

2018

# Using Social Cognitive Theory to Predict Counseling Behaviors in Registered Dietitians

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*Walden University*

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# Walden University

College of Health Sciences

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Marianela Guerrero

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Walden University  
2018

Abstract

Using Social Cognitive Theory to Predict Counseling Behaviors in Registered Dietitians

by

Marianela Guerrero

MS, Sage Colleges, 2007

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Public Health

Walden University

November 2018

## Abstract

Obesity and morbid obesity affect more than 30% of Americans, which emulates the rate of smoking as the leading preventable cause of disease and death in the United States. The prevalence of obesity among adults in the United States increased dramatically between 1980 and 2010 (16% to 36%). The integration of the social cognitive theory (SCT) constructs such as self-efficacy, self-control, environment and expectations in the study instrument allowed identifying the impact of personal, social and economic factors on Registered Dietitians (RDs) counseling behaviors with obese clients. The goal of this quantitative cross sectional study was to investigate the association between RDs counseling behaviors and weight loss of clients using SCT. The sample of 150 RDs affiliated to the American Dietetic Association completed a survey to gather counseling behaviors with weight loss clients and SCT constructs. Data were analyzed using multiple regressions. The study showed a significant relationship between three SCT constructs such as self-efficacy in overcoming barriers, counseling environment and self-control with RDs counseling behaviors. The Spearman's rho correlations analyses between independent and dependent variables showed positive relationships between self-efficacy in overcoming barriers in counseling sessions and RDs counseling behaviors .34. The study adds to the literature on weight loss and RDs' counseling skills and creates the foundation for further research studies to reduce obesity by improving counseling skills among RDs.

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## Dedication

I dedicate this doctoral dissertation to my family. To my parents, for their unreserved love, support, and encouragement thorough this process. To my sister, for her unconditional faith in my strength and ability to finish this process. To Milita and Teresita for their unconditional support and love in this challenging phase of my life. To my friends and colleagues who have helped me to complete my doctorate. To Walden faculty and fellow students who provided valuable feedback during the different phases of this journey.

## Acknowledgments

This dissertation is dedicated to my family, who has shown me an unconditional support and encouragement throughout this long journey on achieving a long-desired goal. I want to thank God for giving me the strength, courage, and focus on pursuing this dream. I would also thank Dr. Sharma for guiding me in this complicated and strenuous process. Dr. Schumaker, thank you for accepting to be my committee member, for your support, and for your invaluable feedback.

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## Chapter 1: Introduction to the Study

Obesity is a global public health problem that leads to physical and psychological impairment (Dixon, 2009). An estimated 315 million people worldwide are obese, and at least 2.8 million die annually as a result of being overweight or obese (Dixon, 2009). In developed countries, the prevalence of obesity is about 20% of men and 25% of women (Finkelstein et al., 2012). Finkelstein et al. (2012) reported that in 2010-2011, the prevalence of obesity in the United States was 16.9% in youth and 34.9% in adults.

Masters et al. (2013) found that body weight has increased dramatically in the United States since the early 1970s, and most of this change occurred in the 1980s and 1990s. Yanovski & Yanovski (2011) reported that the prevalence of obesity in adults aged 20 to 74 years increased by 7.9 percentage points for men and by 8.9 percentage points for women between 1976 to 1980 and 1988 to 1994. He also found that between 1999-2000, obesity rose by 7.1 percentage points for men and by 8.1 percentage points for women (Yanovski & Yanovski, 2011).

Faghri and Buden (2015) reported that obesity is an epidemic in the United States and other countries around the world. The Centers for Disease Control and Prevention (CDC) declared that the American society has become obesogenic (as cited in Faghri & Buden, 2015). Obesity affects more than 30% of Americans, which mirrors the rate of smoking as the leading preventable cause of disease and death in the United States (Faghri & Buden, 2015).

The prevalence of obesity among adults in the United States increased dramatically between 1980 and 2010 (from 16% to 36%); (Flegal, Carroll, Kit & Ogden,

2012). In the United States, more than 26% of children ages 2 to 5 years have a body mass index (BMI) at or above the 85th percentile (Flegal et al., 2010). Overweight and obese are currently defined by a BMI of greater than 25 and 30 kg/m<sup>2</sup>, respectively (Murillo, Ali, Carmack, & Doss, 2016). BMI is a measure of overweight and obesity defined as weight in kilograms divided by the square of height in meters (kg/m<sup>2</sup>); (Murillo et al., 2016).

Obesity has been related to adverse health consequences, such as Type 2 diabetes, hypertension, cardiovascular disease, and early mortality (Hammond & Levine, 2010). Obesity has also been associated with psychosocial problems and socioeconomic burdens, and if this trend continues, future obesity-related health care costs will cause a tremendous economic burden on society (Hammond & Levine, 2010).

Hammond and Levine (2010) calculated the estimated cost of treating obesity in the United States adult population at \$168.4 billion, which represents the 16.5% of national spending on medical care. The lack of effective public health interventions, the medical costs associated with obesity could rise by \$46 to \$88 billion annually by 2030 (Hammond & Levine, 2010).

Approximately half of these medical expenses have been financed by Medicare or Medicaid, creating a burden on other members of society (Hammond & Levine, 2010) . The negative charge resulting from medical bills associated with diseases and treatments related to obesity may raise the insurance premiums for all members enrolled in insurance programs (Hammond & Levine, 2010).

There are a significant number of public policies to control the obesity epidemic; however, an insufficient number of policies have been implemented (Hammond & Levine, 2010). The intricate range of social and economic factors that cause energy imbalance leading to obesity epidemic has been studied, but not entirely understood (Hammond & Levine, 2010).

In developed countries, the increase of energy intake has been the responsible for the raise in body weight. Americans have enlarged their caloric intake by 15% (Mink, Evans, Moore, Calderon & Deger, 2010). There are three main factors affecting energy consumption: relatively low food prices, female labor participation, and urbanization (population living in urban areas; Finkelstein et al., 2012; Masters et al., 2013).

In past years, the proliferation of fat-modified foods and low prices for fruits and vegetables have not helped in the improvement of the overall diet of the population (King, Byham-Gray, Parrot, Maillet & Splett, 2014; Masters et al., 2013). The consumption of fruits and vegetables is declining while the consumption of fat and the high-calorie food is increasing (Finkelstein et al., 2012; Masters et al., 2013).

Individual dietary choices are influenced by a combination of personal, social, and economic factors, as well as by food marketing and advertising (Mink et al., 2010). The integration of social cognitive theory constructs would allow identifying the impact of personal, social, and economic factors on registered dietitians' (RDs) counseling behaviors with obese clients (Sharma & Romas, 2012).

RDs can be crucial tools as they use their expertise in the variable field of food science and nutrition (Anderson, Winett, & Wojcik, 2007; Zinn, Schofield, & Hopkins,

2012). RDs listen and translate theoretical and scientific information to concrete actions and practical skills for clients, and they are essential in managing the obesity rates in the United States (Anderson et al., 2007; Zinn et al., 2012).

Dietitians are considered experts in weight management (Anderson et al., 2007; Zinn et al., 2012). However, there is little scientific literature on the behaviors and tools that dietitians employ to achieve clients' weight-loss. There is little evidence on how efficient and prepared dietitians are to handle a public health crisis such as obesity (Anderson et al., 2007; Zinn et al., 2012).

This gap in the theory and practice of nutrition science literature could be affecting the conclusion that RDs clinical practices are evolving and meeting recommended guidelines (Zinn et al., 2012). The lack of literature makes it difficult to determine how vital the training and up-to-date counseling skills of dietitians is at promoting successful weight loss treatments (Zinn et al., 2012).

