

SODIUM RESTRICTED DIETS: DO THEY AFFECT THE HEART FAILURE  
PATIENT'S PERCEPTION OF QUALITY OF LIFE

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# **SODIUM RESTRICTED DIETS: DO THEY AFFECT HEART FAILURE PATIENTS' PERCEPTION OF QUALITY OF LIFE?**

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## **Abstract**

Heart Failure (HF) is one of the leading causes of physician visits and hospitalizations in the United States each year. The American College of Cardiology Foundation, along with the American Heart Association, recommend that patients diagnosed with HF follow a sodium restricted diet (SRD) to reduce congestive symptoms. As studies continue and resources grow, there are still gaps in HF research regarding patient care, compliance, adherence, understanding, and how these concepts affect the patient's quality of life (QOL). This study attempts to provide clinically based research that determines whether or not a relationship exists between adherence to an SRD and QOL of patients with HF at a heart failure clinic in Northwestern Pennsylvania.

A convenience sample of 29 patients was obtained from the heart failure clinic. Participants were asked to anonymously complete the Minnesota Living with Heart Failure Questionnaire and a simple demographic survey. Once the study concluded, a correlation ( $p > 0.05$ ) was used to determine whether or not a statistically significant relationship exists between the patient's perceived QOL and following a prescribed SRD. The results of this study do not support that a HF patient perceives an increased QOL when following the prescribed SRD.

Implications to nursing include educating the HF patient as an area of interest. Perhaps if research can help determine what affects QOL the most, healthcare practitioners can better provide patient centered care and increase the QOL of the nearly 5 million Americans living with this chronic disease each year.

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## **Chapter 1**

### **Introduction**

Heart Failure (HF) is one of the leading causes of physician visits and hospitalizations in the United States each year. Of the nearly five million Americans that are currently living with HF, more than half of those will die within five years of diagnosis (American Heart Association, 2013). Factors affecting adequate management and treatment of HF are numerous and include pharmacology, following a nutritionally balanced low sodium diet, participating in daily physical activity, restricting fluid intake, and the cessation of smoking. Many HF patients may feel as though their quality of life (QOL) is affected by having to make changes to their lifestyle in order to adequately manage their disease process.

### **Background of the Problem**

The American College of Cardiology Foundation (ACCF), along with the American Heart Association (AHA), recommend that patients diagnosed with HF follow a sodium restricted diet (SRD) to reduce congestive symptoms (2013). A study done by Son, Lee, and Song (2011) found clinically relevant evidence that suggests patients who adhere to a SRD experienced a decreased occurrence of HF symptoms, as well as fewer cardiac events for the 12 months following the study versus those that did not adhere to a SRD.

A review of literature suggests that few patients fully understand the relationship between non-adherence to a SRD and exacerbation of HF symptoms. This misconception leads to increased hospitalizations and physician visits. In 2010, approximately 39 billion dollars were spent on the treatment of HF alone (American Heart Association, 2010).

Albert (2013) notes that clinical research has demonstrated that patients do not believe they can control HF. When diagnosed with a chronic disease, such as HF, patients may feel as if they

have lost the control and the ability they once had in life. Management of HF often means initiating life altering changes such as restrictions of fluids and sodium, and smoking cessation. Patients may be at a higher risk for depression and anxiety secondary to these changes. This study examined whether or not a relationship exists between adhering to a SRD and patients' perceived QOL.

Dorothea Orem's self-care deficit theory was utilized as the theoretical framework for this study. The self-care deficit theory, first published in 1971, is based on the concept that every person has a need for self-care in order to maintain optimal health and wellness ("Dorothea Orem's Self-Care Theory," 2012). Orem's self-care deficit theory guided interpretation of the results.

### **Statement of the Problem**

HF is the leading cause of hospitalization and mortality in the United States (Desai & Stevenson, 2012). Patients diagnosed with HF who adhere to their prescribed SRD experience a decreased amount of HF exacerbations and possibly improved QOL. The purpose of this survey study was to determine if a relationship existed between adherence to a SRD and the perceived QOL in patients diagnosed with HF that are being treated at a heart failure clinic located in rural Western Pennsylvania.

### **Research Question**

Does a relationship exist between adherence to a SRD and the perceived QOL in patients diagnosed with HF?

### **Hypotheses**

H<sub>0</sub>: There is no relationship between adherence to a SRD by patients diagnosed with HF and their perceived QOL as measured on the Minnesota Living with Heart Failure Questionnaire

(MLHFQ) and the Perception of Adherence to a Low Sodium (Sodium Restricted) Diet short questionnaire.

H<sub>1</sub>: There is a relationship between adherence to a SRD by patients diagnosed with HF and their perceived QOL as measured on the Minnesota Living with Heart Failure Questionnaire (MLHFQ) and the Perception of Adherence to a Low Sodium (Sodium Restricted) Diet short questionnaire.

### **Definition of Terms**

The following terms were used in this study:

1. Adherence- “the extent to which a patient’s action matches the agreed recommendations” (Medicines adherence, 2009)
2. Healthcare practitioner- an individual who provides medical care services and carries the designation of medical doctor (MD), doctor of osteopathy (DO), certified registered nurse practitioner (CRNP), or physician assistant (PA).
3. Heart failure – “a complex clinical syndrome of symptoms and signs that suggest impairment of the heart as a pump supporting physiological circulation” (Royal College of Physicians, 2010).
4. Perception- the act or faculty of perceiving, or apprehending by means of the senses or of the mind; cognition; understanding (Perception, n.d.).
5. (QOL) Quality of life- an individual’s subjective perception of the effects of a clinical condition or its treatment on his/her daily life (Alla, et al., 2002).
6. SRD (sodium restricted diet) - a diet prescribed by a healthcare practitioner that is between 2-3 grams of sodium per day (AHA, 2013)



## **Need for the Study**

A review of literature was conducted to determine if a relationship exists between adherence to a SRD and the perceived QOL in a patient diagnosed with HF. This search was accomplished using the electronic database the Cumulative Index to Nursing and Allied Health Literature (CINAHL) using the terms adherence, sodium restriction, and quality of life. Although this search produced 247 articles in total, only seven were selected for review as they focused on the primary variables of adherence to a SRD and QOL in the HF patient. This study aimed to bridge the existing gap and examine if patients living with HF experience a change in perceived QOL secondary to adherence to a SRD.

