patient's health and their relationship with their companion, and if relational satisfaction affects the patient's health, then one might reasonably expect that relational satisfaction would explain the connection between humor functions and health. Humor associated with relational satisfaction can consequently enhance

health due to increased functionality in the ways suggested above. Based on the literature presented including the health benefits of humor, humor's association with relationship satisfaction, and the health benefits of satisfying relationships, the central hypothesis is stated:

**H3:** Relational satisfaction level will mediate the relationship between humor functions and health.

## **Method**

### **Participants**

Those participating in this study consisted of both Mended Hearts and WomenHeart support group members across the nation. Mended Hearts is a nonprofit organization that is partnered with over 460 hospitals and rehabilitation clinics nationwide. Their services include visitation programs, support group meetings and educational forums that are open to those impacted by cardiovascular disease. Mended Hearts chapters generally consist of 20-60 enrolled members.

An additional collection of members from the WomenHeart support group were also utilized in the study. The WomenHeart support group is a nonprofit online service dedicated to promoting heart health through advocacy, education, and patient support. Members use the support group forum to share stories and advice on a daily basis. Eligible participants were required to have cardiovascular disease and a companion who accompanied the patient through the medical process. Participants represented various diagnoses of cardiovascular diseases and had completed medical treatment.

A total of 122 Mended Heart and WomenHeart Members volunteered for the study. The data for 92 participants are reported here, as 30 (24.6%) participants chose to not complete the survey after beginning. Of the participants who completed the study, most were female ( $n = 52$ ,

56.5%) and Caucasian ( $n = 82$ ; 94.6%) with an average age of 58 years old ( $SD = 15.24$ , median = 59) ranging from 20 to 91 years old.

## Measures

**Health.** To assess the patient's current health, participants were first asked to complete Meza and Fahoome's (2008) Self-Integration Scale (v. 2.1). This scale is a psychometric index of items built from the heritage of the biopsychosocial model of health, which is representative of the social and psychological construct domains previously mentioned in the biopsychosocial conceptualization of health. Thus, the Self-Integration Scale aims to describe the social and psychological construct by quantifying attributes of health.

The instrument includes 18 total items, nine for each domain, each of which was measured on a five-point Likert-scale (1 = *very rarely*, 5 = *most of the time*). Questions asked the participants to what extent the following statement describes the way they are. For example, social health items include, "I know how to ask for help when I need it," and "I have someone that I can tell my deepest darkest secrets and still feel safe." Ratings were scaled in a positive direction for this subscale (i.e. higher scores denoted health). Participants reported strong social health ( $M = 4.03$ ,  $SD = .66$ , median = 4.22, range = 3). Inter-item reliability analysis indicated acceptable internal consistency among the items ( $\alpha = .73$ ).

The Self-Integration Scale also measured the psychological health domain. Again, this domain consisted of nine questions each of which was measured on a five-point Likert-scale (1 = *very rarely*, 5 = *most of the time*). Psychological health questions included, "When my future is uncertain, I have a basic sense of trust that things will turn out OK," and "I believe that life isn't fair to me." Again, ratings were scaled in a positive direction (1 = *very rarely*, 5 = *most of the time*) and participants reported strong psychological health ( $M = 4.12$ ,  $SD = .60$ , median = 4.22,

range = 3). Inter-item reliability analysis indicated good internal consistency among the items ( $\alpha = .80$ ).

The physical domain section of the World Health Organization Quality of Life Scale-Brief (WHOQOL-BREF; McDowell, 2006) was used to supplement the Self-Integration Scale. The WHOQOL-BREF is the abbreviated version of the larger quality of life scale (WHOQOL-100). For purposes of this study, only the physical domain was adopted to measure the biological construct of health. A total of seven, five-point Likert-scale items were used to measure the physical health domain (1 = *not at all*, 5 = *an extreme amount*). Items of the subscale included, “To what extent do you feel that physical pain prevents you from doing what you need to do,” and “How much do you need any medical treatment to function in your daily life?” Inter-item reliability analysis indicated high internal consistency among the items ( $\alpha = .85$ ). This is consistent with other studies, which have found similar levels of internal consistency for the physical domain, ranging from 0.74 to 0.84 (McDowell, 2006). Ratings were scaled in a positive direction and participants reported being moderately physically healthy ( $M = 3.68$ ,  $SD = .75$ , median = 3.29, range = 3.14).

**Humor.** To assess the degree to which humor was used between the participants, the respondents were asked to complete the Humor Orientation Scale designed by Booth-Butterfield and Booth-Butterfield (1991). The Humor Orientation Scale consists of 17 total Likert-scale items designed to measure an individual’s predisposition to using humor regularly in social interaction (1 = *strongly disagree*, 5 = *strongly agree*). Items include, “People often ask me to tell jokes or stories,” “I use humor to communicate in a variety of situations,” and “I can be funny without having to rehearse a joke.” Participants reported having moderate humor orientation ( $M = 3.73$ ,  $SD = .68$ , median = 3.76, range = 3). Inter-item reliability analysis indicated high internal consistency among the items ( $\alpha = .94$ ). This reliability level is consistent

with Booth-Butterfield and Booth-Butterfield (1991) reported internal consistency ( $\alpha = .93$ ), and acceptable test-retest stability (0.70).

To assess the humor functions, participants were first asked to reflect on a moment in which they initiated a humorous conversation with their companion regarding their health. A companion was defined as anyone the participant believes has offered the most support in their recovery process. They were then asked to indicate their relationship type with their companion (e.g. romantic partner, father, daughter, etc.), and to indicate when the conversation occurred (e.g. today, a few days ago, a week ago, etc.). A romantic partner was the most frequently reported companion ( $n = 38, 41.3\%$ ), followed by the companion of a friend ( $n = 15, 16.3\%$ ). Other less reported companions included daughters ( $n = 5, 5.4\%$ ), sisters ( $n = 3, 3.3\%$ ), and mothers ( $n = 3, 3.3\%$ ). Meanwhile the participants reported a humorous conversation during their health event that occurred a year ago ( $n = 29, 31.5\%$ ). Other occurrences of humor reported about the health event included a few months ago ( $n = 25, 27.2\%$ ), and a few days ago ( $n = 13, 14.1\%$ ).

Next, participants completed 16 Likert-scale items (1 = *strongly disagree*, 5 = *strongly agree*), indicating the extent to which they agreed that the humor served each of the five functions in the anecdote. The underlying structure of the items was examined by performing a principal components factor analysis with varimax rotation. The criteria for selection including the following: (a) an eigenvalue greater than 1.0; (b) a primary factor loading of at least .50; and (c) minimum difference of .20 on secondary loadings. The solution yielded three components measured by 14 items, together accounting for 67% of the total variance. The components were similar to the theoretical conception proposed in the literature review and are summarized on Table 1.



The first component was named *antidote* (eigenvalue = 7.86) and accounted for 48.1% of the total variance. It was defined by eight items depicting humor as a cure to negative affective states. This component reflects a need to alleviate and control the negative affects associated with chronic illness (e.g., I often use humor to redirect my concerns, and I often use humor to cope with cardiovascular disease).

The second component was named *social lubricant* (eigenvalue = 1.71), and it accounted for 10.7% of the total variance. It was defined by five items reflecting pro-social behaviors of humor. This component depicted humor as a tool for accomplishing social or conversational goals (e.g., I often use humor to start a difficult conversation, and I often use humor to entertain my companion).

The third component, labeled *distancing* (eigenvalue = 1.61), accounting for 7.26% of the total variance. It was defined by one item reflecting anti-social behaviors. This component reflected humor as a way of distancing the patient from their companion. (e.g., I often use humor to distance myself from my companion).