The goal of the current study was to provide insight into the practices that are being used by dietitians to reduce obesity rates. This study can help RDs to identify opportunities for change in their practice and on reducing obesity rates. The use of SCT allowed for the assessment and identification of the strengths and weaknesses of the counseling methods of RDs for the management of obesity. I intended to corroborate the importance of dietitians' role in preventing and controlling obesity. Health professionals with high-quality and up-to-date training are better equipped to assist communities and individuals struggling with obesity.



## **Background**

Faghri and Buden (2015) used the SCT to assess the knowledge and self-efficacy of employees to eat healthily and to be physically active. The goal of their study was to use SCT to investigate the relationships between obesity-related behaviors (diet, physical activity; Faghri & Buden, 2015). Faghri and Buden (2015) assessed health behavior knowledge and attitudes (self-efficacy and exercise) in high-stress occupations. They identified barriers to physical activity and healthy eating at the workplace. In addition, they assisted in developing tailored educational materials and interventions for overweight and obese employees (Faghri & Buden, 2015).

Lu and Dollahite (2010) found that RDs in private practice and outpatient settings had high self-efficacy scores (counseling skills), which ultimately led to longer and repeated sessions. Self-efficacy scores were positively correlated with counseling-related job characteristics. Years of counseling experience and skill usage significantly predicted self-efficacy scores (Lu & Dollahite, 2010). The conclusion was that RDs needed more training on developing counseling skills and self-efficacy to meet the public demands and improve people's health and overall quality of life. Perhaps, the exposure of professionals to outpatient settings could help enhancing counseling skills (Lu & Dollahite, 2010).

Zinn et al. (2012) evaluated three aspects of RDs' involvement with weight loss clients in the private practice setting: the approach to treatment, characteristics of the consultation itself, and client characteristics. The goal of their study was to assess RDs practices in the weight management field. The conclusion was that RDs while using a multidimensional lifestyle-based approach to weight loss treatment, they incorporated

many evidence-based elements into their practices. However, the lack of long-term follow-up needs to be addressed if RDs are to take a lead role in weight loss programs (Zinn et al., 2012).

RDs are the best-trained professionals in weight management; however, many believe that their specialist weight management training is inadequate and warrants further input. In some cases, dietitians could use more assistance with behavior counseling methods and motivational techniques with weight loss clients (Zinn et al., 2012).

The goal of the current study was to provide insight into the practices that are being used by dietitians to reduce obesity rates. This study can help RDs to identify opportunities for change in their practice and contribute reducing increasing obesity rates. The use of SCT allowed for the assessment and identification of the strengths and weaknesses of the counseling methods of RDs for the management of obesity. Through this study, I intended to corroborate the importance of dietitians' role in preventing and controlling obesity. Health professionals with high-quality and up-to-date training are better equipped to assist communities and individuals struggling with obesity.

### **Theoretical Framework**

Bandura's SCT delineates the sources and mediators of behavior and behavioral change (Sharma & Romas, 2012; Zinn et al., 2012). SCT specifies a foundation of determinants, the procedure through which they work, and the optimal ways of translating this knowledge into effective health practices (Bandura, 2004).

Self-efficacy is required when behavior changes are needed. Self-efficacy is the ability that a person can exercise over specific behaviors (Bandura, 2004). The outcome expectations construct defines the expected costs and benefits for different health habits. This theory covers both determinants of behavior and the process of behavior change (Bandura, 2004; Sharma & Romas, 2012).

The primary determinants of behavior described by SCT are outcome expectations, self-efficacy, behavioral capability, perceived behavior of others, and the environment (Bandura, 2004; Sharma & Romas, 2012). SCT constructs allow an analysis of the registered dietitians counseling practices in the weight management field (Lu & Dollahite, 2010).

Self-efficacy is defined as the confidence and ability in overcoming barriers. Self-efficacy was necessary for my study because I assessed whether RDs can overcome counseling barriers such as language, communication, and clients' beliefs, among others. The construct of perceived behavior of others assists RDs in recognizing the influence of (healthy and unhealthy) habits on weight loss clients (Lu & Dollahite, 2010; Sharma & Romas, 2012).

Lastly, the environment is linked to perceived behaviors of others. This construct can be used to identify risk factors in the surrounding environment (practices, food accessibility) that are affecting weight loss approaches (Sharma & Romas, 2012). Furthermore, subsequent analysis allows for the recognition of barriers in counseling methods and assists dietitians and health professionals in adjusting their counseling practices (King et al., 2014; Sharma & Romas, 2012). Perhaps the findings could lead to

developing investigations that could impact the reduction of unhealthy behaviors that are causing obesity.

### **Statement of the Problem**

Over the past several decades, obesity has grown into a main global epidemic. By 2002, nearly 500 million people were overweight worldwide (Vandevijvere, Chow, Hall, Umali, & Swinburn, 2015). In the United States, since 1970, rates of obesity have doubled to over 30%, with more than two-thirds of Americans now overweight (Hammond & Levine, 2010).

Hammond and Levine (2010) reported that the obesity prevalence in 2007-2008 was 33.8%, representing a 50% increase from 1988 to 1994 (Hammond & Levine, 2010). There are more than 300,000 annual deaths attributed to obesity, and 80% of these are in subjects who have a BMI greater than 30 (Hammond & Levine, 2010).

The mortality risk increases progressively with an increasing BMI within the BMI range above 30 (Hammond & Levine, 2010). The actual likelihood of death associated with obesity increases with age and BMI, but the estimated years of life lost as a result of obesity are greatest in obese younger adults (Hammond & Levine, 2010).

In 1995, it was estimated that obesity and inactivity generated 9.4% of direct health costs in the United States (Hammond & Levine, 2010; Vandevijvere et al., 2015). In the United States, the healthcare expenditure for obesity is estimated at \$395 per person per year and the estimated total direct medical costs are \$75 billion (4% of healthcare expenditures; Hammond & Levine, 2010; Vandevijvere et al., 2015).

Indirect societal costs of obesity are also high due to increased absenteeism and workplace injuries, disability payments, and loss of productivity (Hammond & Levine, 2010; Vandevijvere et al., 2015). There is a need to have precise knowledge about the modifiable determinants of this emerging pandemic so that effective preventive strategies can be waged (Hammond & Levine, 2010; Vandevijvere et al., 2015).

RDs are the best-trained professionals in the area of weight management; however, many believe that their specialist weight management training is inadequate and warrants further input. In some cases, dietitians could use more assistance with behavior counseling methods and motivational techniques with weight loss clients (Zinn et al., 2012).

### **Purpose of the Study**

The goal of this study was to associate RDs' counseling behaviors with weight loss clients using the SCT. I adopted a quantitative methodology and cross-sectional design. I used a survey instrument to gather dietitians' counseling behaviors with weight loss clients along with SCT constructs (Anderson et al., 2007; Zinn et al., 2012). This study added to the public health research data on the preparedness of RDs at counseling weight management clients and evidence that healthcare providers (RDs) need additional weight management training to aid reducing alarming obesity rates.

Dietitians have been recognized as experts in weight management. However, there is sparse literature regarding the counseling behaviors of RDs with their weight loss clients (Zinn et al., 2012). The results of this study have added insight into the practices that are being used by dietitians to reduce obesity rates. This study intended to

corroborate the importance of dietitians' role in preventing and controlling obesity. Health professionals with high-quality and up-to-date training are better equipped to assist communities and individuals struggling with obesity.

### **Nature of the Study**

#### **Research Questions (RQ)**

Research Question (RQ) 1: To what extent is the SCT construct of expectations about counseling associated with the counseling behavior of RDs with weight management clients?

RQ2: To what extent is the SCT construct of self-efficacy associated with counseling behavior in RDs?

RQ3: To what extent is the SCT construct of self-efficacy related to overcoming barriers associated with counseling behavior in RDs with weight management clients?