## **Assumptions**

There were assumptions made prior to the study and they included:

1. Participants were able to read and understand English
2. Participants had a current diagnosis of HF as identified by The International Classification of Diseases (ICD)-9 code of 428 with or without qualifiers or ICD-10 diagnosis code of I50 with or without qualifiers
3. Participants had prior instruction on adherence to SRD by a healthcare provider

## **Significance of the Study**

An estimated five million people are living with HF in the United States today (AHA, 2013). There are numerous factors that affect a HF patient and subsequent lifestyle changes that are part of the treatment plan can be difficult for patients to make. A SRD could possibly make patients feel that they have lost QOL and lead to sadness and depression. This study attempted to provide clinically based research that determines whether or not a relationship exists between adherence to an SRD and QOL of patients with HF. The results of this study support the need

for more research on the QOL of patients living with HF, and how improving QOL could help patients to live more fulfilling lives despite their diagnosis of HF.

### **Summary**

HF is a growing healthcare concern affecting millions of lives each year. There are many lifestyle changes HF patients have to make to minimize the effects of the disease. There is an identified gap in research on how these lifestyle changes affect the perceived QOL of these HF patients. It is important to study the QOL in these patients so that healthcare providers can care for the patients on a holistic level and be sure that not only their medical needs are met, but also their emotional and psychosocial needs.

## **Chapter 2**

### **Review of Related Literature**

According to Jurgens, Shurpin, and Gumersell (2010), much of symptom management of the HF patient is directed at treating the underlying causes of exacerbations. Often these causes can be attributed to non-adherence to prescribed medical therapy and fluid or sodium indiscretion (Jurgens et al., 2010). A SRD is a major component of HF self-care management (ACCF/AHA, 2013). The purpose of this study was to explore whether or not a relationship exists between adherence to a SRD and the perceived QOL in patients diagnosed with HF.

This chapter reviews related literature on the topics of adherence to a SRD and QOL in HF patients. An overview of Dorothea Orem's self-care deficit theory, which serves as the theoretical framework for this study, is also presented.

#### **Heart Failure Patients' Adherence to a Sodium Restricted Diet**

Recognizing that prescribing a SRD to patients with HF is a standard of care, Son, Lee, and Song (2011) conducted a prospective cohort study to determine whether adherence to a SRD affected symptom burden and cardiac event free survival in HF patients. Two hundred and thirty four patients from outpatient HF clinics at university hospitals in Seoul, South Korea participated. Data was collected via 24 hour urine specimens and the completion of a series of questionnaires. The patients were then followed by telephone interviews monthly for a period of one year. Results of this study indicated that patients who did not adhere to a SRD of less than 3 grams of sodium a day had a greater symptomatic burden and were twice as likely to experience exacerbation, hospitalization, or even death (Son et al., 2011). Their findings raise the question as to why patients with HF fail to adhere to a SRD. The following studies attempt to answer this question.

In 2008, Lennie et al. conducted a study to describe HF patients' perceptions concerning the information provided for following a low sodium diet. The researchers also explored patients' perceptions of the benefits, barriers, ease, and frequency of following said diet. Two hundred and forty six patients with HF from four academic medical centers in both Australia and the United States participated in the study.

Lennie et al. (2008) used the Dietary Sodium Restriction Questionnaire (DSRQ) to measure attitudes, barriers, and knowledge of SRDs. Open ended questions were used to determine what the patients believed a SRD to be. Lastly, patients were asked to rate the frequency they followed the restricted diet. Out of the 246 participants, 146 of these patients were asked to provide a 24 hour urine sample to test for sodium excretion and level of adherence.

Study findings included that 80% of the patients had received instruction to follow a SRD as part of their plan of care, however, patients' recall of these instructions was generally poor. Additionally, 75% of the participants stated that they had followed a SRD all or most of the time, yet analysis of the urine specimens demonstrated that only 25% of the patients were truly adherent. It can be noted that those patients who did report to be adherent had lower levels of sodium excretion when compared to the rest of the participants in the study. Furthermore, only 24.8% of the patients surveyed agreed with statements that following a low sodium diet was beneficial to their heart (Lennie et al., 2008).

Colin-Ramirez, McAlister, Woo, Wong, and Ezekowitz (2015) reported similar findings related to patients' perceptions of their adherence to a low sodium diet and actual adherence. A total of 237 patients attending a HF clinic participated in their study aimed at identifying the relationship between self-report of adhering to a SRD and dietary practices. Level of adherence was rated as never, sometimes, and always based on participants' responses to a dietary

questionnaire. When compared to dietary habits, however, analysis confirmed a discrepancy between self-report of sodium intake and actual adherence. For one measure, participants reporting eating fast foods 1 to 3 times per week self-identified as being adherent at all levels, including always, with the largest percentage (22.9%) in the sometimes group. The researchers concluded that self-report is not a reliable measure of HF patients' adherence to a SRD.

A study conducted by Nieuwenhuis, van der Wal, and Jaarsma (2011) sought to examine the relationship between compliance in the HF patient with both sodium and fluid restrictions as measured in a dietary log rather than self-reported through a questionnaire. This study also focused on the differences in knowledge and beliefs in those patients who were compliant with restrictions and those who were not. This randomized, multi-centered controlled study included 84 HF patients who completed a dietary log for a period of 3 days (Nieuwenhuis et al., 2011). The participants also completed a questionnaire on knowledge about HF, beliefs regarding compliance, and emotional symptoms. A patient was labeled noncompliant with their sodium restriction if their mean daily intake exceeded their personal restriction by 10%. Their efforts concluded that 79% of the participants in the study were compliant with their sodium restriction, whereas only 72% were compliant with their fluid restriction. It is important to note that 40% were noncompliant with at least one of their dietary restrictions. Participants were also found to be more compliant when the restriction was more lenient than in those who were instructed to follow a very stringent restriction. Furthermore, the noncompliant participants expressed much difficulty following the sodium restriction than those who were considered compliant. Lastly, no significant differences were observed between compliant and noncompliant participants in their knowledge of HF or their beliefs regarding compliance (Nieuwenhuis, et al., 2011).

The articles reviewed in this section reaffirm that adherence to a SRD is beneficial to the HF patient. Not only does this specific diet reduce the amount of exacerbation and hospitalizations, but it can even decrease the risk of death and, perhaps, improve the patient's QOL. Despite these known benefits, a number of HF patients do not follow their prescribed diet and underestimate their actual intake of sodium-rich foods.

### **Quality of Life and the Heart Failure Patient**

Quality of life has been described as a multifaceted concept. The Center for Disease Prevention and Control has stated that the concept health-related QOL has evolved since it first was studied in the 1980s. On the individual level, health-related QOL encompasses physical and mental health perceptions, health risks and conditions, functional status, social support, and socioeconomic status. To the individual, health-related QOL conveys an overall sense of well-being and happiness and satisfaction with life. Research pertaining to health-related QOL has become an increasingly important factor in health surveillance and is considered a valid indicator of patient needs and intervention outcomes (CDC, 2000).