**Relationship Satisfaction.** The participants' perceived level of relationship satisfaction was measured with Rusbult, Martz, and Agnew's (1998) global relationships satisfaction scale. A total of five items asked participants to recollect their relationship satisfaction during their current state of health with their companion on a five-point Likert scale (5= agree completely; 1= do not agree at all). Participants reported having moderate relational satisfaction with their companion ( $M = 3.87$ ,  $SD = .97$ , median = 4.00, range = 4). Inter-item reliability analysis indicated high internal consistency among the items ( $\alpha = .95$ ). This is also consistent with other studies, which have found similar levels of internal consistency ranging from 0.92 to 0.95 (Rusbult et al., 1998). Table 2 summarizes of the descriptive qualities of the major study

variables. Additionally, the correlations between the major variables are summarized on Table 3.

## **Procedure**

Access to the Mended Hearts organization was obtained through membership with a local chapter and attendance at monthly meetings. Membership included interaction with members through email, monthly meetings, and phone calls. Access to the WomenHeart support group was obtained through a referral by a Mended Hearts member.

Following approval from the University's Institutional Review Board, volunteers were recruited for participation through network sampling procedures. Local participants were recruited in person, and participants in non-local regions were recruited via email messages. Considering that many chapters use email messages to distribute monthly electronic newsletters, the researcher contacted chapter presidents to gain access and permission to email members. Email messages were sent to chapter members containing a link to the online questionnaire asking for their participation in the study. Additionally, one chapter posted a link to the survey on their website and in their newsletter, and a WomenHeart member posted the survey link on the support group's discussion board. Those who completed the online survey consented. All participants were reminded that their responses must include a humorous conversation with their companion, and reminded about the date on which the study would end.

## **Results**

Hypothesis 1, that increased reports of humor functions would result in greater reports of health, was partially supported. The hypothesis was tested using a set of simultaneous entry multiple regression models. Table 4 summarizes the results. The first model examined the effect of the three humor functions on physical health. The results indicated no significant effect of any of the three humor functions ( $R = .20$ ,  $F [3, 2.01] = 1.22$ ,  $p = .38$ ). The second model tested the

effects of the three humor functions on psychological health. The results showed a significant multivariate effect ( $R = .40$ ,  $F [3, 5.25] = 5.62$ ,  $p < .001$ ,  $R^2 = .16$ ). Specifically, the antidote, social lubrication, and distancing functions all affected psychological health ( $\beta = .26$ ,  $t = 1.98$ ,  $p < .05$ ;  $\beta = -.28$ ,  $t = -2.17$ ,  $p < .05$ ;  $\beta = -.35$ ,  $t = -3.51$ ,  $p < .001$ , respectively), albeit in some unexpected directions.

The third model examined the effects of the humor functions on social health. The results also showed a significant multivariate effect ( $R = .36$ ,  $F [3, 5.12] = 4.34$ ,  $p < .05$ ,  $R^2 = .13$ ). However, only the antidote and distancing functions predicted social health ( $\beta = .34$ ,  $t = 2.55$ ,  $p < .05$ ;  $\beta = -.30$ ,  $t = -2.94$ ,  $p < .001$  respectively). In short, the results partially support H1. Specifically, antidote humor increased psychological and social health. However, social lubrication decreased psychological health, and distancing humor decreased both psychological and social health. No connections between any humor functions and physical health emerged.

Research Question 1 investigated which humor functions are associated with greater health. As above, the results show that antidote humor was the only humor function to positively predict health. Specifically, reports of antidote humor positively related to increased reports of psychological ( $B = .26$ ,  $t = 1.98$ ,  $p < .05$ ) and social health ( $B = .34$ ,  $t = 2.55$ ,  $p < .05$ ).

Hypothesis 2, that increased reports of humor functions would predict greater relational satisfaction, was not supported. This hypothesis was tested using a simultaneous entry multiple regression model with the three humor functions entered as independent variables and relationship satisfaction as the dependent variable. Although the results show a significant multivariate effect on relationship satisfaction ( $R = .49$ ,  $F [3, 20.43] = 9.30$ ,  $p < .001$ ,  $R^2 = .24$ ), antidote humor was unrelated to satisfaction ( $\beta = .16$ ,  $t = 1.31$ ,  $p = .19$ ) and unexpectedly, social lubrication and distancing actually predicted negative levels of relationship satisfaction ( $\beta = -.28$ ,  $t = -2.24$ ,  $p < .05$ ;  $\beta = -.44$ ,  $t = -4.67$ ,  $p < .01$  respectively). Table 5 summarizes the results.

Research Question 2 investigated which humor functions are associated with greater reports of relationship satisfaction. Results from the aforementioned multiple regression models indicated that none of the functions were positively associated with greater reports of relationship satisfaction.

Baron and Kenny's (1986) rules for testing mediation were followed to test Hypothesis 3, that relationship satisfaction will mediate the relationship between humor functions and health. According to Baron and Kenny (1986), in order for mediation to hold, three criteria must first be met. First, the independent variable must affect the mediator in the first equation. Second, the independent variable must affect the dependent variable in the second equation. Third, the mediator must affect the dependent variable in the final equation. Finally, when the relationship between the independent variable and dependent variable is tested while controlling for the mediator, the effect must be nonsignificant.

As reported above and in Table 4, no humor functions were related to physical health. In fact, the only humor function independently related to both health and relationship satisfaction (thus fulfilling the first two criteria for mediation testing) was distancing. Therefore, we examined this function for mediated effects on the types of health to which it was related.

The first test we conducted was between distancing and social health. As above, distancing was negatively related to satisfaction ( $\beta = -.44, t = -4.67, p < .01$ ) and negatively related to social health ( $\beta = -.30, t = -2.94, p < .001$ ). When testing the relationship between distancing humor and social health while controlling for satisfaction, the effects became nonsignificant ( $\beta = .01, t = .07, p = .95$ ). Table 6 summarizes the results. Thus, relationship satisfaction fully mediates the relationship between the distancing humor function and social health (Figure 2).

The second test we conducted was between distancing and psychological health. As above, a negative relationship existed between distancing humor and satisfaction ( $\beta = -.44, t = -4.67, p < .01$ ), as well as between distancing and psychological health ( $\beta = -.35, t = -3.51, p < .001$ ). When testing the relationship between distancing and psychological health while controlling for relationships satisfaction, the effect became nonsignificant ( $\beta = -.10, t = -1.07, p = .29$ ). Table 7 summarizes the results. Thus, relationship satisfaction fully mediates the relationship between distancing and psychological health (Figure 2). Again contrary to our expectations, the relationship between those factors was a negative one.

### **Supplemental Analyses**

The current study assessed the use of humor functions by having participants respond to items that assumed frequent use of humor for specific reasons. For example, responding to an item reading, “I often use humor to distance myself from my companion” would require a participant to reference the frequency with which s/he was humorous at all. If that were the case, then the mediated relationship between “humor function” on social and psychological health could be an artifact of the frequency of humor usage and not the *function* of humor per se. The concern here is that the measure of humor functions was confounded by the frequency of humor usage.

Although this study did not include a direct measure of humor frequency, it did include a measure of the participants’ humor orientation, or the degree to which a person believes that he/she is receptive to humor and able to produce humorous messages. As in Table 3, humor orientation was correlated with all three functions, and social health. But only distancing was related to social health. Using this measure as a proxy for overall humor frequency, the effects of humor functions on health were tested while controlling for humor orientation. If the effects of humor orientation (i.e. frequency) mediates the relationship between humor functions and health,

then no significant effect of the humor functions while controlling for humor orientation should emerge. A simultaneous entry multiple regression model, with all three humor functions and humor orientation as the independent variables and psychological health as the dependent variable showed a significant multivariate effect, ( $R = .41$ ,  $F [4, 5.51]$ ,  $p < .05$ ,  $R^2 = .17$ ). After controlling for humor orientation, the univariate effects showed significant effects of the social lubrication ( $\beta = -.29$ ,  $t = -2.23$ ,  $p < .05$ ) and distancing functions ( $\beta = -.31$ ,  $t = -2.85$ ,  $p < .05$ ). Thus, humor orientation does not mediate the effects of humor functions on psychological health.