RQ4: To what extent is the SCT construct of self-control associated with counseling behavior in RDs with weight management clients?

RQ5: To what extent is the SCT construct of counseling environment associated with counseling behavior in RDs with weight management clients?

The five research questions were used as framework to develop the Using Social Cognitive Theory to Predict Counseling Behaviors in Registered Dietitians questionnaire. The study survey has a total of 30 questions (Appendix A). The study tool tested the following hypotheses.

#### **Statistical Hypotheses**

The following are the research testable and alternate hypotheses:

*H1<sub>0</sub>*: SCT, as it relates to the construct outcome expectation, is not associated with RDs' counseling behaviors with weight management clients.

*H1<sub>a</sub>*: SCT, as it relates to the construct outcome expectation, is associated with RDs' counseling behaviors with weight management clients.

*H2<sub>0</sub>*: SCT outcome expectations and outcome expectancies constructs are not associated with RDs' counseling behaviors with weight management clients.

*H2<sub>a</sub>*: SCT outcome expectations and outcome expectancies constructs are associated with RDs' counseling behaviors with weight management clients.

*H3<sub>0</sub>*: The SCT environment construct is not associated with RDs' counseling behaviors with weight management clients.

*H3<sub>a</sub>*: The SCT environment construct is associated with RDs' counseling behaviors with weight management clients.

*H4<sub>0</sub>*: The SCT self-efficacy construct is not associated with RDs' counseling behaviors with weight management clients.

*H4<sub>a</sub>*: The SCT self-efficacy construct is associated with RDs' counseling behaviors with weight management clients.

*H5<sub>0</sub>*: SCT, as it relates to the construct of environment, is not associated with RDs' counseling behaviors with weight management clients.

*H5<sub>a</sub>*: SCT, as it relates to the construct of environment, is associated with RDs' counseling behaviors with weight management clients.

## Significance

Obesity has become a major global public health problem. Worldwide, the proportion of adults with a BMI of 25 kg/m<sup>2</sup> or greater increased from 28% to 36.9% in men and from 29.8% to 38% in women between 1980 and 2013 (Hammond & Levine, 2010; Vandevijvere et al., 2015). The drivers of the obesity epidemic have been debated, often considering whether it is the increased food energy supply and the globalization of the food supply that are augmenting the availability of obesogenic ultra-processed foods (Hammond & Levine, 2010). These are causes for a main system driver of population weight gain (Hammond & Levine, 2010; Vandevijvere et al., 2015).

In the United States, 68% of overweight adults contribute to an average additional cost of \$147 billion per year to the medical system (Drieling, Ma, & Stafford, 2011). Obesity is associated with an increased incidence of coronary heart disease, stroke, and consequentially a shorter life expectancy (Drieling, Ma, & Stafford, 2011). Hammond and Levine (2010) reported that according to the National Examination Survey, if historical trends continue linearly, by 2030, 51% of adults would be obese. The increased number of obese adults would represent an increase of 33% in the prevalence of obesity over the next 2 decades based on extrapolating previous data and assuming these trends continue (Hammond & Levine, 2010; Vandevijvere et al., 2015).

The evolving obesity pandemic has a precisely measurable impact on physical and mental health and quality of life and has generated considerable direct and indirect costs. Weight loss appears to be the most efficient therapy for obesity and obesity related comorbidity (Hammond & Levine, 2010; Vandevijvere et al., 2015). Dietitians have been



recognized as experts in weight management. However, there is sparse literature regarding the counseling behaviors of RDs with their weight loss clients. The results of this study provide insight into the practices that are being used by dietitians to reduce obesity rates.

The use of SCT allowed me to assess and identify the strengths and weaknesses of the counseling practices of RDs for the management of weight loss clients. The goal of the study was not only to assess counseling practices but also to contribute to positive changes in RDs' current practices and the improvement of the quality of life of communities affected by obesity.

### **Study Variables**

*Independent variables:* Social cognitive theory constructs – outcome expectations, self-efficacy about counseling, and self-efficacy in overcoming barriers, self-control, and the environment about counseling. The independent variables were evaluated and scored with questions and responses in Likert-style scale.

*Dependent variable:* The dependent variable was the RDs' counseling behaviors with weight loss clients. They were measured using a Likert scale.

The moderating variables of gender, age, and number of years in counseling and general information were collected using the study tool (Using Social Cognitive Theory to Predict Counseling Behaviors in Registered Dietitians).

### **Operational Definitions**

*Body Mass Index (BMI):* A measure of overweight and obesity defined as weight in kilograms divided by the square of height in meters (kg/m<sup>2</sup>). BMI does not measure

body fat directly, but researchers have shown that BMI is moderately correlated with more direct measures of body fat obtained from skinfold thickness measurements, bioelectrical impedance, densitometry (underwater weighing), dual energy x-ray absorptiometry, and other methods (Murillo et al., 2016).

Furthermore, BMI appears to be as strongly correlated with various metabolic and disease outcomes as are these more direct measures of body fatness. BMI is an inexpensive and easy-to-perform method of screening for weight category, for example underweight, normal or healthy weight, overweight, and obesity (Murillo et al., 2016).

*Counseling behavior:* In this study, I defined counseling behavior as the frequency that RDs counsel and follow up with weight loss clients (Murillo et al., 2016).

*Environment:* SCT defines this construct as the physical or social circumstance or conditions that surround a person. In this study, I defined environment as the support for RDs by physicians and clients' families on the weight loss process (Murillo et al., 2016).

*Environment construct:* The physical or social circumstances or conditions that surround a person. Whereas situational perception involves a person's interpretation of his or her surroundings, environment consists of the actual conditions (Sharma & Romas, 2012).

*Expectations:* SCT defines outcome expectations as the anticipation of the probable outcomes that would ensue as a result of engaging in the behavior under discussion (Sharma & Romas, 2012). In this study, I defined expectations as the RDs expectations for clients to lose weight and change behaviors in planned time frame.

Outcome expectancies refer to the value (importance) a person places on the probable outcomes that result from the learned behavior.

*Obesity:* It is a designation for individuals with a BMI > 25 kg/m<sup>2</sup> (Cohen, Collins, Hunter, Gosh-Dastidar, & Dubowitz, 2015).

*Outcome expectations construct:* The anticipation of the probable outcomes that would ensue as a result of engaging in the behavior under discussion (Sharma & Romas, 2012).

*Overweight:* It is a designation for individuals with a BMI > 25 kg/m<sup>2</sup> (Cohen et al., 2015).

*Self-control:* This construct is defined by SCT as the ability to setting and developing plans to accomplish chosen behaviors (Sharma & Romas, 2012). In this study, this construct includes the confidence in setting realistic goals and developing plans for weight loss clients.

*Self-control construct:* Setting goals and developing plans to accomplish chosen behaviors. When one sets goals and develops concrete plans, behavior change becomes easier (Sharma & Romas, 2012).

*Self-efficacy:* SCT defines self-efficacy as the confidence a person has on his or her ability to pursue a behavior (Sharma & Romas, 2012). Self-efficacy plays a central role in behavior change. In this study, I defined self-efficacy as the confidence of RDs to influence behavior changes in obese clients. It is the ability of RDs to reassure clients who have failed weight loss attempts.

*Self-efficacy construct:* The confidence a person has in his or her ability to pursue a behavior. Self-efficacy is behavior specific and is in the present (Sharma & Romas, 2012).

*Self-efficacy in overcoming barriers:* SCT defines self-efficacy in overcoming barriers as the confidence of a person has in overcoming barriers while performing a given behavior (Sharma & Romas, 2012). In this study, I defined this construct as RDs' confidence in solving problems while counseling (language barriers, religion).