Upon conducting their own review of literature, Vellone et al. (2013) were able to conclude from established research that HF patients generally experience a lower QOL than that of patients that are affected by other chronic illnesses (2013). Furthermore, Vellone et al. (2013), also concluded that this patient population is susceptible to frequent hospitalizations and emergency room visits secondary to exacerbation of HF (2013). Lastly, their review of literature was also able to determine that 30% of all patients that are diagnosed with HF die within the first year of diagnosis (Vellone et al., 2013).

In 2009, Corvera-Tindel, Doering, Roper, and Dracup examined the relationship between the physical and emotional functioning and overall QOL in men with chronic HF. A cross

sectional analysis of baseline data from 76 male patients from the Veteran's Association Greater Los Angeles Health Care System was completed. The Cardiac -Quality of Life Index (C-DLI) was used to measure quality of life. The 64-item questionnaire was designed to measure life satisfaction. Findings indicated that emotional functioning affects overall QOL in men with HF more than physical functioning did. Moreover, researchers emphasized that in order to improve QOL in this population, more emotional screening is necessary and beneficial to the patient as anxiety and depression is common amongst males with HF (Corvera-Tindel et al., 2009).

Britz and Dunn's (2010) cross-sectional descriptive study was undertaken to determine if self-care deficits of a HF patient at the time of discharge from the hospital could be related to a decreased QOL. A convenience sample of 38 patients who were admitted to a Midwestern hospital's selective care unit were given the Self Care of Heart Failure Index (SCHFI) questionnaire used to measure self-care maintenance, self-care management, and self-care confidence. Additionally, the patients were also provided with the Minnesota Living with Heart Failure questionnaire (MLHFQ), a tool designed to evaluate HF and its subsequent therapies on the physical, emotional, and mental aspects of QOL. The study concluded that the patients who were confident in their abilities to manage their HF symptoms described a higher QOL both emotionally and physically than those patients who reported that they were less self-confident (Britz & Dunn, 2010).

Just one year later, Goodman, Firouzi, Banyz, Lau-Walker, and Crowe (2011) assessed the relationship between illness perception, self-care behavior, and QOL in patients admitted to the hospital with the diagnosis of HF. The longitudinal questionnaire study surveyed a convenience sample of 88 patients prior to discharge and at two and six months post discharge. Participants completed the Revised Illness Perception Questionnaire, the Self-Care Heart Failure

Index, the Hospital Anxiety and Depression scale, and the MLHFQ. Data obtained from this study revealed that participants who had survived 6 months post discharge reported that their physical QOL improved greatly. Results also indicated that emotional QOL does not improve; 20% of participants suffered from emotional issues such as anxiety and depression. In addition, self-care confidence was markedly lower in those who reported a poor emotional QOL, but was higher in those who were more knowledgeable concerning their diagnosis (Goodman et al., 2011).

Lastly, Falk, Eakman, Anderson, Fu, and Granger (2013) published an integrative study intended to summarize current literature pertaining to self-reported symptoms, the experience of illness, and self-care management in the elderly HF patient. Synthesis of the current literature produced four specific concepts: self-reported symptoms of HF, symptoms and age, living with HF, and self-care management and health literacy of HF. Twenty-three qualitative and quantitative studies were reviewed; researchers concluded that elderly HF patients have a poor health related QOL and experience severe and frequent exacerbations that limit numerous aspects of their lives (Falk et al., 2013). Most of these same patients demonstrated poor health literacy concerning HF and its management. It was further noted that this patient population lacks the self-care and symptom management skills necessary to maintain health. The researchers noted that patient centered education and support groups amongst this population have been found to help improve self-efficacy and improve health related QOL (Falk et al., 2013).

Quality of life in the HF patient has been researched and discussed in this section. What was determined is that QOL is multi-factorial and can be influenced by many aspects of life such as physical, emotional, psychosocial, and financial limitations. Each of the articles discussed



suggest that patients who are confident in their self-care abilities achieve a higher level of QOL than those who are not. Despite an extensive review of literature, there appears to be a lack of research that pertains to adherence to a SRD and the impact that doing so has on the perception of QOL in a HF patient. Perhaps by identifying the patient's true perception of how adherence to the restriction affects their QOL could help to revolutionize the way HF education is provided.

### **Theoretical Framework: Dorothea Orem's Self-Care Theory**

Dorothea Orem's self-care deficit theory was utilized as the theoretical framework for this study. The self-care deficit theory, first published in 1971, is based on the concept that every person has a need for self-care in order to maintain optimal health and wellness ("Dorothea Orem's Self-Care Theory," 2012).

In this study, self-care is defined as those activities that a person performs independently to promote and maintain well-being. Air, water, food, elimination, activity and rest, solitude and social interaction, prevention of harm, and promotion of normality are some examples of self-care necessary to promote health ("Dorothea Orem's Self-Care Theory," 2012).

If a person is unable to perform self-care, a self-care deficit exists and nursing care is required. It is the job of the nursing staff to identify the deficit and implement suitable interventions to meet the needs of the patient and nurture well-being. A patient's level of self-care deficit can fluctuate throughout their life span. Patients can either require wholly compensatory support, in which total nursing care is required as they are unable to perform any self-care activities, or partial compensatory support where both the patient and nurse complete self-care requirements. In cases where patients can carry out their own self-care, nurses serve as the educative compensatory support where their role is to serve as a consultant, teacher, or resource person to promote well-being ("Dorothea Orem's Self-Care Theory," 2012). Although

each support system defined by Orem's self-care deficit theory are important, this study will focus primarily on the partial compensatory support and the educative compensatory support in which patients are capable of performing some, if not all, of their self-care. The ways in which this theory applies to our research study is discussed in the following two paragraphs.

**Partial compensatory support.** Orem believed that people are willing to perform self-care activities for family members. The nurse, therefore, promotes patients performing self-care activities that they are capable of and assists the caregiver in becoming competent in patient care management. In this study, the partial compensatory support system is identified if the patient requires the assistance of family, friends, or a second learner to ensure adherence to a SRD in the outpatient setting (Masters, 2012).

**Educative compensatory support.** Orem maintained that all people should be self-reliant and that individuals are influenced by education. If a person is truly self-reliant, then the goal of the nurse is to promote therapeutic self-care. For this study, the educative compensatory support system is identified if the patient was receptive and accepted the teaching provided by health care providers and has adhered to the prescribed SRD in the outpatient setting on his or her own accord (Masters, 2012).