Secondly, a simultaneous entry multiple regression model, with all three humor functions and humor orientation as the independent variables and social health as the dependent variable also showed a significant multivariate effect, ( $R = .40$ ,  $F [4, 6.23]$ ,  $p < .05$ ,  $R^2 = .16$ ). After controlling for humor orientation, the univariate effects showed significant effects of the antidote ( $\beta = -.28$ ,  $t = 2.05$ ,  $p < .05$ ) and distancing functions ( $\beta = -.22$ ,  $t = -2.04$ ,  $p < .05$ ). Thus, humor orientation is not a complete explanation of the effects of humor functions on social health.

Given the previous analyses, one could also argue that the mediated relationship between “humor function” on social and psychological health could be an artifact of the frequency of humor usage and not relationship satisfaction. Thus, additional regression analyses were conducted by including humor orientation into the regression models. A simultaneous entry multiple regression model with all three humor functions, humor orientation, and satisfaction as the independent variables and psychological health as the dependent variable showed a significant multivariate effect ( $R = .60$ ,  $F [5, 11.62]$ ,  $p < .001$ ,  $R^2 = .36$ ). After controlling for relationship satisfaction, the univariate effects were non-significant. Yet, relationship satisfaction continued to show a significant effect ( $\beta = .55$ ,  $t = 5.90$ ,  $p < .001$ ). Thus, relationship satisfaction fully mediates the effects of humor functions on psychological health.

Finally, a simultaneous entry multiple regression model with all three humor functions, humor orientation, and satisfaction as the independent variables and social health as the dependent variable showed a significant multivariate effect, ( $R = .66$ ,  $F [5, 17.29]$ ,  $p < .001$ ,  $R^2 = .45$ ). After controlling for relationship satisfaction, humor orientation continued to show a significant effect on social health ( $\beta = .23$ ,  $t = 2.64$ ,  $p < .01$ ). Meanwhile, relationship satisfaction continued to show a significant effect ( $\beta = .60$ ,  $t = 6.93$ ,  $p < .001$ ). Thus, relationship satisfaction does not mediate the effects of humor functions on social health.

### **Discussion**

The purpose of this study was to examine the notion that patient-initiated humor is associated with enhanced states of health. The study began with the proposition that humor would affect health to the extent that it increased satisfaction with one's relationship. The results support the idea that humor functions, relationship satisfaction, and health are associated, albeit in some unexpected directions.

#### **The Functions of Humor in Cardiovascular Recovery**

This study confirms previous findings that humor functions in variety of ways, although fewer functions emerged than past literature suggests. The principal components analysis revealed three factors, which were labeled antidote, social lubricant, and distancing functions. The antidote function invokes the intent to reframe one's state of mind in hopes of inducing a sudden happiness increment. This function is consistent with other research showing that humor functions to reduce tension (Scholl & Ragan, 2003) and alleviate anxiety (Graham et al., 1992). The use of humor as an "antidote" also confirms others' propositions that humor helps patients cope with illness (Smith et al., 1971) and demonstrate control over their health (Rossell, 1981). Ultimately, antidotal humor functions are intended to minimize discomfort and produce a desired outcome associated with implementing change to negative affects. By implication, antidotal

humor serves an important self-oriented function of improving the cardiovascular patient's current affective state. Indeed, as Smith et al. (1971) and Wanzer et al. (2009) have noted, humor is a coping mechanism.

The second factor, social lubricant, reflects the intent to enhance social interaction. Whether humor is used to start and manage conversation, or entertain the companion, it involves pro-social behaviors aimed to establish a social bond. This function is designed to decrease social distance and promote commonality between people. Cardiovascular patients appear to use this function of humor in an attempt to enhance commonality and entertain their companion. This finding is consistent with other research showing that patients utilize humor as a tool for self-disclosure to start conversation (McCarthy & Addington-Hall, 1997). Humor subsequently allows the self to become known and promotes likability (Mettee et al., 1971). Thus, the emergence of the social lubricant function validates previous findings that humor can function as a pro-social catalyst intended to engage the patient's companion in conversation and interaction.

While humor may be used for pro-social behaviors (to start conversation and entertainment) (McCarthy & Addington-Hall, 1997; Mettee et al. 1971), the analyses also indicate that humor can function to distance patients from their companion. This finding is consistent with Meyer's (2000) claim that humor has a differentiation function used to contrast oneself from others. Meyer (2000) contends that humor is used to differentiate in order to make differences clearer and less colored by previous emotion. Humor functioning to promote distancing establishes a distinction between the patient and their companion with regard to opinions, views, or even health. Therefore, the distancing function is a form of identification in which the patient enhances and clarifies differences (Meyer, 2000).

Overall, these three factors (e.g. antidote, social lubricant, and distancing) are roughly consistent with functions uncovered in other studies (Graham et al., 1992). According to Graham



et al. (1992), for example, humor fulfills three main functions: positive affect, expressiveness, and negative affect. Positive affect can be seen as offering inclusion (i.e. humor helps increase social solidarity and cohesion) (Wuerffel, 1986). For instance, using humor to develop friendships and be playful. Humor can also be seen as an expressive motive through self-disclosure (i.e. humor helps being conversation) (McCarthy & Addington-Hall, 1997). Negative uses of humor can be seen as control and resistance (i.e. using humor to demean or tease) (Graham et al, 1992). Although fewer functions existed than predicted, the factors are similar to those found for populations without chronic illness, suggesting that some humor functions are consistent throughout various life stages and events (Graham et al, 1992).

The emergence of these three functions is perhaps indicative of the immediacy involved in recovering from a life-threatening medical event. Unlike other contexts, cardiovascular patients do not commonly use humor with the intent to distract themselves from the situation or regulate conversation. Instead, patients use humor to fulfill more immediate goals such as curing negative affective states and fostering conversation. By using antidotal humor, patients are immediately engaging in coping, whereas the distracter function, which did not emerge, simply defers the coping process. Perhaps these three functions of humor emerged due to their capacity to fulfill more immediate goals salient to cardiovascular recovery.

### **Connections Between Humor and Health**

Hypothesis 1 predicted that greater reports of humor functions would associate with increased reports of health. Although physical health was predicted by none of the three functions, we found that psychological and social health were predicted by increased reports of the antidote function. This finding is consistent with other literature showing that humor instills a sudden happiness increment (e.g. feeling of relief) (La Fave, Haddad, & Maesen, 1976), and that

humor is used as a coping device to manage the negative affects associated with chronic illness (McCarthy & Addington-Hall, 1997).

The distancing function of humor *negatively* associated with psychological and social health. One possible explanation for the negative relationship between distancing and psychological health is that distancing humor is associated with depression, defeatism, and low-self esteem (McCreddie, 2008). Perhaps patients use distancing humor (i.e. self-deprecation) to express concern about their condition, which is likely tied to negative emotional experiences (Greengross & Miller, 2008). Ironically, however, McCreddie (2008) found that distancing humor is often not accurately interpreted by the nurse or companion as an expression of concern, but rather interpreted as self-determinism (McCreddie, 2008). Consequently, nurses or companions may perceive distancing humor as the patient's need for personal space, when in fact distancing humor may be a cry for help. As a result of consequential misinterpretations, companions might not respond in ways preferred by recovering patients.

If patient concerns and depression cannot be accurately interpreted through distancing humor, then perhaps distancing humor is counter-productive to psychological and social health. The inability to interpret distancing humor as concern, depression, or defeat, has serious implications for cardiovascular recovery and humor research. For one, patients and companions might use and interpret distancing humor differently. This divide may ultimately result in low relationship satisfaction levels (this is consistent with the univariate effects for distancing and relationship satisfaction). Secondly, other researchers have shown that distancing humor can develop maladaptive social support networks that impede health (Kuiper & McHale, 2009).