*Self-efficacy in overcoming impediments construct:* The confidence that a person has in overcoming barriers while performing a given behavior. This construct is related to self-efficacy in that it is situation specific, pertains to the present, and represents a level of confidence (Sharma & Romas, 2012).

*Social cognitive theory:* Theory that posits that human behavior could be explained as a triadic reciprocal causation. One point of view of the tripod consists of the behavior. The second viewpoint consists of environmental factors, and the third perspective consists of personal factors such as cognition, affect, and biological events (Sharma & Romas, 2012).

*Assumptions:* In this study, I assumed that from this quantitative SCT analysis, the questions, answers, and subquestions would unfold as the study progressed and that many levels of themes and trends would be revealed. I assumed that the willingness of the participants to volunteer in this study would not bias the study. Additionally, I assumed that the study questionnaire would be an appropriate means for measuring the designated variables.

### **Limitations**

There are several limitations to this study. First, the cross-sectional design may have been a limiting factor because the results could be transferable but not generalizable to other populations (see Sharma & Romas, 2012). The generalizability of this study may be limited beyond similar communities of RDs.

Second, RDs chosen for the study had counseling experience with weight management for more than 2 years. This limited assessing the counseling behaviors among RDs with less experience and professionals recently graduated from nutrition programs.

Third, SCT is a robust behavioral theory, and its biggest advantage is that it can be applied quickly. However, this theory is not specifically designed for changing behavior (Sharma & Romas, 2012). The many theory constructs do not allow verifying all these constructs, which tends to limit the theory's usage (Sharma & Romas, 2012).

In this study, I used five constructs of the SCT, such as outcome expectations, self-efficacy about counseling, self-efficacy in overcoming barriers, self-control, and the environment about counseling. However, by analyzing the effect of these constructs, I could have missed the impact of another construct that could have a significant influence on RDs' counseling behaviors. Lastly, study participants used self-report to fill out questionnaires. This could have affected the reliability of the study results.

### **Scope and Delimitations**

In this study, I focused on RDs with at least 2 years of experience on weight management counseling. It was desired but not necessary that participants had experience

in the inpatient and the outpatient clinical fields working with weight loss patients. The study sample included nationwide RDs affiliated with the American Dietetic Association. The sample may not be representative of all RDs working with weight loss clients and weight management processes since not all RDs are affiliated with the ADA. RDs could be affiliated with local chapters of the ADA but not necessarily to the nationwide ADA.

### **Summary**

In this chapter, I discussed the justification for this research paradigm. The problem, purpose of the study, need for the study, rationale, significance, assumptions, limitations, and scope and delimitations have all been addressed to justify grounding the study in the SCT.

In Chapter 2, I review the literature related to SCT, RDs counseling behaviors, and weight loss clients. Data gaps are identified, further justifying the call for this level of research for RDs and counseling practices. In Chapter 3, I outline in detail the methods and study design. I discuss the model initially proposed and the actual process determined by way of ongoing constant evaluation that worked. Chapter 4 provides an in-depth review of data collection and analysis and again enters into a discussion regarding the need for changes to RDs counseling behaviors. Finally, Chapter 5 guides the reader through SCT development and research outcomes with a view toward future recommendations for creating interventions that work in overweight and obese populations.

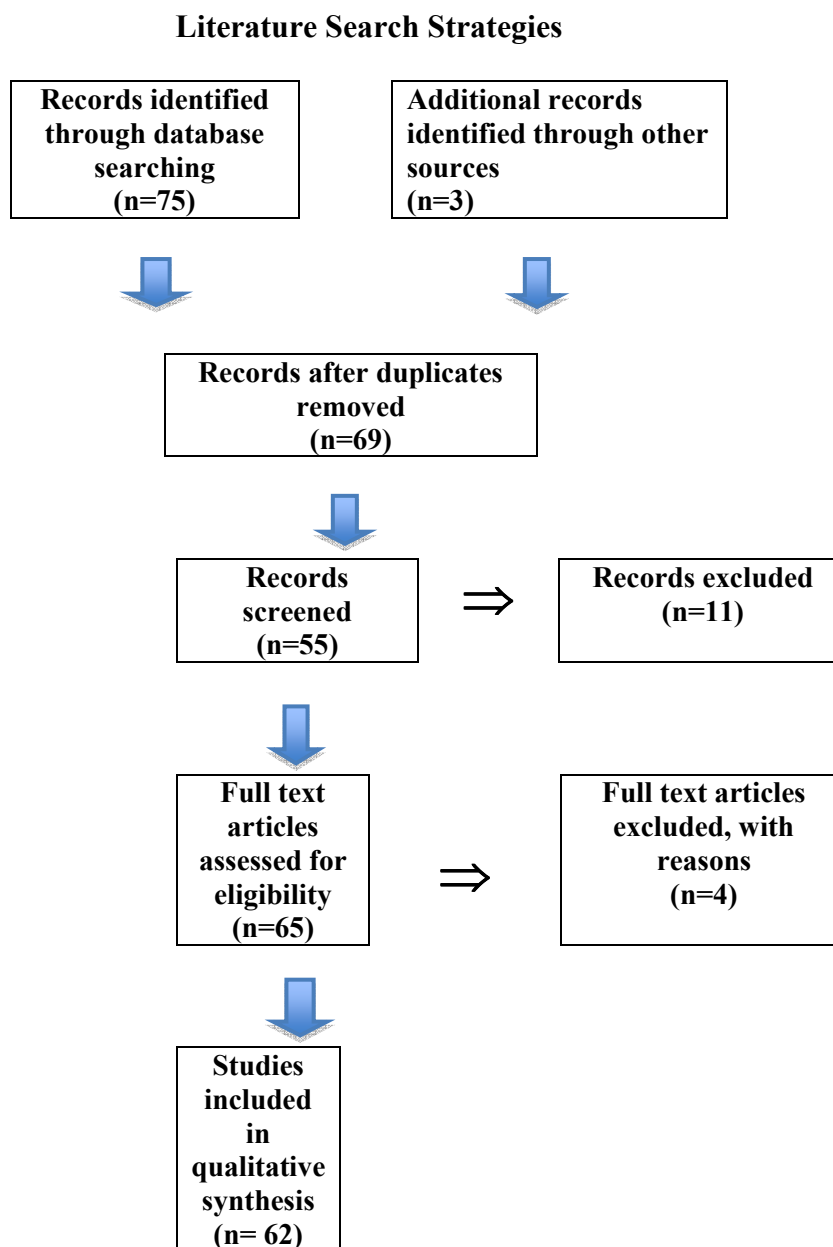
## Chapter 2: Literature Review

### **Introduction**

The research literature review reinforces the need for continued research concerning the value of SCT, RDs' counseling behaviors, and weight loss clients. In the United States, approximately two-thirds of the adult population is now either overweight or obese (Annesi & Whitaker, 2009). In the United States, more women (33.4%) than men (27.5%) are obese. At any given time, approximately 44% are attempting to lose weight, predominantly by simply trying to eat less food. However, restricting caloric intake (dieting) for weight loss has overwhelmingly been ineffective (Annesi & Whitaker, 2009).

Identifying appropriate health behavioral theories is essential to improve behavioral changes and increase the ability to design efficient programs. McCabe et al. (2015) reported evidence to show that interventions guided by a specific theory produced stronger results than interventions created without a theory. In this research, I incorporated SCT constructs.

Figure 1 shows the literature search strategies. This theory covers both determinants of behavior and the process of behavior change (Bandura, 2004; Sharma & Romas, 2017). The primary determinants of behavior described by SCT are outcome expectations, self-efficacy, behavioral capability, perceived behavior of others, and the environment (Bandura, 2004; Sharma & Romas, 2012).



*Figure 1.* Flow diagram of data extraction.