Throughout the years, Orem's self-care deficit theory has served as the theoretical framework for a multitude of studies related to HF. In 2013, a study by Vellone et al., used the theory to define three new relationships in HF self-care. These new founded relationships state that symptom monitoring via self-care management has a direct and positive effect on treatment initiation, symptom recognition, and evaluation (Vellone et al., 2013). In another study, Britz and Dunn (2010) Orem's self-care deficit theory was used as framework to determine that increased self-care abilities and improved self-care behaviors can empower the patient to have

better control of their HF management. The researchers found that patients who adhere to their HF plan of care and exhibit appropriate and adequate self-care will exhibit fewer HF exacerbations and have an overall improvement of QOL (Britz & Dunn, 2010).

### **Summary of the Review of Related Literature**

Research has shown that it is beneficial to the HF patient to follow a SRD (Son et al., 2011). Adherence to this diet has been shown to decrease exacerbations, hospitalizations, and can even decrease the risk of mortality. Evidence supports that many issues influence a HF patient's QOL. Self-care management and improved health care literacy of HF have been concluded to improve the patient's QOL. This study will use Dorothea Orem's self-care deficit theory to examine if adherence to a SRD is related to HF patient's perception of QOL.

## **Chapter 3**

### **Methodology**

#### **Introduction**

According to the Centers for Disease Control (CDC), roughly 5.1 million people have HF (CDC, 2015). In 2009, 1 in 9 deaths were attributed to HF and approximately 1-2% of the adult population carried the diagnosis of HF (CDC, 2015). Even though much more is known today about this chronic disease than ever before, HF rates continue to rise. Roughly 20-30 % of the patient population affected by HF are frequenting emergency departments and being admitted to hospitals (Colin-Ramirez et al., 2015). Half of the patients newly diagnosed with HF will die within 5 years of diagnosis. These statistics are alarming and will continue to climb if patients fail to adhere to their plan of care.

SRDs are now a mainstay of HF treatment. A pilot study by Colin-Ramirez et al. (2015) demonstrated that SRDs are not only feasible, but at six months showed reduced B-type Natriuretic Peptide (BNP) levels in participants. Research continues to gather information and resources grow, but there are existing gaps in the research regarding patient care, compliance, adherence, understanding, and how these concepts affect the patient's QOL. This study examines the relationship between HF patients' adherence to a SRD and their perceived QOL. The purpose of this chapter is to describe the research design, setting, sample, ethical considerations, instrumentation, data collection, and proposed data analysis.

#### **Research Design**

Researchers conducted a descriptive, correlational, and survey study. In this research study, no experiment was conducted, no variables were manipulated, and the data was obtained from simple surveys. This study can also be described as a descriptive study as information was

collected without manipulation of variables. Examination of the association between and among the variables as defined by the purpose statement justified the correlational design.

### **Setting**

A heart failure clinic in Northwestern Pennsylvania consisting of 13 cardiologists, an NP, and a PA. They serve a diverse population with a payer mix of approximately 60% Medicare, 18% Blue Cross Blue Shield, and the remainder Medicaid and other insurances.

### **Sample**

The target population included all people who had been diagnosed with HF and placed on a SRD. The aforementioned population was the specific population from which conclusions were drawn. The accessible population was estimated to be between 175-225 patients. The minimum number of expected participants was 50 and the maximum was 225. It was approximated that a 30% response rate could be obtained from this population resulting in a target amount of 68 participants. In total, only 28 participants completed the surveys.

The sample selection of participants in this study was obtained from a non-random convenience sample, as the participants selected were patients that were attending follow up appointments with their cardiologist. The eligibility criteria for the sample were composed of set inclusion and exclusion criteria. Inclusion criteria were as follows: patients must be over 30 years of age, have current diagnosis or history of HF, as defined by ICD-9 code of 428 with or without qualifiers, and ICD-10 diagnosis code of I50 with or without qualifiers, be on a SRD at the recommendation of a medical professional, able to read and can speak English, and not have a diagnosis of dementia or cognitive impairment. The exclusion criteria were as follows: under 30 years of age, no diagnosis or history of HF, a diagnosis of dementia or cognitive impairment, diagnosis of HF but with no recommended dietary restrictions related to sodium, first time

admission for HF, and any diagnosis of cancer or severe kidney or liver disease. These inclusion and exclusion criteria had been established to reduce the risks that factors other than a SRD could impact the patient's perception of quality of life.

### **Ethical Considerations**

Researchers completed Collaborative Institutional Training Initiative (CITI) training as requested by both Clarion University and University of Pittsburgh Medical Center (UPMC) Internal Review Boards (IRBs). Conflict of Interest questionnaires were also completed by the researchers as requested by the UPMC IRB. Participants were provided with an introductory letter which elaborated on the purpose of the study, the right to confidentiality, privacy of information, and the contact information of the researchers (Appendix B). Trained staff at the doctor's office distributed the letter and the questionnaires during the screening process. The participant's consent was implied when after reading the introduction letter, they understood that involvement was voluntary, that they had the right to refuse participation in the study at any point in time, and they had completed the questionnaires. No personal identifying information was used, as the study was completed with knowledge of exclusion criteria, survey results, and coding information. After the surveys were completed, there was no further interaction or follow up with the participants. Risks were not a factor in this study, as there was no experiment conducted or variables manipulated.

### **Instrumentation**

The instruments used in this study were the Minnesota Living with Heart Failure Questionnaire (MLHFQ) and the Self- Reported Adherence to a Low Salt (Sodium Restricted) Diet short survey which collected demographic information and addressed in two questions whether the patient was adherent to a prescribed SRD and if the patient perceived that their QOL

is improved when adhering to SRD. The MLHFQ uses a self-reporting system to assess attitudes, behaviors, and perceptions concerning the relationship between a SRD and the patient's perceived QOL. The MLHFQ is often used in studies in which Orem's self-care deficit theory is used as the theoretical framework. Britz and Dunn (2010) stated that self-care was vital to the QOL in patients with HF. In their study, the MLHFQ was used to determine the relationship between self-care deficits at discharge and a decreased QOL in patients with HF (Britz & Dunn, 2010). The decision to use a short survey to define perception of QOL while adhering to SRD was made after review of much lengthier studies. It was felt that the questions would be answered with a higher level of understanding and better rate of survey return if only two questions regarding adherence to an SRD were used instead of another entire questionnaire.