An even more surprising finding was the negative association between the social lubricant function and psychological health. According to Mettee et al. (1971), pro-social humor can increase social solidarity and connectedness, which Goldsmith (2004) claims facilitates

multiple health benefits. However, the results of this study indicate that patient-initiated humor used for pro-social purposes *negatively* predicts health.

The concept of emotional labor is a possible explanation for the negative relationship between pro-social humor and psychological health. Emotional labor, originally posited by Hochschild (1983), is the suppression of feelings to provide a welcoming outward appearance (Stayt, 2008). When exhibiting emotional labor, the outward expression of emotion is not always genuinely felt. Instead, the outward expression serves to make the other individual feel comfortable, but this expression may not be a genuine representation of person's emotion (Stayt, 2008). For example, cardiac rehabilitation nurses exhibit emotional labor when speaking to cardiovascular patients (Barrett et al, 2005). Nurses note that they outwardly express care and compassion, but they are internally focused on the more instrumental tasks at hand. This emotional dissonance evokes psychological stress (Barrett et al, 2005). Thus, patients exhibiting emotional labor can experience an emotional dissonance (i.e. feel one way, but act another) resulting in eventual stress, frustration, and health impairments (Hochschild, 1983; Barrett et al., 2005).

Much like the emotional labor of being a cardiovascular nurse, perhaps pro-social humor is emotional labor for cardiovascular patients. Patients may feel the need to "put on a happy face," when in fact they actually feel psychologically distressed about their medical event. This masking of genuine emotions could increase psychological stress and decrease relationship satisfaction (which is consistent with the univariate effects for the social lubricant function and relationship satisfaction). Whether the patient uses humor to entertain their companion, start a conversation, or even enhance their likability, cardiovascular patients can be attempting to express a positive, pro-social emotion, which is not genuinely felt. As such, the emotional labor

associated with pro-social humor function may be an explanation as to why the social lubricant function negatively predicts psychological health.

Research Question 1 queried into the functions of humor associated with greater health. Partly a result of the unexpected negative associations between the social lubricant and distancing functions, the answer to this research question is that only the antidotal function of humor is associated with increased psychological and social health. The self-oriented antidotal function of humor allows the patient to escape the role of the patient (Scholl & Ragan, 2003). By altering the affective state, the patient no longer identifies as a victim of the disease, but instead identifies as a “normal” healthy individual. Additionally, antidotal humor functions as a coping mechanism. As suggested by Lund et al. (2009), humor use is associated with reducing stress, tension, and instilling relief to the situation. Thus, a good explanation for this finding is that the self-oriented function of antidotal humor promotes coping efficacy, and thereby predicts psychological and social health.

### **Humor Functions and Relational Satisfaction**

Hypothesis 2 predicted that greater reports of humor functions would lead to increased reports of relationship satisfaction. As with the effects of humor functions on health, the results showed a surprising *negative* relationship between the social lubricant and distancing functions and relationship satisfaction. The negative association between the social lubricant function and relationship satisfaction is particularly salient, given that past research shows that pro-social humor increases attraction (Kane et al., 1977 as cited in Graham et al., 1992), likability (Mettee et al., 1971), and facilitates relational development (Alberts, 1990).

The introduction of taboo topics through humor might be one possible explanation as to why pro-social humor negatively predicts relationships satisfaction. Topics become taboo when partners perceive it can harm the relationship and are typically avoided because they are seen as

risky, inefficient, and futile for the relationship (Wilmot & Baxter, 1985; Roloff & Johnson, 2001). Taboo topics can include the anticipation of fears and death (Csikos et al., 2008), or even perhaps the most pervasive taboo topic, the state of the relationship (Wilmot & Baxter, 1985). In this case, a cardiovascular event is a compelling reason to introduce conversations about taboo topics such as fears, death, and the state of the relationship. As mentioned earlier, humor serves to introduce difficult topics (McCarthy & Addington-Hall, 1997). However, reintroducing topics that have become more serious are not significantly related to positive relational outcomes (Roloff & Johnson, 2001). In fact, humor can be considered inappropriate when it involves discussion about medical diagnoses, treatment procedures, and illness outcomes (Harzold & Sparks, 2006). Therefore, humor could function as a social lubricant to introduce taboo topics, which by their very presence are negative weights upon relationship satisfaction.

The contrarian nature of this finding is further reflected in Research Question 2, which queried into the humor functions that would be positively associated with relationship satisfaction. Again, none of the functions positively predicted greater relationship satisfaction, and a significant *negative* relationship emerged between the social lubricant function and relationship satisfaction.

This finding has important implications to humor research for two reasons. One, pro-social humor may be perceived as the most effective or appropriate way of starting difficult medical related conversations. Perhaps humor is perceived as a gentler, more discrete way of introducing difficult topics. Second, even though pro-social humor may be perceived as appropriate, it does not necessarily diminish the possible negative relational effects of introducing taboo topics. Therefore, pro-social humor may be perceived as the most effective or appropriate behavior in this context, but it may not be the best relational strategy for

cardiovascular patients. Instead, it may be beneficial to a patient's relationship and health to discuss matters regarding the medical event and even taboo topics, in a non-humorous manner.

### **Relationship Satisfaction and Health**

Hypothesis 3 predicted that relationship satisfaction level would mediate the relationship between humor functions and health. The results indicate that relationship satisfaction mediated the effects between the distancing function on social and psychological health. This finding verifies the health implications of managing social support (Kawachi & Berkman, 2001; Goldsmith, 2004). However, in this context, distancing *negatively* predicted relationship satisfaction and *negatively* predicted social and psychological health. In other words, distancing humor negatively affects social and psychological health as a result of its negative impact on relational satisfaction.

This finding demonstrates the potency of negative messages, specifically, distancing humor. Much like the findings of previous studies, negative messages have been associated with relational instability (Morrison, 1999; Gottman, 1994). Morrison (1999) claims that negativity tends to be reciprocated between partners and therefore, creates a cyclical pattern of negativity. In fact, distancing is the most common reason for divorce, which exemplifies the negative relational effects of distancing (Gigy & Kelly, 1992). In this context, however, the negative effect of distancing on relationship satisfaction is compelling because relationship satisfaction mediates health. Therefore, the effects of distancing humor are twofold; they negatively predict relationship satisfaction *and* health, further confirming the potency of negative messages.

Negative messages are robust because they have more ability to predict damage than do positive messages. According to Gottman (1994), for example, successful marriages displayed a 5:1 ratio in the amount of positive messages to negative messages. One of his conclusions is that it takes five positive messages to equal the effects of one negative message.

With regard to cardiovascular patients, current findings extend Gottman's (1994) proposal. Given that relationship satisfaction mediates distancing humor and health, the effects of negative humor could be more profound than the effects of positive humor. As Gottman (1994) proposed, it may take five positive messages to equalize the negative effects of distancing humor on both relationship satisfaction and *health*. In fact, any humor attempts that wear on relationship satisfaction could be predicted to negatively wear on health. This is consistent with other research showing that negative messages between patients and their partners lead to marital dissatisfaction and increased blood pressure, whereas, supportive and neutral messages have no effect on blood pressure (Ewart, Taylor, Kraemer, & Agras, 1991). If these findings were to hold in future studies, cardiovascular patients would be well-advised to work on using humor for more positive than negative reasons.

### **Practical Implications**

The overall findings of this study have compelling implications for cardiovascular recovery. Cardiovascular patients clearly use humor to fulfill multiple functions, not all of which are necessarily positive. In the context of cardiovascular recovery, patients use humor to cope with the medical event, socialize with their companion, and also distance themselves from their companion. Of the three functions studied here, antidotal humor appears to be the most beneficial to the psychological and social health of the patient. Antidotal humor was also the only function of humor that did not negatively predict relationship satisfaction. Thus, it seems antidotal humor may be the most appropriate humor in this context.