The literature search of materials was done from 2010 to 2016. I used the databases available through Walden University. I used multiple terms including SCT as



the chosen theoretical outline. The following sources were used for the literature review: Academic Search Premier, CINAHL Plus with Full Text, MEDLINE with Full Text, ProQuest Nursing and Allied Health Source, and ProQuest Research Library. Additionally, I used Internet engines to conduct as wide literature search. I used Google and Google Scholar as well as a variety of government sources of data from the Internet, including the United States Department of Health and Human Services and the CDC.

In Phase 1 of the search, I used some vital keywords/phrases such as *social cognitive theory, health behavior, health behavior theories, dietitians, weight loss, weight management, and counseling skills*. In Phase 2, I combined some of the keywords previously mentioned with SCT. In Phase 3, I opened out the literature search by using some constructs of the SCT. For instance, I combined SCT constructs with vital keywords such as weight loss with environment, for example, combining self-efficacy, outcome expectations, and self-control with the terms weight loss, RDs, and counseling skills.

This chapter provides a literature review in support of the doctoral investigation. The search strategy used to identify scholarly studies for inclusion in this review of the literature include an explanation of SCT and the five SCT constructs upon which the intervention was based as well as the epidemiology of obesity, with special emphasis on obesity data in United States.

The review includes previous studies based upon a SCT framework. The studies included in the literature review assisted me in creating a strong groundwork for this doctoral research, including reviewing the best (a) research methodology, (b) instruments

for measuring the SCT constructs, and (c) viable concepts for scheming and implementing an efficient SCT-based study. Lastly, in this chapter, I provide a summary of the latest concepts regarding the use of SCT and RDs' counseling behaviors with weight management clients. This doctoral investigation assisted in filling a gap in the scholarly literature about the use of SCT and the strengths and weaknesses of the counseling practices of RDs for the management of weight loss clients.

### **RDs' Counseling Behaviors**

Lu and Dollahite (2010) found that RDs in private practice and outpatient settings had high self-efficacy scores, which ultimately led to longer and repeated sessions. Self-efficacy scores were positively correlated with counseling-related job characteristics. Years of counseling experience and skill usage significantly predicted self-efficacy scores (Lu & Dollahite, 2010).

Lu and Dollahite (2010) concluded that RDs needed more training on developing counseling skills and self-efficacy to meet the public demands and improve people's health and overall quality of life. The exposure to outpatient settings would allow to gain the necessary skills to work in the weight management field (Lu & Dollahite, 2010; Sharma & Romas, 2012).

Zinn et al. (2012) evaluated three aspects of RDs' involvement with weight loss clients in the private practice setting: the approach to treatment, characteristics of the consultation itself, and client characteristics. RD practices generally aligned with evidence-based guidelines. However, the lack of long-term follow-up on behalf of the client needs to be addressed if RDs are to provide a lead role in supporting best-practice

weight loss and maintenance treatment (Zinn et al., 2012). In this study, I assessed the involvement and skills of RDs with their weight loss clients during and after their consultations.

Zinn et al. (2012) found that RDs use a multidimensional lifestyle-based approach to weight loss treatment and incorporate many evidence-based elements into their practices. RDs are considered to be the best-trained professionals in the area of weight management. However, many believe that their specialist weight management training is inadequate (Zinn et al., 2012). A clear problem is that dietitians lack sufficient preparation in behavior counseling methods and motivational techniques (Zinn, Schofield, & Hopkins, 2012).

### **Uses of Social Cognitive Theory**

The use of SCT allows for the assessment and identification of the strengths and weaknesses of the counseling practices of RDs for the management of weight loss clients. The goal of the study was not only to assess counseling practices but also to contribute to positive changes in RDs' current practices that could meet the weight management needs of the clients. The improvement of practices may not only lead to a decrease in obesity rates but also to an improvement of the quality of life of communities affected by obesity. Tables 1 and 2 list the numerous sources used to develop the foundation of the study.

### Theoretical Foundation: Social Cognitive Theory

Table 1

#### *Social Cognitive Theory Sources*

Authors	Objectives	Findings
Dewar, Plotnikoff, Morgan, Okely, Costigan & Lubans, 2013	Test Bandura SCT constructs in adolescent girls.	SCT helped identifying direct and indirect factors affecting physical activity behavior.
Ng, & Lucianetti, 2016	Test SCT constructs in motivating individuals to change behaviors	Self-efficacy was a crucial factor influencing behavior change.

*Note.* Data for SCT for sources and behavioral change from Dewar, D., Plotnikoff, R., Morgan, P., Okely, A., Costigan, S., & Lubans, D. (2013). Testing social-cognitive theory to explain physical activity change in adolescent girls from low-income communities. Within-individual increases in innovative behavior and creative, persuasion, and change self-efficacy over time: A social cognitive theory perspective from W. H. Ng, T., & Lucianetti. L. (2015).

Table 2

*Social Cognitive Theory Sources and Behavioral Change*

Authors	Objectives	Findings
Plotnikoff, Costigan, Karunamuni, Lubans, 2013	Review SCT relationship with physical activity intention /behavior.	SCT helped identifying intention, self-worth, behavioral strategies, and PA attitude.
Stacey, James, Chapman, Courneya, & Lubans, 2014	Review effect SCT on pyhysical activity/ nutrition interventions	SCT-based interventions showed improvements in physical activity and diet behavior.

*Note.* Data for SCT for sources and behavioral change from Dewar, D., Plotnikoff, R., Morgan, P., Okely, A., Costigan, S., & Lubans, D. (2013). Testing social-cognitive theory to explain physical activity change in adolescent girls from low-income communities; Stacey, F., James, E., Chapman, K., Courneya, K. & Lubans, D. (2015). A systematic review and meta-analysis of social cognitive theory-based physical activity and/or nutrition behavior change interventions for cancer survivors.

Bandura's (1986) SCT provided a framework for explaining why people acquire and continue healthy lifestyles. According to Bandura (1986), individuals behaviors are the result of factors such as personal, environmental, and behavioral. When factors affect or

could be affected by each other (Dewar, Plotnikoff, Morgan, Okely, Costigan & Lubans, 2013).

In Bandura's (2004) the outline presented specifies a crucial set of factors and processes in which factors could be operationalized in order to affect health promotion behavior. These factors include knowledge, self-efficacy, goals, outcome expectations, and facilitators and limitations (Dewar et al., 2013).

SCT proposes a mutual relationship between person, environment, and behavior and suggests that individuals receive reinforcement value by connecting behaviors (e.g., physical activity) to positive outcomes (e.g., perception of a more attractive body, improved mood), (Stacey, James, Chapman, Courneya, & Lubans, 2014).

The prerequisite for behavioral change is known as knowledge of the health risks and the positive results of health-related behaviors. However, self-efficacy is a vital factor in SCT because it influences behavior both directly and indirectly through objectives, outcome expectations, facilitators and limitations (Stacey et al., 2014).

### **Social Cognitive Theory Constructs**

Self-efficacy refers to RDs's conviction in their ability to control and modify actions. Personal knowledge is crucial in carrying out personal changes since it offers incentives to prevail over barriers and to produce feelings of empowerment to perform change (Stacey et al., 2014).

Bandura (2004) claims that self-efficacy is the ability of RDs to cope with barriers and stressors efficiently and consistently under difficult circumstances. Bandura (2004) promoted self-efficacy through experiences such as achievement of goals. Increased self-

efficacy, therefore, would be associated with persistence in exercise or behavior changes (Bandura, 2004).

Mood plays a major role in perceptions of ability to maintain behaviors such as physical activity. SCT suggests that pleasant and aversive feelings serve as incentives and disincentives to influence behaviors (W.H. Ng & Lucianetti, 2015). Mood contributes to a consistent relationship with physical activity across studies (W.H. Ng & Lucianetti, 2015).