Quality of life was measured using the MLHFQ, which is disease-specific (Middel et al., 2001). There is no fee for use of this questionnaire by students. The instrument measures patients' perception of how much their HF and its subsequent treatment affect their lives. The questionnaire consists of 21 questions rated on a Likert-type scale from 0 to 5. Items are totalled and given a score ranging from 0 to 105, with higher scores representing worse QOL. These questions address many aspects of living with HF, including symptoms, functional limitations, effects of treatments, and psychological impact. The questionnaire does not measure these separately; all facets are represented in the total score which measures quality (Rector, 2005). According to a study done by Moser et al. (2009), "the MLHFQ is the most commonly used disease-specific instrument used in HF research and is an appealing instrument because it is inexpensive, short, easily understood by ill and elderly individuals, self-administered, and easy to score"(p. 766). The psychometric properties have been studied and demonstrate a strong internal consistency and reliability (Lee, 2014).

## **Data Collection**

A non-random convenience sample was used due to access and feasibility. Nurses and Medical Assistants employed at the cardiology practice were instructed on how to determine eligibility for the study and how to distribute the introduction letters and questionnaires appropriately. This education was provided to the staff by the researchers. Inclusion requirements, exclusion requirements, and methodology were presented. The staff members were also instructed on how to distribute letters and questionnaires while maintaining patient confidentiality. The staff members had a duty to the patient, but did not have a conflict of interest (as they were not researchers for the study), and were utilized to facilitate the completion of the questionnaires during the patient's follow up visit.

Once patients met the inclusion criteria by chart review and appropriate diagnosis code, the nurse/medical assistant at the office distributed the questionnaires in a labelled, manila envelope. The participant completed the questionnaires while still at the doctor's office, placed the questionnaires back in the envelope, sealed the envelope, and then returned the completed questionnaires to the nurse/medical assistant. Completed questionnaires were then be stored in a locked file box provided by the researchers in secure location determined by the staff at the doctor's office. Once 3 weeks of data collection had yielded only 29 participants, the research team decided to suspend any further data collection due to time constraints.

The age, ethnicity, gender, median level of schooling, self-reported adherence to a SRD, and perceived QOL while adhering to a SRD were obtained through questions contained within the short demographic survey. Demographics were analyzed to determine if the results can be applied to the total population. The demographics also assist to describe the sample population.



The QOL was determined by a patient's score on the MLHFQ. These results were used to determine the average of the sample population and whether or not the sample is representative of the total population. The information gathered was used to determine whether there is a statistically significant correlation between adherence to a SRD and HF patient's QOL.

### **Summary of Methodology**

In order to determine whether or not a relationship exists between adherence to a SRD and a HF patient's perceived QOL, two surveys were distributed to patients with a known diagnosis of HF: The MLHFQ and the Self-Reported Adherence to Low Salt (Sodium Restricted) Diet questionnaire. Distribution of the questionnaires took place at a heart failure clinic in northwestern Pennsylvania after receiving all appropriate approvals. The study results will be discussed in chapter 4.

The operational definitions of our variables were as follows:

- I. Adherence in this study was measured by the patient carrying out the stated plan without deviation as represented by the self-reported adherence to a SRD.
- II. Quality of life was measured as the patient's perception of overall well-being as indicated by the MLHFQ.
- III. Perception of quality of life while adhering to a SRD was represented by a self-reported value as indicated by the Self-Reported Adherence to a Low Salt (Sodium Restricted) Diet questionnaire.
- IV. HF is measured by the chart review and a diagnosis of HF being identified.
- V. SRD is a diet prescribed by a medical professional where sodium is limited to some degree as indicated by chart review where prescribed SRD is identified.

## Chapter 4

### Results and Discussion

#### Introduction

This chapter presents the results of the research conducted on whether a relationship exists between adherence to a SRD and the perceived QOL in patients diagnosed with HF. It includes information on the response rate, demographics, and respondents. It is comprised of information provided by HF patients on SRD and QOL.

#### Demographic Findings

The researchers initially calculated that it would be feasible to obtain a minimum of 50 completed surveys, during the three-week time frame in which the study was conducted; however; only 29 completed surveys were received. Of the 29 participants that responded, only one did not complete the survey its entirety and was eliminated from further analysis. Of the 28 completed surveys, participants were primarily male and over the age of 56, Caucasian, and had earned a minimum of a high school diploma or GED (See Table 1).

Table 1

#### *Demographic Characteristics of Study Participants*

Characteristic	N (%)
Age	
36-45	1 (3.5)
46-55	3 (10.7)
56-65	8 (28.6)
66-75	8 (28.6)
>75	8 (28.6)
Gender	
Female	9 (35.7)
Male	18 (64.3)
Ethnicity	
Decline	0 (0)
American Indian or Alaskan Native	0 (0)
Asian	0 (0)

Black	1 (3.5)
Hispanic/Latino	1 (3.5)
Native Hawaiian	0 (0)
White	26 (93)
Other	0 (0)
Highest Level of Education	
Did not graduate high school or earn GED	1 (3.5)
High school diploma or GED	11 (39.3)
2 year degree	4 (14.4)
4 year degree	2 (7.1)
Some college credits, no degree	8 (28.6)
Masters	2 (7.1)
Doctorate	0 (0)

In addition, all 28 respondents answered two Likert scale question regarding how often the respondent follows a SRD and on whether the respondent felt that their QOL was improved when they followed a SRD. Analysis of the first Likert scale question revealed that most respondents indicated that they adhered to a SRD most of the time. Analysis of the second Likert question revealed that most respondents felt that their QOL was improved most of the time when following a SRD (See Table 2).

Table 2

*Self-Reported Adherence to a Low Salt Diet and Related Quality of Life*

Question	Frequency			
	Always	Most of the Time	Sometimes	Never
I follow my low salt diet (n = 28)	7 (25%)	17 (60.7%)	4 (14.3%)	0
I feel that my quality of life is improved when I follow my low salt diet (n = 23)	5 (21.4%)	10 (42.9%)	6 (28.6%)	2 (7.1%)

Respondents completed the MLHFQ to measure HF specific quality of life. Respondents completed 21 Likert scale questions. Possible answers ranged from 0 (no) to 5 (yes). The final score was totaled from the sum of the points obtained from the 21 questions. Total sums can range from 0-105 points. Lower scores represent a higher QOL in a patient with HF. Conversely, higher scores represent a lower QOL in a patient with HF. In this study, total sums were utilized. Scores ranged from 3 to 100. The average score was 47 (See Table 3).