Given that antidotal humor positively predicts psychological and social health, patients should be encouraged to use humor to alleviate the negative affective states associated with cardiovascular disease. Specifically, patients should be encouraged to use humor to show their control over their health (e.g. Joking with the companion that "she's stuck with me for another

fifteen years as long as I keep following doctor's orders.”). Patients should also be encouraged to use humor to show knowledge about their health (e.g. “When my family was asking me about what kind of valve I had replaced in my heart I told them I had a pig valve but I was disappointed when the doctor told me I couldn't keep the bacon.”) Finally, patients should be encouraged to redirect their concerns and express their feelings (e.g. “I am determined to outlive my husband because I want to clean his garage”). These forms of antidotal humor can be spontaneous and often self-oriented. Ultimately, this study suggests that patients should use such humor as a coping mechanism to possibly enhance psychological and social health.

In addition to focusing on the use of humor for positive reasons, patients and companions may also benefit in understanding the negative relational implications of social lubricant humor in the medical context. Previous studies have found that social lubricant humor is associated with relationship satisfaction and development (Kane et al., 1977 as cited in Graham et al., 1992; Mettee et al., 1971; Alberts, 1990). In this study, however, social lubricant humor used to discuss a medical event was shown to negatively predict relationship satisfaction. For instance, a patient joking about funeral arrangements, the medical procedure, or his/her companion's lifestyle following the patient's death, negatively predicted relationship satisfaction, which also negatively predicted health. Thus, it appears the relational effects of social lubricant humor are highly contextual, and patients might benefit from coaching in the use of humor in conversations with companions. Particularly, it seems that using humor to start a conversation about the medical event may be less advisable because it negatively affects relationship satisfaction. Unlike the topics of death, illness, and medical procedures, perhaps patients would be better advised to use social lubricant humor to introduce conversational topics that either do not pose a risk to relational stability, or are inherently pleasant conversational



topics. Doing so could positively benefit relational satisfaction and presumably diminish relational strife.

Although the aforementioned recommendation addresses ways that patients can effectively utilize humor to enhance health, it is also important to consider how the companion's interpretation of humor may also influence the relationship and patient health. Specifically, companions may benefit in recognizing and clarifying the patient's intention of distancing humor. Some examples of distancing humor include, the patient making a joke about how the companion would be "free" of the patient soon after their death or a sarcastic remark about how the companion does not understand the feeling of a heart attack. Not only might this type of humor negatively predict relationship satisfaction and health, it may be an important cry for support as shown in previous research (McCreddie, 2008). Therefore if distancing humor is used, we might recommend that companions encourage patients to explain the intention of a distancing joke or humorous message. It could very well be the case that the aforementioned joke is a cry for support that requires attention as noted by McCreddie (2008).

Ultimately, patient initiated humor has both positive and negative health effects. Patients using humor in a self-oriented manner allows the patient to alleviate negative affective states and serves as a coping mechanism positively predicting health. Yet, humor negatively predicts health in so far that it negatively predicts relational satisfaction. Therefore, patients should be cautioned that other-oriented humor is dependent on contextual features (i.e. topic of conversation, companion's interpretation) that may negatively predict relationship satisfaction and perhaps negatively predict psychological or social health. Humor is indeed a tool of recovery, but when it affects harm the patient-companion relationship, the once beneficial tool can cause a relational wave of health destruction.

## **Limitations and Conclusion**

Several limitations to these findings should be carefully considered. The most obvious limitation is the data collection method. First, humor functions were self-identified in a retrospective manner. As such, recollection bias could have obscured some of functions that emerged. Secondly, although cardiovascular patients are the best source of information about their perceptions of their well-being, the self-selected population does not accurately represent a random sample of cardiovascular patients. The self-selected sample could impact generalizability of course, but might have interfered with the reported use of humor functions. The sample consisted of patients involved in support group services, so their use of humor could be quite different than that of a patient not involved in social support services. For instance, the distracter function of humor could have emerged for patients who are not as socially active in their recovery. Additionally, the small sample size could have reduced the statistical power of the analyses obscuring some effects, particularly the effects of humor of physical health.

The measure of the third factor (distancing) is particularly problematic, since it was assessed using only one-item. Ideally, each factor should include three items to ensure the validity of the structure (Graham et al., 1992). Although this factor would normally be discarded, it was the only distancing item on the survey. Because the distancing factor is consistent with the negative factor found in previous studies (Graham et al. 1992) the factor was included. Even so, future studies should consider including negative items as they provide further validation to the findings of this study.

Clearly more research is needed to study how different functions of humor influence relationship satisfaction and development; however, these findings lend support to the study of humor from a functional perspective. The next logical step should first verify the possible explanations as to why a pro-social humor (i.e. social lubricant) functions negatively predict relationship satisfaction for patients battling chronic illness. The explanation here that taboo

topics and emotional labor are associated with psychological and relational distress requires additional verification and further insight through the aid of additional studies.

It would also be interesting to investigate the mediating variable that explains why antidotal humor positively predicts health and social lubricant negatively predicts health. The findings from this study demonstrate that relationship satisfaction mediates the health effects of distancing humor, but not for antidotal or social lubricant humor. Perhaps there is another variable that explains this connection such as self-determinism, coping efficacy, or even life satisfaction.

Future research should also investigate humor use in a variety of relationships and life events in hopes of validating the rigidity of these functions and their relational effects across various social contexts. Based on previous literature, it is highly plausible that pro-social functions are not consistently associated with negative relationship satisfaction as these findings suggest. Instead, the effects of certain functions may fluctuate depending on the context of the interaction.

Companion-initiated humor is another valuable avenue for future research. Perhaps findings would show a different association between variables if the patient's companion initiates humor. Ultimately, the study of humor, and its association with relationship satisfaction and health is a fertile area of research that deserves additional attention.

Ultimately, this study revealed several findings that could prove useful to researchers, practitioners, cardiovascular patients, and their companions. First, the study shows that humor is a strategic communicative act with profound health effects. Contrary to the predictions, however, the study showed that other-oriented humor functions (e.g., social lubricant and distancing functions) negatively predict relationship satisfaction and health. Thus, it appears that patient-initiated humor used to fulfill self-oriented goals (i.e., antidote function) is more beneficial and

conducive to cardiovascular recovery, and could be tentatively promoted if the findings of this study were to be replicated. At the very least, the results suggest that the effects of negative humor are possibly more profound than the effects of positive humor in the context of cardiovascular health, and should be eyed with caution by patients, companions, and relevant medical practitioners.

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**Table 1**

*Functions of Humor: Factor Loadings Using Principal Components Analysis with Varimax Rotation.*

Uses of Humor	Uses of Humor		
I often use humor to...	Factor 1: <u>Antidote</u>	Factor 2: <u>Social Lubrication</u>	Factor 3: <u>Distancing</u>
Think of something other than my health	<b>.73</b>	.25	-.16
Express my feelings	<b>.65</b>	.31	.15
Redirect my concerns	<b>.66</b>	.43	.21
Feel in control of my health	<b>.88</b>	.12	.00
Show knowledge about my health	<b>.60</b>	.24	-.04
Feel less overwhelmed	<b>.76</b>	.13	.37
Forget my anxiety	<b>.68</b>	.37	.21
Cope with cardiovascular disease	<b>.84</b>	.18	.15
Start a difficult conversation	.30	<b>.78</b>	.16
Manage the topic of conversation	.39	<b>.63</b>	.36
Make me more likable	.00	<b>.83</b>	.00
Start a conversation	.23	<b>.87</b>	-.02
Entertain my companion	.36	<b>.67</b>	-.32
Distance myself from my companion	.11	.00	<b>.90</b>