It would be crucial to assess the mood of weight loss clients before RDs start their counseling and weight loss plans. However, this study does not intend to assess patients' reactions and behavior conditions but only RDs attitudes towards weight loss clients and counseling sessions (W.H. Ng & Lucianetti, 2015).

In SCT, goals are the direct antecedent to behavior. Bandura (2004) explains that intentions could be considered as goals because in order to perform an action is crucial to perform an appropriate behavior. The only concrete difference between the two would be the motivation towards changing an intended behavior (Bandura, 2004).

Bandura (2004) emphasized that goals, when highly valued and constructed, could enhance the motivation to adopt healthy behavior practices. Even though goals can be proximal or distal, it is the short-term goals that are the most efficient in enacting behavior change (Plotnikoff, Costigan, Karunamuni, & Lubans, 2013).

The development of goals in conjunction with clients would be a crucial part of counseling sessions. These goals would meet clients opinions and realistic hopes for

health professionals in achieving positive and successful results. The creation of appropriate goals by RDs was analyzed in the study tool.

Outcome expectations are the consequences of individuals' actions that people anticipate their actions could produce. These actions could be categorized as physical, social, and self-evaluative. Social issues include interpersonal interactions and the significance of individuals at reinforcing or discouraging behaviors (W.H. Ng & Lucianetti, 2015; Plotnikoff, 2013).

Outcome expectations is a vital factor that could determine the success of weight loss plans. RDs need to outline priorities that they would expect as result of counseling sessions and address these expectations with weight loss clients before, during and after interventions, to encourage compliance with short-term and long-term goals (W.H. Ng & Lucianetti, 2015; Plotnikoff, 2013).

Self-evaluative reactions also regulate behavior. Behavior is controlled by self-evaluative reactions. RDs could use self-evaluative assessment at the end of their counseling sessions and evaluate the success at accomplishing their sessions goals previously stated in conjunction with their clients (W.H. Ng & Lucianetti, 2015; Plotnikoff et al., 2013).

Individuals would achieve self-evaluative reactions by being informed and educated on behaviors that are endangering their health. RDs need to get familiar at recognizing these reactions on their weight loss clients to achieve successful compliance with their clients (W.H. Ng & Lucianetti, 2015; Plotnikoff, 2013).



Finally, facilitators and impediments to health behavior include social and structural factors that may promote or hold up healthy routines. In the SCT model, facilitators and barriers would influence individuals' goals at adopting a healthy behavior (W.H. Ng & Lucianetti, 2015; Plotnikoff et al., 2013).

The relationships between the SCT constructs are operationalized in a way that individuals with elevated efficacy beliefs tend to anticipate positive results for their efforts. Individuals are more likely to prevail over obstacles and display stronger dedication to aims they set themselves (Dewar et al., 2013; W.H. Ng & Lucianetti, 2015; Plotnikoff et al., 2013).

It is important that weight management training includes the recognition of obstacles and barriers to facilitate the development and implementation of weight loss plans. RDs could help clients to identify factors that could interfere with their weight loss treatment and act accordingly.

In comparison, individuals with little efficacy beliefs expect their efforts to result in poor results and they recognize obstacles to behavior to be insuperable. Besides, the crucial help to make possible behavior change could be largely absent, leading to less probability of preparation for a new behavior (Dewar et al., 2013; W.H. Ng & Lucianetti, 2015; Plotnikoff et al., 2013).

Ng and Lucianetti (2015) found that psychological characteristics related to success or failure with weight loss could be linked to tenets of SCT. For example, the self-efficacy components (perceived physical capabilities) and self-regulatory efficacy

(perceived self-management skills) have been analyzed in weight loss participants (Dewar et al., 2013; W.H. Ng & Lucianetti, 2015).

The self-efficacy and self-regulatory were enhanced by teaching participants to provide an increased sense of competence about their physical abilities. RDs by teaching clients self-management and self-regulatory skills (goal settings, cognitive restructuring, stimulus control) could feel competent at countering common barriers (time and discomfort) (Dewar et al., 2013; W.H. Ng & Lucianetti, 2015; Plotnikoff et al., 2013).

Dewar et al., (2013) reported that when health professionals established manageable short-term goals. Clients attained, and acknowledged, feelings of competence and mastery were associated with an increased satisfaction with one's body, even when physiological improvements were minimal (Dewar et al., 2013; W.H. Ng & Lucianetti, 2015; Plotnikoff et al., 2013).

The psychological factors of self-efficacy, body satisfaction, and mood were suggested to be directly associated with weight loss. These factors were directly associated through proposed paths that related the psychological changes and exercise with weight loss (Dewar et al., 2013; W.H. Ng & Lucianetti, 2015; Plotnikoff et al., 2013).

SCT posits a triadic, reciprocal relationship between person, environment, and behavior and suggests that individuals receive reinforcement value by connecting behaviors (physical activity) to valued outcomes (perception of a more attractive body; improved mood), (Dewar et al., 2013; W.H. Ng & Lucianetti, 2015; Plotnikoff et al., 2013).

Self-efficacy is a belief in one's physical and self-regulatory abilities to be successful in weight loss or behavior changes (Dewar et al., 2013; W.H. Ng & Lucianetti, 2015; Plotnikoff et al., 2013). When an individual's self-concept (physical self-concept) is improved, they tend to be more persistent with physical activity behaviors (Dewar et al., 2013; Plotnikoff et al., 2013).

Self-regulation processes can be defined as those cognitive and behavioral processes by which people revise their behavior, or alter the environment to bring about outcomes matched with their personal goals (Dewar et al., 2013; Plotnikoff et al., 2013). This study did not assess self-regulation processes that helped weight loss clients to reach their goals and change unhealthy behaviors.

SCT is one promising theory for use in behavior change interventions, particularly as it provides a framework for understanding why people make and maintain health behaviors. In 2004, Bandura reported a framework that specified the key determinants and the interplay between the key constructs (known as reciprocal determinism) (Dewar et al., 2013; Plotnikoff et al., 2013).

Knowledge of health risks and benefits sets the scene for possible behavior change, however, it is not enough to prompt behavioral change alone. Self-efficacy influences outcome expectations and barriers/facilitators, and constructs influence goals (Dewar et al., 2013; Plotnikoff et al., 2013).

SCT constructs influence behavior and motivation and are influenced by the environment. Self-efficacy is the central construct in SCT because it affects behavior directly. This is done through belief in their ability to apply skills effectively in stressful

situations, and indirectly through influencing goals, outcome expectations, and barriers and facilitators (Dewar et al., 2013; Plotnikoff et al., 2013). SCT constructs explain 40-71% of the variance in physical activity behavior in adults and have been shown to explain dietary behavior in adults, showing 36-61% of the difference in fat, fiber, and fruit and vegetable intake. SCT also offers principles on how to motivate people to make positive behavior change (Dewar et al., 2013; Plotnikoff et al., 2013).

The improvement of RDs training by providing continuously, current and constant education could assist dietitians in identifying risk factors and guide clients on appropriate weight loss methods. The development of tools could help on choosing techniques, questions, and probable interventions. However, more research is required to identify instruments that could assist in achieving short and long term-changes

It is intended to assess the SCT concepts previously described being used by RDs in their counseling sessions and the appropriateness of these constructs. It is important to highlight that there are no previous studies or tools that have assessed RDs counseling skills with weight loss clients.

### **Role of RDs in Obesity Control**

In the last 20 years, the prevalence of obesity has soared, obesity is considered a major public health issue. In response to this alarming crisis, there is a need to develop efficient treatments and prevention approaches. The rise of this crisis present new chances and barriers for dietitians and the the services they provide (Grace, 2011).