Table 3

*Results of Minnesota Living with Heart Failure Questionnaire (MLHFQ)*

<b>MLHFQ Score</b>	<b>N (%)</b>	<b>Mean</b>
<b>0-25</b>	6 (21.4)	13.2
<b>26-50</b>	11 (39.3)	41
<b>51-75</b>	8 (28.6)	67
<b>76-100</b>	3 (10.7)	90.3
<b>&gt;100</b>	0 (0)	0

**Research question 1: Does a relationship exist between adherence to a SRD and the perceived QOL in patients diagnosed with HF?**

H<sub>0</sub>: There is no relationship between adherence to a SRD by patients diagnosed with HF and their perceived QOL as measured on the Minnesota Living with Heart Failure Questionnaire (MLHFQ) and the Self-Reported Adherence to a Low Salt (Sodium Restricted) Diet short questionnaire.

H<sub>1</sub>: There is a relationship between adherence to a SRD patients diagnosed with HF and their perceived QOL as measure on the Minnesota Living with Heart Failure Questionnaire

(MLHFQ) and the Self-Reported Adherence to a Low Salt (Sodium Restricted) Diet short questionnaire.

Perception of QOL while following a SRD was operationalized by the response to item 6 on the Self-Reported Adherence to a Low Salt (Sodium Restricted) Diet short questionnaire. QOL was operationalized by the total scores obtained from each MLHFQ survey. Data was analyzed via Excel to obtain the Pearson correlation statistic. In this case, the dependent variable was QOL while perception of QOL was the independent variable. Correlation was determined to be significant at 0.05 or less ( $p < .05$ ). Analysis revealed  $r(26) = .042$ ,  $p = .83$ , indicating no statistical significance. Results provide evidence to accept the null hypothesis and reject the alternative hypothesis. This value supports there is no correlation between adherence to a SRD and perceived QOL in patients diagnosed with HF.

### **Discussion of Results Related to Literature Review**

To the best of the researcher's knowledge after an extensive review of literature was conducted, no previous investigators have examined the relationship between adherence to a SRD and perceived QOL. This study indicates that there is correlation between adherence to a SRD and perceived QOL. Results from this study may support findings from Son, Lee, and Song (2011), which confirmed that patients diagnosed with HF did not attribute decompensation to an acute HF exacerbation despite recognizing symptoms such as edema and dyspnea often occurred after eating foods that contained a high amount of sodium.

Self-reported adherence to SRD may have been an important factor in obtaining accurate results in this study. Lennie et al. (2008) concluded that although 75% of the participants in their study reported to adhere to a SRD all or most of the time, truly only 25% were considered adherent once a 24 hour urine specimen had been analyzed. Furthermore, Colin-Ramirez et al.

(2015) concluded that self-report was not a reliable measure of HF patients' adherence to SRD. Findings from each study discussed may play an important role in patient education as they can aid in patient's understanding in the relationship between non-adherence to SRD resulting in greater symptom burden and decreased QOL.

Analysis of demographic data revealed that 57.1 % (n=16) of respondents were over 66 years of age. In 2010, Britz and Dunn concluded that older patients have experienced more life events, accept their limitations from HF, and try to compensate by appreciating their current QOL for what it is. Similarly, a study by Otsu and Moriyama (2012) indicated that elderly patients often report they become lazy about socialization, activities, and work as they age. Researchers concluded that QOL in elderly patients was possibly related to the normal aging process rather than the deteriorating symptoms of HF (2012). In contrast, Falk et al. (2013) speculated that elderly patients with HF have a poor health related QOL and experience severe and frequent exacerbations that limit numerous aspects of their lived. Taking these studies into consideration, results obtained from this study may have been skewed by the number of elderly participants.

### **Discussion Related to Theoretical Framework**

Dorothea Orem's self-care deficit theory is founded on the theory that every patient has a need for self-care in order to maintain optimal health and wellness ("Dorothea Orem's Self-Care Theory," 2012). This study focused on two support systems as defined by Orem's self-care deficit theory. Under these support systems, the partial compensatory support and the educative compensatory support, patients are capable of performing some, if not all of their own self-care. Adherence to a SRD is a major component of HF self-care management (ACCF/AHA, 2013).

As results of this study indicate that a relationship does not exist between adherence to a SRD and the perceived quality in a patient diagnosed with HF, the question of why must be addressed.

In 2010, Britz and Dunn reported that patients diagnosed with HF that demonstrated decreased self-care abilities in activities such as medication adherence, following a SRD, restricting fluid intake, logging daily weights, and identifying symptoms of HF exacerbation had frequent hospitalizations and decreased QOL. Patients report that a variety of factors make it difficult to adhere to a SRD. These factors include: misunderstanding of SRD guidelines, interference with socialization, lack of food selection, little understanding of sodium content in foods, food preparation habits, inability to enjoy foods that contain low sodium, and the convenience of fast food products (Son et al., 2011).

Britz and Dunn (2010) concluded that self-care competence is vital in overall QOL for patients with HF. They argue that HF patients that are properly educated about their diagnosis, their treatment options both pharmacological and nonpharmacological, and the consequences of the disease should demonstrate increased self-care abilities and behaviors. Patients who then rely on their self-care abilities and adhere to their HF therapies can be expected to have fewer HF exacerbations, improved functional capacity, and an overall higher QOL (Britz & Dunn, 2010).

Although responses on the Self-Reported Adherence to a Low Salt (Sodium Restricted) Diet did indicate that 85.7% (n=14) of respondents reported that they follow a SRD always or most of the time and 64.2 % (n=18) of respondents that they felt that their QOL was improved when a SRD was followed always or most of the time, results obtained from MLHFQ did not correlate. These statistics clearly identify that a breach exists between HF education and the patient's ability to perform self-care activities such as following a SRD.

## **Limitations**

Major limitations to this study include time constraints due to project timelines, and small sample size which limits the ability to represent a larger population of patients with HF. Some other limitations include a close geographic area which resulted in homogeneity of the sample and does not allow for results to be generalized to a heterogeneous population, participants were following with the same cardiologist and the physician's treatment plans and practices may not be representative of physicians as a whole, patient's motivation to participate in the survey process, insufficient amount of time to complete the surveys prior to appointment time, and the self-reporting of data.

## **Summary**

This chapter presented the analysis of data obtained during research conducted to determine if a relationship existed between adherence to a SRD and the perceived QOL in patients diagnosed with HF. Survey results from the Self-Reported Adherence to a Low Salt (Sodium Restricted) Diet and the MLHFQ were reviewed and discussed.