*Note.* Factor loadings > .50 in boldface

**Table 2***Descriptive Properties of the Major Study Variables*

Variable	<i>M</i>	<i>SD</i>	$\alpha$	<u>Range</u>		
				Potential	Actual	Skew
Humor Functions						
Antidote	3.71	.72	.90	1 - 5	3.25	-.56
Social Lubrication	3.37	.76	.85	1 - 5	3.6	-.23
Distancing	2.12	.90		1 - 5	3	.50
Relationship Satisfaction	3.87	.97	.95	1 - 5	4	-1.01
Health						
Psychological	4.13	.60	.80	1 - 5	3	-1.19
Social	4.03	.66	.73	1 - 5	3	-.87
Physical	3.68	.75	.85	1 - 5	3.15	-.62
Humor Orientation	3.73	.68	.94	1 - 5	3	-.46

Note: Distancing measured with a single item

**Table 3***Variable Correlations*

<b>Variable</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
1. Antidote	–							
2. Social Lubrication	.64**	–						
3. Distancing	.20	.13	–					
4. Relationship Satisfaction	-.11	-.22*	-.44**	–				
5. Psychological Health	.01	-.14	-.33**	.56**	–			
6. Social Health	.15	-.01	.25*	.58**	.67**	–		
7. Physical Health	-.01	-.15	-.07	.33**	.46**	.48**	–	
8. Humor Orientation	.28**	.24*	-.32**	.07	.12	.29**	-.14	–

\*  $p < .05$

\*\*  $p < .01$

\*\*\*  $p < .001$

**Table 4***Humor Functions that Predict Health*

Function	<u>Health</u>					
	<u>Physical</u>		<u>Psychological</u>		<u>Social</u>	
	$\beta$	$t$	$\beta$	$t$	$\beta$	$t$
Antidote	.17	1.20	.26*	1.98	.34*	2.55
Social Lubrication	-.25	-1.79	-.28*	-2.17	-.19	-1.47
Distancing	-.08	-.70	-.35***	-3.51	-.30***	-2.93

\*  $p < .05$ \*\*  $p < .01$ \*\*\*  $p < .001$ **Table 5***Humor Functions that Predict Relationship Satisfaction*

Function	<u>Relationship Satisfaction</u>		
	B	$t$	$p$
Antidote	.163	1.31	.19
Social Lubrication	-.28	-2.24	.03*
Distancing	-.44	-4.67	.00*

\*  $p < 0.05$

**Table 6***Regression Analysis for Mediated Relationship Between Distancing and Social Health*

Model	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>	<i>p</i>	<i>F</i>	<i>R</i>	<i>R</i> <sup>2</sup>
	<i>B</i>	<i>SE</i>	$\beta$					
Step 1	.			-	-	6.18	.25	.06
Distancing	-.22	.08	-.30	-2.94	.05*	-	-	-
Step 2						22.94	.58	.34
Relationship Satisfaction	.40	.07	.59	6.10	.00*	-	-	-
Distancing	.00	.07	.01	.07	.95	-	-	-

\* *p* < 0.05**Table 7***Regression Analysis for Mediated Relationship Between Distancing and Psychological Health*

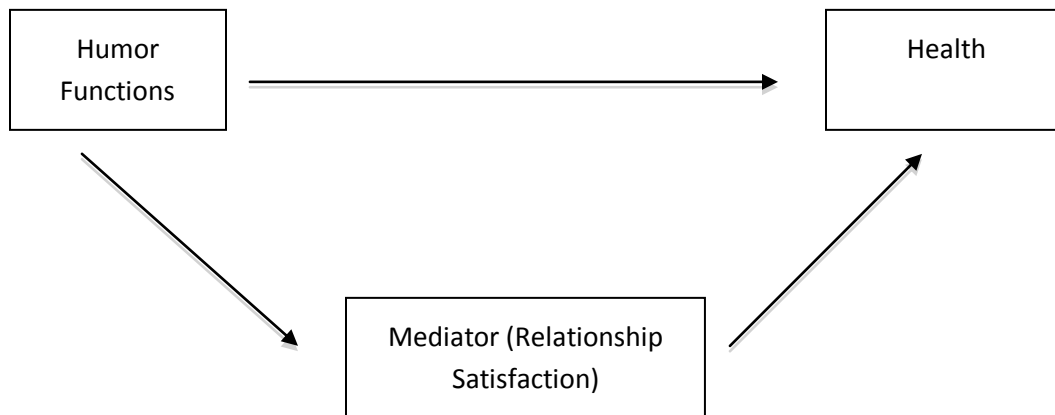
Model	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>	<i>P</i>	<i>F</i>	<i>R</i>	<i>R</i> <sup>2</sup>
	<i>B</i>	<i>SE</i>	$\beta$					
Step 1	.			-		11.17	.33	.11
Distancing	-.23	.07	-.35	-3.51	.00*	-	-	-
Step 2						21.24	.57	.32
Relationship Satisfaction	.32	.06	.52	5.29	.00*	-	-	-
Distancing	-.01	.07	-.10	-1.07	.29	-	-	-

\* *p* < 0.05



**Figure 1**

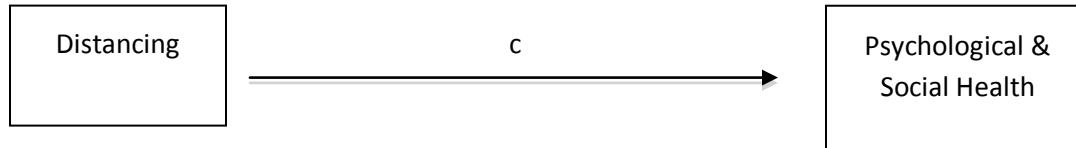
*A Communicative Model of Health*



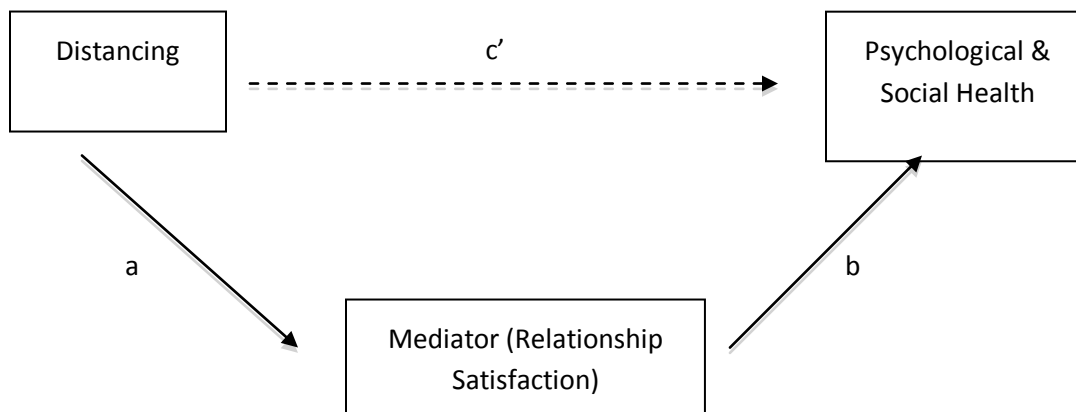
**Figure 2**

*The Effect of Distancing on Psychological and Social Health*

A). Direct Pathway



B). Indirect or Mediated Pathway



## **SUBJECT INFORMATION AND INFORMED CONSENT**

**Title:** The Impact of Humor for Cardiovascular Patients.

**Project Director(s):**

Nicholas Lockwood  
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**Purpose (What is the point of this study?):**

You are being asked to participate in a research study investigating cardiovascular patients' use of humor during their recovery. In order to participate in this study you must have been diagnosed with cardiovascular disease or have had a cardiovascular related health event.