Table 3

*RDs and Weight Management References*

Authors	Objectives	Findings
Grace, C. 2011	Evaluate RDs one-to-one dietetic weight management sessions.	Weight maintenance to management is linked with reduced weight regain.
Collins, C. 2004	Assess RDs services and intervention strategies in obesity management.	Need to develop and disseminate best practice guidelines for weight management.
Zinn, C., Schofield, G. & Hopkins, W. 2012	Assess RDs approaches to adult weight loss treatment.	Lack of long-term client follow-up could be affecting weight loss maintenance.
Plotnikoff, Costigan, Karunamuni, Lubans, 2013	Review SCT relationship with physical activity intention and behavior.	SCT helped identifying intention, self-worth, behavioral strategies, and PA attitude.

*Note.* A review of one-to-one dietetic obesity management in adults from Grace, C. (2011). Survey of dietetic management of overweight and obesity and comparison with best practice criteria from Collins, C. (2004). Management of adult overweight and obesity from Zinn, C., Schofield, G., & Hopkins, W. (2012). Social cognitives theories used to explain physical activity behavior in adolescents from Plotnikoff, R., Costigan, S., Karunamuni, N. & Lubans, (2013).

Reflection on the dietetic approach to obesity management remains, as this would help establish the best use of RDs time and proficiency. In addition, it would helpful to

assess the efficiency of training facilities at providing vital training to meet populations needs, specifically overweight populations (Grace, 2011).

As the understanding of the intricacy of obesity interventions has increased, the advantages of behavioral approaches are acknowledged, and its recalcitrant nature is recognized, so dietetic obesity handling is starting to require professionals with crucial skills and knowledge (Grace, 2011; Plotnikoff et al., 2013).

However, there is not enough evidence about the treatment and management interventions in the dietetic field, difficulting to establish if current practices are meeting required needs and assisting individuals struggling with weight loss and changing and adapting to healthy lifestyles (Collins, 2005).

Dietitians are recognized as nutritional “advice givers” instead of professionals at modifying behaviors. Dietitians concentrate on interpreting technical and medical plans related to food and lifestyles into easy and understandable terms. In this context, RDs have the skills and training to counsel people about the necessary nutritional changes rather than providing tools to implement these changes (Zinn, Schofield, & Hopkins, 2012).

In the last 20 years, there has been a change from the RD acting as a technician to a consultant with expertise in all aspects of nutrition and dietetics. This matches the changes from acute hospital settings to community-orientated base settings. RDs have amplified their scope of practices and involvement roles within the community (Zinn, Schofield, & Hopkins, 2012).

This change shows that RDs have a crucial role on preventing and reducing obesity rates by developing successful and appropriate weight loss plans. Grace (2011)

showed that nutritional programs based on the dissemination of information are not very effective at supporting behavioral modification (Grace, 2011; Zinn, Schofield, & Hopkins, 2012). Practical intervention studies recommended setting behavior change as the goal. Successful studies have added group information strategies in order to motivate involvement in behavioral change. The goals of studies are to include individuals and groups in behavior change approaches, and promote the creation of healthy environments (Grace, 2011; Zinn, Schofield, & Hopkins, 2012).

Grace (2011) demonstrated the need of including behavioral techniques for successful interventions, but also helped considering the importance of RDs perceived training in behavior change techniques (Grace, 2011; Zinn, Schofield, & Hopkins, 2012). However, RDs are still late at adhering and promoting recommendations for behavioral change (Grace, 2011; Zinn, Schofield, & Hopkins, 2012).

Increasingly, RDs report the necessity of having a training on behavior change skills. RDs lack the knowledge or counseling skills to promote and teach behavior changes. There is a need for RDs to learn the fundamentals of a process to aid individuals identifying problems, assess needs and teach dietary changes (Grace, 2011; Zinn, Schofield, & Hopkins, 2012).

The profession recognizes the need for training in these methods and if RDs request additional training in this area, core behavior modification training needs to be recognized and put into practice based on the strengths and weaknesses of training practices (Grace, 2011; Zinn, Schofield, & Hopkins, 2012).

A survey conducted by dietetic services in the United Kingdom found that the most nutrition departments offered one-to-one care consults, and highlighted the brief length of first and follow-up dietetic consultations, as well as the insufficient utilization of standardized protocols (Collins, 2004; Grace, 2011).

In the current climate of evidence-based practice, the need to evaluate dietetic interventions, as well as demonstrate efficacy and inform service development, is essential (Collins, 2004; Grace, 2011; Zinn, Schofield, & Hopkins, 2012). This study intended to assess current weight loss plans and the benefits that have provided to weight loss clients.

In studies, researchers found that RDs consider their obesity education as insufficient and they reported that their behavior change skills needed further training (Collins, 2004; Grace, 2011; Zinn, Schofield, & Hopkins, 2012). A study conducted in the United Kingdom showed that RDs cognitive behavioral therapy skills required further attention (Collins, 2004; Grace, 2011; Zinn, Schofield, & Hopkins, 2012).

Professionals have discussed the need to develop seminars and training sessions about interpersonal skills as a central feature of dietetic practice. Regrettably, there is not sufficient studies comparing weight loss results by professionals using traditional methods and using behavioral approaches, and this disparity needs to be addressed (Collins, 2004; Grace, 2011; Zinn, Schofield, & Hopkins, 2012).

Researchers have found that RDs need to understand the influence of negative attitudes towards obesity, during consultations with obese patients (Collins, 2004; Grace, 2011; Zinn, Schofield, & Hopkins, 2012). Health professionals show a substantial weight



bias even in those specializing in weight management (Collins, 2004; Grace, 2011; Zinn, Schofield, & Hopkins, 2012).

Practitioners need to reflect on their reactions toward obesity and judging common obesity typecasts. This could help enhancing key qualities (genuineness, empathy, and acceptance) fundamental to management of obesity and patient experience with health professionals (Collins, 2004; Grace, 2011; Zinn, Schofield, & Hopkins, 2012). Collins (2004) reported that in the United States and Australia the majority of RDs and dietetic students agreed with common typecasts of obese individuals as uncooperative, sluggish, and lacking in self-control (Collins, 2004; Grace, 2011; Zinn, Schofield, & Hopkins, 2012).

The need for undergraduate training to actively address this issue has been highlighted. However, the amount and nature of weight bias among RDs have received narrow attention. Collins (2004) found mixed attitudes and negative reactions towards overweight patients (Collins, 2004; Grace, 2011; Zinn, Schofield, & Hopkins, 2012).

Although anti-fat beliefs are shared by many in society, it should be studied the extension and the influence into actual behavior and patient care (Collins, 2004; Grace, 2011; Zinn, Schofield, & Hopkins, 2012). It could show as short session time, or lowly treatment compliance and little willpower (Collins, 2004; Grace, 2011; Zinn, Schofield, & Hopkins, 2012).

The use of SCT allowed for the assessment and identification of the strengths and weaknesses of the counseling practices of RDs for the management of weight loss clients. The goal of the study was not only to assess counseling practices but also to contribute to

positive changes in RDs current practices that could meet weight management clients' needs (Collins, 2004; Grace, 2011; Zinn, Schofield, & Hopkins, 2012). The improvement of practices among dietetic professionals could lead not only to decrease alarming obesity rates but also the improvement of the quality of life of communities affected by obesity. In addition, these practices could be shared and adapted to the rest of health professionals (Collins, 2004; Grace, 2011; Zinn, Schofield, & Hopkins, 2012).

### **Summary and Conclusions**

Studies have found that the use of SCT could lead to identifying possible weaknesses on RDs counseling behaviors that could be having an adverse impact on changing unhealthy behaviors among weight management clients. The study goal is to provide insight into the practices that are being used by dietitians to reduce obesity rates.

This study also helped RDs to identify opportunities for change in their practice and contribute to reduce increasing obesity rates. The use of SCT allowed for the assessment and identification of the strengths and weaknesses of the counseling methods of RDs for the management of obesity.