Analysis of data obtained determined that a significant correlation between adherence to SRD and perceived QOL does not exist. An extensive review of literature was conducted to determine whether the results from this study were supported by previous research. The researchers of this study believe that no previous studies have addressed this topic, however, relevant findings from this study compared to previous literature and theoretical framework were discussed. Furthermore, data obtained from this study clearly identifies that a knowledge gap exists between HF education and the patient's ability to perform self-care activities such as following a SRD.



## Chapter 5

### Summary, Conclusions, and Recommendations

#### Summary of Findings

HF patients are often encouraged to make many lifestyle changes when they are diagnosed, including adhering to a SRD. There is very little research that focuses on how these lifestyle modifications affect the HF patient's perception of QOL. Research was conducted to determine if following a SRD is related to the HF patient's perceived QOL. This study does not support that HF patients feel that their QOL is improved when they follow a SRD.

Twenty five percent (n=7) of participants reported following their SRD all of the time, but only two of these reported that they felt their QOL was always improved when following a SRD. Overall, 42.3% of participants (n=12) did feel that their QOL was improved when following their prescribed SRD most of the time.

The mean score of the MLHFQ was 47 indicating that the overall perceived QOL of the participants was in the moderate range. Statistical analysis between the MLHFQ results and the self-reported perception of improved QOL while adhering to a SRD provided no statistically significant t correlation and does not support the hypothesis that a relationship exists between adherence to a SRD in patients diagnosed with HF and their perceived QOL.

This finding is significant because 64.2% of participants self-reported that their adhering to an SRD, either all or most of the time, did improve their QOL. However, the MLHFQ scores suggest only a moderate QOL overall. This suggests that further research may be needed to determine factors that affect the HF patient's QOL.

## **Implications for Nursing**

This research study focuses on the perception of the HF patient's QOL when adhering to a SRD. Nurses cannot directly manipulate a patient's perception, but what the nursing profession can do is learn from the statistics presented. The large percentage of patients that self-reported an improvement in QOL while following their SRD leads to the conclusion that this is a vital component of HF patient education.

When a patient is discharged from the hospital with a new diagnosis of HF, they are often sick, weak, and overwhelmed. The education that is given at time of discharge regarding a SRD may not be retained for several reasons. If nursing took a different approach to educating HF patients, would the patient have a better understanding of the impact that adhering to a SRD can have on their quality of life? Are hospital nurses that are discharging the HF patient aware of the impact that a SRD can have on a patient's quality of life and are they taking that discharge education seriously? Is education occurring throughout admission or is it only presented at time of discharge? Are nurses simply reading HF education to the patient or providing the patient with "teach-back" moments? As HF is prevalent in all health systems, nurses in all areas of care could benefit from learning more about the treatment for HF and how these lifestyle modifications can lead to an improved psycho-social and physical well-being for the HF patient.

## **Recommendations for Further Research**

The findings of this research study support that more research is needed on the HF patient's QOL. Suggested topics for further research include overall QOL in HF patients and what factors affect quality of life the most. Moreover, further examination into initial HF education should be addressed. Why aren't patients understanding, adhering, and retaining HF education as it is provided to them? In addition, further study could be invested in how much

SRD education a HF patient is presented with in the outpatient setting. Are healthcare providers building upon initial HF education provided to the patient or is it assumed that the patient has retained that education and are actively adhering to a SRD? Lastly, it is also suggested that research be conducted on how well nurses understand the therapies and treatment of HF, as they are the ones most often presenting HF education to the patient upon discharge.

Once that is determined, the healthcare community could begin to develop methods to close the gaps that exist currently. HF affects nearly 5 million Americans each year and the impact of this information could greatly transform the lives and QOL of those living with this chronic disease.

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## Appendix A

# UPMC Hamot

201 State Street  
Erie, PA 16550  
(814) 877-6000  
UPMCHamot.org

February 19, 2016

Deborah Kelly, DPN, RN,CHPCA  
Clarion University of Pennsylvania Venango College  
School of Health Sciences Department of Nursing  
1801 W. First St.  
Oil City, PA 16301

Dear Dr. Kelly:

On **February 19, 2016**, your study, "Sodium Restricted Diets: Do They Affect the Heart Failure Patient's Perception of Quality of Life?" was screened for exempt status according to the policies of this institution and the provisions of applicable federal regulations. This research is exempt (does not require formal IRB review) because it involves an anonymous survey or interview of adults.

You may initiate your project as of this date.

Please note: any changes or amendments to the study must be resubmitted with the protocol and consent form (if applicable) for evaluation by the Chairperson or Administrator of the IRB. All researchers must abide by the policies found at:  
<http://imdata/pandp/policiesmain.aspx?q=research>.

Sincerely,



Margaret Pett  
IRB Administrator

cc: Jessica Jones, RN Kathryn Smith, RN



**Appendix B**  
**CLARION UNIVERSITY OF PENNSYLVANIA**  
**Institutional Review Board**

**DATE:** March 16, 2016

**FROM:** Rhonda Clark, Chairperson  
Institutional Review Board

**TO:** Kathryn Smith  
Jessica Jones

**RE:** ARA Approved

Your application for Research Approval, Sodium Restricted Diets: Do They Affect the Heart Failure Patient's Perception of Quality of Life? Project 48-15-16, has been reviewed and approved as exempt. **Be sure that you include your IRB project number in your project cover letter and in any correspondence with the Administrative Office. Also, please include your approval number from the initial application, if submitting an addendum. Your IRB project number should appear on your informed consent and/or your survey instrument.**

Please review the following IRB policy guidelines, which cover your responsibilities as primary investigator:

**You must file written permission, which serves as consent, from the institution or facility with the Administrative Office (included in your IRB application). You must also retain all signed consent forms, if required for participation, for a period of three years after the end of the research approval period.**

**If your research extends beyond one year, you must submit a request for extension and an annual progress report.**

Principal investigators are responsible for reporting the progress of the research to the Administrative Office no less than once per year. Problems involving risks or changes in the research must be reported immediately.

**You must promptly report injury and/or unanticipated problems involving risks.** Principal investigators are responsible for promptly reporting (in writing) to the Administrative Office, through their department heads, any injuries to human subjects and any unanticipated problems, which involve risks to the human research subjects or others.

**You must report changes in the research.**

Research investigators are responsible for promptly reporting (in writing) to the Administrative Office, through their department heads, any proposed changes in a research activity.

Changes in research during the period for which IRB approval has already been given **shall not be initiated** by the research investigators **without IRB review and approval**, except where necessary to eliminate apparent immediate hazards to the subject. In such occurrence the IRB is to be notified as soon as possible.