**Procedures (What will I be asked to do?):**

There are 84 total questions in this survey. These questions will ask about your health, general ways in which you communicate, an instance in which you used humor to talk about health, the quality of your relationship with your most supportive companion, and finally, a few questions for demographic purposes. These questions will be divided into five total sections. Please read the directions for each section carefully. We ask that you fill out all five sections of the questionnaire. Overall, this questionnaire should take about 15 minutes to complete.

**Risks/Discomforts (What are some of the risks of participating in this study?):**

Although we do not anticipate any major risks associated with participating in this study, there is a minor risks we would like to tell you about. Specifically, answering the questions may cause you to think about feelings that make you sad or upset. These feeling will be minimized by your opportunity to decline responding to such questions or withdraw from the study at any time.

**Benefits (How will I benefit, and what good will come from this study?):**

Although you may not directly benefit from participating in this study, the information gathered from this study is vital to understanding cardiovascular patients' use of humor and how it influences their recovery process. Your participation will benefit both cardiovascular patients and the discipline of communication studies.

**Confidentiality (How will my privacy be protected?):**

Your responses will remain confidential, as participants will not be required to identify themselves.

\* All electronic data will be kept in an encrypted file. Only the researcher and his faculty supervisor will have access to the encrypted data.

\* Non-electronic data will be kept in locked storage cabinet.

**Compensation for Injury (What do I do if I am harmed as a result of participating in this study?):**

Although we do not foresee any risk in taking part in this study, the following liability statement is required in all University of Montana consent forms. In the event that you are injured as a result of this research you should individually seek appropriate medical treatment. If the injury is caused by the negligence of the University or any of its employees, you may be entitled to reimbursement or compensation pursuant to the Comprehensive State Insurance Plan established by the Department of Administration under the authority of M.C.A., Title 2, Chapter 9. In the event of a claim for such injury, further information may be obtained from the University's Claims representative or University Legal Counsel. (Reviewed by University Legal Counsel, July 6, 1993)

**Voluntary Participation/Withdrawal (Do I have to participate?):**

Your decision to take part in this research study is entirely voluntary. You may refuse to take part in or you may withdraw from the study at any time.

**Questions:**

If you have any questions about the research now or during the study contact: [Nick Lockwood at [Nicholas.Lockwood@UMontana.edu](mailto:Nicholas.Lockwood@UMontana.edu) or contact him by phone at (719) 216-3992.

If you have any questions regarding your rights as a research subject, you may contact the Chair of the IRB through The University of Montana Research Office at (406) 243-6670.

**Statement of Consent:**

I have read the above description of this research study. I have been informed of the risks and benefits involved, and all my questions have been answered to my satisfaction. Furthermore, I have been assured that any future questions I may have will also be answered by a member of the research team. I voluntarily agree to take part in this study. I understand I will receive a copy of this consent form.

\_\_\_\_\_  
Printed (Typed) Name of Subject

\_\_\_\_\_  
Subject's Signature

\_\_\_\_\_  
Date

## Appendix B

### E-mailed Orientation of the Study

February, 2010

Dear Mended Hearts Member:

I am a fellow Mended Hearts Member and I am emailing you for your possible help with my Master's Thesis. I currently attend the University of Montana and for my thesis I am researching how cardiovascular disease patients utilize humor.

This project is being conducted and analyzed through the help of a professional committee at the University of Montana. The information gathered from this study is vital to understanding cardiovascular patients' use of humor and how it influences their recovery process. Your participation will benefit both cardiovascular patients and the discipline of communication studies; thus, **your input is valuable.**

**Below is a link to a questionnaire that I gracefully ask you to complete. It should take approximately 15 minutes.** It consists of five separate sections. The first of which will ask a few general questions for demographic purposes. The second section will ask you to briefly describe your current state of health. The third section will ask you to rate your communication in general, while the fourth will ask you to reflect on an instance when you initiated a humorous message with your companion regarding your health. Finally, the last section will ask you a few questions regarding your relationship with your companion. Please read the directions for each section carefully. We ask that you fill out all four sections of the questionnaire providing as much detail as possible. **Please complete the survey by March 1<sup>st</sup>, 2011.**

Your participation in this study is **completely voluntary.** Your responses will serve as informed acceptance of participation. In addition, your responses will remain anonymous, as participants will not be required to identify themselves.

If you have any questions or would like a summary of the results of this study, please contact Nicholas Lockwood at [Nicholas.Lockwood@UMontana.edu](mailto:Nicholas.Lockwood@UMontana.edu) or contact him by phone at (719)-216-3992.

We greatly appreciate your assistance and interest this research project and thank you for your time.

Sincerely,

Nicholas Lockwood

QUESTIONNAIRE LINK: <http://itoselect.ito.umt.edu/TakeSurvey.aspx?SurveyID=n4KJ6o9M>

## Appendix C

### Online Consent form

#### Description:

This survey should not take you about 15 minutes to complete.

I have freely chosen to participate in University of Montana's voluntary, anonymous research survey designed to provide information about how cardiovascular use of humor as a communicative tool.

This survey is done over the internet by filling in the blanks and Likert-scales. I agree to permit the University of Montana's Principal Investigators, Collaborators and Staff, to obtain, use and disclose the anonymous information provided as described below.

#### Conditions and Stipulations

1. I understand that all information is confidential. I will not be personally identified in any reports. I agree to complete the online survey for research purposes and that the data derived from this anonymous survey may be made available for the general public in the form of public presentations, journals or newspaper articles, and/or books.
2. I understand that online survey involves questions about my use of humor during my recovery process and rating my current satisfaction with my companion.
3. I understand that my participation in this research survey is totally voluntary, and that declining to participate will involve no penalty or loss of benefits. Choosing not to participate will not affect my employment or professional standing in any way. If I choose, I may withdraw my participation at any time. I also understand that if I choose to participate, that I may decline to answer any question that I am not comfortable answering.
4. I understand that I can contact the primary researcher, Nicholas Lockwood if I have any questions about the research survey and my rights as a participant. I am aware that my consent will not directly benefit me, but will provide data for the study and improve our understanding of cardiovascular patient recovery.
5. By clicking below I freely provide consent and acknowledge my rights as a voluntary research participant as outlined above and provide consent to the University of Montana to use my information.

## Appendix D

### Directions:

For the entirety of this questionnaire you will be asked to reflect on ONE instance in which you said or did something humorous in regards to your current state of health. This humorous message MUST have taken place when communicating with a companion. For purposes of this study, a companion is anyone who you believe has offered you the MOST support in your recovery process. This can include a romantic partner, family member, or friend.

Within this questionnaire you will find five separate sections. The first of which will ask a few general questions about you. The second section will ask you to briefly describe your current state of health. The third section will ask you to rate your communication in general, while the fourth will ask you to reflect on an instance when you initiated a humorous message with your companion regarding your health. Finally, the last section will ask you a few questions regarding your feelings about your relationship with your companion.

PLEASE DO NOT SPECIFY YOUR NAME, the name of the people with whom you interact, or any other identifying information other than the demographic criteria requested at the beginning of this questionnaire. We will attempt to maintain anonymity to the highest degree possible—as such, please feel confident that your responses to this questionnaire will not be in any way linked back to your identity. Feel free to contact Nicholas Lockwood for any further information about the methods being utilized in this study.

Your completed questionnaire will be collected immediately following your completion all five sections. Again, please feel free to ask any questions to assist in the clarity of this questionnaire at any point.

Thank you so much for your participation!

**PLEASE RETURN THIS COVER PAGE WITH YOUR COMPLETED FORMS.**

## Questionnaire Part 1

1) What is your gender (Please circle one)

1. Male                      2. Female

2) What is your age?

Age: \_\_\_\_\_

3) What is your ethnicity (please circle one):

1. African-American
2. Asian/Pacific Islander
3. Caucasian
4. Hispanic
5. Multiracial
6. Native American
7. Other

## Questionnaire Part 2

Please circle one answer for each statement that most closely describes the way you are. If you are uncertain how to answer, mark your best guess – please respond to each statement.