**You must report noncompliance with this assurance.**

Research investigators and department heads are responsible for reporting promptly to the Administrative Office and the IRB any serious or continuing noncompliance with the requirements of this assurance or the determinations of the IRB.

**If your project is under continuing review (Expedited and Full-Board Applications), you may be requested to produce evidence that your research is following the guidelines provided in your application.** If your project is chosen for an audit, you will be notified.

**You must submit a research conclusion form, available on the IRB site, once your research project is completed. Please submit the research conclusion form to [irb@clarion.edu](mailto:irb@clarion.edu).**

Clarion University of Pennsylvania  
840 Wood Street, Clarion, PA 16214  
814-393-2774 (Phone)  
814-393-2825(Fax)

## Appendix C

Dear Patient,

We are graduate level students from the family nurse practitioner program at Clarion and Edinboro Universities of Pennsylvania and are seeking your participation in a study to determine whether or not following a low salt (sodium restricted) diet has an effect on the quality of life of people living with heart failure. This research is being done as part of our educational requirements for our course of study.

We are inviting you to participate in this study as you have been diagnosed with heart failure. If you choose to participate in this study, you will complete two short surveys.

- One survey examines how the diagnosis of heart failure has impacted your quality of life.
- The second survey contains a few questions regarding your age, ethnicity, gender, and education level. This survey will also ask you to rate how closely you follow a low salt (sodium restricted) diet and how that impacts your quality of life.

If you choose not to participate in the study, do not complete the surveys. You may refuse to answer any question or discontinue your participation in this study at any time. These surveys will not take any more time than 10-15 minutes to complete. Completing the surveys is voluntary and completely anonymous. Please do not add your name, address, date of birth, or any other identifying information to the survey. Due to the fact that this survey is anonymous, and we researchers will not have any access to your personal information, there is no risk to you for participating.

We are hopeful that the results of this study will improve how doctors and nurses teach patients about low salt diets, and therefore increase the quality of life of patients living with heart failure. This is a great benefit to all patients living with heart failure, including you! If you participate, you could help change the way patients with heart failure live.

By participating in this survey you are providing consent for the results obtained to be used in our study. There will be no way to link personal information to the surveys returned. Your identity and diagnosis will remain confidential. Results obtained will be used entirely for the purpose of research. After completing the surveys, please place them in the envelope provided, seal the envelope, and return it to the nurse.

- If you would like a copy of the results of our research, please provide your name and address **on a separate sheet of paper outside of the sealed envelope** and hand that to the nurse as well.
- If you have questions at any point in time you may contact either of the researchers listed below.

Thank you for your time!

Sincerely,

Jessica A. Jones RN, BSN, Researcher  
j.a.jones2@eagle.clarion.edu

Kathryn M. Smith.RN, BSN, Researcher  
k.m.smith5@eagle.clarion.edu

To reach the Principal Investigator and the chair of our thesis committee, please use the correspondence information below:

Deborah J. Kelly DNP, RN , CHPCA  
Assistant Professor  
Clarion University of Pennsylvania  
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## Appendix D

### MINNESOTA LIVING WITH HEART FAILURE<sup>®</sup> QUESTIONNAIRE

The following questions ask how much your heart failure (heart condition) affected your life during the past month (4 weeks). After each question, circle the 0, 1, 2, 3, 4 or 5 to show how much your life was affected. If a question does not apply to you, circle the 0 after that question.

<b>Did your heart failure prevent you from living as you wanted during the past month (4 weeks) by -</b>	<b>No</b>	<b>Very Little</b>			<b>Very Much</b>	
1. causing swelling in your ankles or legs?	0	1	2	3	4	5
2. making you sit or lie down to rest during the day?	0	1	2	3	4	5
3. making your walking about or climbing stairs difficult?	0	1	2	3	4	5
4. making your working around the house or yard difficult?	0	1	2	3	4	5
5. making your going places away from home difficult?	0	1	2	3	4	5
6. making your sleeping well at night difficult?	0	1	2	3	4	5
7. making your relating to or doing things with your friends or family difficult?	0	1	2	3	4	5
8. making your working to earn a living difficult?	0	1	2	3	4	5
9. making your recreational pastimes, sports or hobbies difficult?	0	1	2	3	4	5
10. making your sexual activities difficult?	0	1	2	3	4	5
11. making you eat less of the foods you like?	0	1	2	3	4	5
12. making you short of breath?	0	1	2	3	4	5
13. making you tired, fatigued, or low on						

energy?	0	1	2	3	4	5
14. making you stay in a hospital?	0	1	2	3	4	5
15. costing you money for medical care?	0	1	2	3	4	5
16. giving you side effects from treatments?	0	1	2	3	4	5
17. making you feel you are a burden to your family or friends?	0	1	2	3	4	5
18. making you feel a loss of self-control in your life?	0	1	2	3	4	5
19. making you worry?	0	1	2	3	4	5
20. making it difficult for you to concentrate or remember things?	0	1	2	3	4	5
21. making you feel depressed?	0	1	2	3	4	5

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## Appendix E

### Self-Reported Adherence to a Low Salt (Sodium Restricted) Diet

These questions are meant to provide basic demographic information, and determine how well you follow the lower sodium diet that your doctor has prescribed. For the purpose of this survey, quality of life is defined as “an individual’s subjective perception of the effects of a clinical condition or its treatment on his/her daily life” (Alla, et al., 2002)

1. What age are you?
  - a. < 35 years
  - b. 36-45 years
  - c. 46-55 years
  - d. 56-65 years
  - e. 66-75 years
  - f. >76 years
2. What is your gender?
  - a. Female
  - b. Male
3. What is your ethnicity?
  - a. Decline to specify
  - b. American Indian or Alaskan Native
  - c. Asian
  - d. Black or African American
  - e. Hispanic or Latino
  - f. Native Hawaiian or other Pacific Islander
  - g. White
  - h. Other \_\_\_\_\_
4. What is the highest level of schooling you have received
  - a. Did not graduate college or earn a GED
  - b. High school diploma or GED
  - c. 2 year degree
  - d. 4 year degree
  - e. Some college credits, but did not earn a degree
  - f. Masters
  - g. Doctorate
5. I follow my low salt diet (sodium restricted diet):
  - a. Always
  - b. Most of the time
  - c. Sometimes
  - d. Never
6. I feel that my quality of life is improved when I follow my low salt diet (sodium restricted diet) :
  - a. Always
  - b. Most of the time
  - c. Sometimes
  - d. Never