	This statement describes the way I am:	Very Rarely	Sometimes	About half the time	More often than not	Most of the time
1.	When my future is uncertain, I have a basic sense of trust that things will turn out OK.	1	2	3	4	5
2.	When someone hurts me, I have a hard time forgetting about it.	1	2	3	4	5
3.	I have trouble forgetting about my mistakes.	1	2	3	4	5
4.	I feel that others control my life.	1	2	3	4	5
5.	I know someone who will take the time to understand all my pains, sorrows and joys.	1	2	3	4	5
6.	I have a purpose or mission for my life.	1	2	3	4	5
7.	Talking about my troubles with someone I trust helps me to understand myself and my life in a new way.	1	2	3	4	5
8.	I like to laugh and play.	1	2	3	4	5
9.	Someone supports me when I try to change my behavior.	1	2	3	4	5
10.	I know how to ask for help when I need it.	1	2	3	4	5
11.	I find myself repeatedly doing things that aren't good for me.	1	2	3	4	5
12.	When I think about certain episodes from earlier in my life I still get upset and angry.	1	2	3	4	5
13.	I have trouble relaxing.	1	2	3	4	5
14.	I feel incomplete as a person.	1	2	3	4	5
15.	I've learned how to take care of myself emotionally.	1	2	3	4	5
16.	I believe that life is often not fair to me.	1	2	3	4	5
17.	I feel like people often take advantage of me.	1	2	3	4	5
18.	I have someone that I can tell my deepest darkest secrets and still feel safe.	1	2	3	4	5



The following questions ask about how much you have experienced certain things in the last four weeks.

		Not at all	A little	A moderate amount	Very much	An extreme amount
19.	To what extent do you feel that physical pain prevents you from doing what you need to do?	1	2	3	4	5
20.	How much do you need any medical treatment to function in your daily life?	1	2	3	4	5

The following questions ask about how completely you experience or were able to do certain things in the last four weeks.

		Not at all	A little	Moderately	Mostly	Completely
21.	Do you have enough energy for everyday life?	1	2	3	4	5

		Very poor	Poor	Neither poor nor good	Good	Very good
22.	How well are you able to get around?	1	2	3	4	5

		Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
23.	How satisfied are you with your sleep?	1	2	3	4	5
24.	How satisfied are you with your ability to perform your daily living activities?	1	2	3	4	5
25.	How satisfied are you with your capacity for work?	1	2	3	4	5

### Questionnaire Part 3

Below are several descriptions of how you may communicate **in general**. Please use the scale below to rate the degree to which each statement applies to your communication (circle one number for each statement).

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1.	I regularly tell jokes and funny stories when in a group.	1	2	3	4	5
2.	People usually laugh when I tell jokes or funny stories.	1	2	3	4	5
3.	I have no memory for jokes or funny stories.	1	2	3	4	5
4.	I can be funny without having to rehearse a joke.	1	2	3	4	5
5.	Being funny is a natural communication style with me.	1	2	3	4	5
6.	I cannot tell a joke well.	1	2	3	4	5
7.	People seldom ask me to tell stories.	1	2	3	4	5
8.	My friends would say I am a funny person.	1	2	3	4	5
9.	People don't seem to pay close attention when I tell a joke.	1	2	3	4	5
10.	Even funny jokes seem flat when I tell them.	1	2	3	4	5
11.	I can easily remember jokes and stories.	1	2	3	4	5
12.	People often ask me to tell jokes or stories.	1	2	3	4	5
13.	My friends would not say that I am a funny person.	1	2	3	4	5
14.	I don't tell jokes or stories even when asked to.	1	2	3	4	5
15.	I tell stories and jokes very well.	1	2	3	4	5
16.	Of all the people I know, I am one of the funniest.	1	2	3	4	5
17.	I use humor to communicate in a variety of situations.	1	2	3	4	5

### Questionnaire Part 4

Think of a moment that you used humor when talking to your most supportive companion about your health. This may include a sarcastic remark, a comment about the doctor or treatment, a remark about your condition, a comment about the medical process, exercising, dieting, or anything else you find relevant to your health.

Please describe the incident you are thinking of here. Include when and where the interaction took place, who else was there (if anyone, and what you and your companion said to one another).

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1. What was/is your relationship to the companion you were talking with during this episode?  
(Please circle one)

- 1. Your Romantic Partner
- 2. Your Father
- 3. Your Mother
- 4. Your Brother
- 5. Your Sister
- 6. Your Son
- 7. Your Daughter
- 8. Your Friend
- 9. Other

2. When did this incident occur (Please circle one)?

1. Today
2. A few days ago
3. A few weeks ago
4. Months ago
5. A year ago

With the above humorous conversation in mind, please indicate whether you agree or disagree with the following statements: (Circle one for each statement).

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
3.	Using humor helped me think of something other than my health.	1	2	3	4	5
4.	Using humor helped me start a difficult conversation with my companion.	1	2	3	4	5
5.	Using humor allowed me to distance myself from my companion.	1	2	3	4	5
6.	Using humor helped me manage the topic of conversation	1	2	3	4	5
7.	Using humor made me happy.	1	2	3	4	5
8.	Using humor helped me express my feelings in a new way.	1	2	3	4	5
9.	Using humor helped me redirect my concerns.	1	2	3	4	5
10.	Using humor made me feel in control of my health.	1	2	3	4	5
11.	Using humor showed that I am knowledgeable about my health.	1	2	3	4	5
12.	Using humor made me feel less overwhelmed.	1	2	3	4	5
13.	Using humor made me more likable to my companion.	1	2	3	4	5
14.	Using humor helped me start conversation with my companion.	1	2	3	4	5
15.	Using humor helped me forget my anxiety.	1	2	3	4	5
16.	Using humor entertained my companion.	1	2	3	4	5
17.	Using humor helped me cope with cardiovascular disease.	1	2	3	4	5
18.	Using humor made me feel connected with my companion.	1	2	3	4	5

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
19.	I often use humor to help me think of something other than my health.	1	2	3	4	5
20.	I often use humor to help me start a difficult conversation with my companion.	1	2	3	4	5
21.	I often use humor to distance myself from my companion.	1	2	3	4	5
22.	I often use humor to help me manage the topic of conversation	1	2	3	4	5
23.	I often use humor to make me happy.	1	2	3	4	5
24.	I often use humor to help me express my feelings in a new way.	1	2	3	4	5
25.	I often use humor to help me redirect my concerns.	1	2	3	4	5
26.	I often use humor to make me feel in control of my health.	1	2	3	4	5
27.	I often use humor to show that I am knowledgeable about my health.	1	2	3	4	5
28.	I often use humor to make me feel less overwhelmed.	1	2	3	4	5
29.	I often use humor to make me more likable to my companion.	1	2	3	4	5
30.	I often use humor to help me start conversation with my companion.	1	2	3	4	5
31.	I often use humor to help me forget my anxiety.	1	2	3	4	5
32.	I often use humor to entertain my companion.	1	2	3	4	5
33.	I often use to help me cope with cardiovascular disease.	1	2	3	4	5
34.	I often use humor to make me feel connected with my companion.	1	2	3	4	5

### Questionnaire Part 5

For the following questions, please indicate the degree to which you agree with each of the following statements regarding your current relationship with your companion (circle an answer for each item).

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Strongly Disagree
1. I feel satisfied with our relationship.	0	1	2	3	4	5
2. My relationship is much better than others' relationships	0	1	2	3	4	5
3. My relationship is close to ideal.	0	1	2	3	4	5
4. My relationship makes me very happy.	0	1	2	3	4	5
5. Our relationship does a good job of fulfilling my needs for companionship.	0	1	2	3	4	5

**You have now completed the questionnaire. Please return your questionnaire packet and thank you again for your participation.**