Chapter 3 discusses the techniques used for the primary data analysis, as well as the design of the intervention, internal and external validity issues that may have occurred in the intervention, and information about the intervention participants, intervention activities, and data collection techniques.

## Chapter 3: Research Method

### **Introduction**

The goal of the study was to associate RDs' counseling behaviors, knowledge, attitudes, and expectations with weight loss clients using the SCT. I adopted a quantitative methodology and a cross-sectional design. I used the study questionnaire to gather dietitians' counseling behaviors with weight loss clients along with SCT constructs (see Anderson et al., 2007; Zinn et al., 2012). This study may add to the public health research data on the preparedness of RDs for counseling weight management clients and healthcare providers' (RDs) practices and weight management training necessary to aid in reducing alarming obesity rates. RDs are crucial health care professionals who could be underused in preventing obesity.

Dietitians have generally been recognized as experts in weight management. However, there is sparse literature regarding the counseling behaviors of RDs with their weight loss clients. The results of this study may provide insight into the practices that are being used by dietitians to reduce obesity rates. The use of SCT allowed for the assessment and identification of the strengths and weaknesses of the counseling practices of RDs for the management of weight loss clients. The goal of the study was not only assessing counseling practices but also contributing to positive changes in RDs' current practices that could meet weight management clients needs.

The improvement of practices could lead not only to a decrease in obesity rates but also to the improvement of the quality of life of communities affected by obesity. Following are the research questions and hypotheses used in this doctoral investigation:

## Research Questions

RQ1: To what extent is the SCT construct of expectations about counseling associated with the counseling behavior of RDs with weight management clients?

RQ2: To what extent is the SCT construct of self-efficacy associated with counseling behavior in RDs?

RQ3: To what extent is the SCT construct of self-efficacy related to overcoming barriers associated with counseling behavior in RDs with weight management clients?

RQ4: To what extent is the SCT construct of self-control associated with counseling behavior in RDs with weight management clients?

RQ5: To what extent is the SCT construct of counseling environment associated with counseling behavior in RDs with weight management clients?

## Statistical Hypotheses

The following are the research testable and alternate hypotheses:

$H1_0$ : SCT, as it relates to the construct outcome expectation, is not associated with RDs' counseling behaviors with weight management clients.

$H1_a$ : SCT, as it relates to the construct outcome expectation, is associated with RDs' counseling behaviors with weight management clients.

$H2_0$ : SCT outcome expectations and outcome expectancies constructs are not associated with RDs' counseling behaviors with weight management clients.

$H2_a$ : SCT outcome expectations and outcome expectancies constructs are associated with RDs' counseling behaviors with weight management clients.

*H3<sub>0</sub>*: The SCT environment construct is not associated with RDs' counseling behaviors with weight management clients.

*H3<sub>a</sub>*: The SCT environment construct is associated with RDs' counseling behaviors with weight management clients.

*H4<sub>0</sub>*: The SCT self-efficacy construct is not associated with RDs' counseling behaviors with weight management clients.

*H4<sub>a</sub>*: The SCT self-efficacy construct is associated with RDs' counseling behaviors with weight management clients.

*H5<sub>0</sub>*: SCT, as it relates to the construct of environment, is not associated with RDs' counseling behaviors with weight management clients.

*H5<sub>a</sub>*: SCT, as it relates to the construct of environment, is associated with RDs' counseling behaviors with weight management clients.

In this chapter, I present the kind of investigation, nature of research design, dependent and independent variables, and threats to internal validity and external validity. Additionally, I describe the power analysis performed by the intervention designer to determine sample size for the previously conducted intervention. In this chapter, I also discuss the inclusion criteria used for participants as well as the process for recruiting participants. I detail the assessment tools (social cognitive questionnaire designed for the study) used to collect data and the statistical tests used for the secondary analysis of data.

### **Research Design and Rationale**

In this study, I used a cross-sectional study design. The independent variables were the SCT theory constructs: outcome expectations, self-efficacy about counseling, self-efficacy in overcoming barriers, self-control, and the environment about counseling. The dependent variables were the RDs' counseling behaviors for obesity management.

I assumed that the willingness of the participants to volunteer in this study did not bias the study. I also assumed that the participants in the study completed the questionnaires truthfully and to the best of their ability. Additionally, I assumed that the study questionnaire was an appropriate means for measuring the designated variables.

The cross-sectional design allowed me to examine RDs' knowledge, attitudes, expectations, and counseling behaviors at one point in time. The cross-sectional approach has the advantages of being less expensive than other longitudinal methods because testing takes place over a limited time period (Salkind, 2009). Because the time period for testing is short, dropout could be minimized (Salkind, 2009).

There were several limitations to this study. The cross-sectional design was a limiting factor because the results could be transferable but not generalizable to other populations. The generalizability of this study may be limited beyond similar communities of RDs (see Sharma & Romas, 2012).

In addition, this design did not provide the direction of change that a group (RDs) might take (it was difficult to follow the progress of the group or participants). The cross-section design did not reveal any changes about the continuity of development on an individual basis (Salkind, 2009).

### **Study Variables**

Variables can be observed and measured (Creswell, 2009). Variables embody the features of individuals and objects. They also represent attributes or qualities. For instance, some RDs might be educated in weight counseling while other RDs might not be educated in weight loss counseling.

There are different types of variables, including dependent, independent, and moderating (Creswell, 2009). The dependent variables, known as outcome variables, are dependent on the independent variables, known as explanatory variables (Creswell, 2009). The dependent variables for this study were the RDs' counseling behaviors for obesity management clients.

The independent variables are the SCT constructs: outcome expectations, self-efficacy about counseling, and self-efficacy in overcoming barriers, self-control, and the environment about counseling. The moderating variables were gender, age, number of years in counseling, and general information.

### **Methodology**

The inclusion criteria for participants included the following: RDs chosen for the study needed to have more than 2 years of counseling experience with weight management. This limited assessing the counseling behaviors among RDs with less experience and professionals recently graduated from nutrition programs.

The participants needed to have experience in the inpatient and the outpatient clinical fields working with weight loss patients. The study sample included nationwide RDs affiliated with the American Dietetic Association. However, this limited choosing

RDs who were not affiliated with the American Dietetic Association, thereby affecting the external validity of the study. I was not able to analyze the effectiveness of weight management strategies being taught to future RDs.

I emailed the survey invitation see Appendix B to the chosen participants. The Using Social Cognitive Theory to Predict Counseling Behaviors in Registered Dietitians survey has a total of 30 questions. These questions are distributed in seven sections, including one demographic section, one section for counseling behaviors, and one last section for SCT constructs.

The study invitation included basic information about the study, the goals, and final purposes of the research. In addition, the invitation included information about privacy, benefits, risks, and contact information. Participants were informed that they were free to abandon the study at any moment. The study did not include a follow-up stage.

A power analysis was conducted to determine the sample size, using the G\*Power software. The alpha was set at 0.05, power at 0.80, the number of predictors was 5, and a medium effect size of 0.10 was assumed, which gave a sample size of 134. This was inflated by around 10% for missing values to arrive at the sample size of 150 (see Salkind, 2009).

The study benefited from the use of nonprobability sampling strategies, such as quota sampling. This strategy selects people with the characteristics that I needed (RDs with more than 5 years of counseling experience). Quota sampling ensured



representativeness of all the strata in the population. However, this strategy did not allow a generalizability of results, creating a problem with external validity (see Salkind, 2009).

SCT is a robust behavioral theory, and its biggest advantage is that it can be applied quickly. However, this theory is not specifically designed for changing behavior (Sharma & Romas, 2012). The many theory constructs do not allow verifying all these constructs, which tends to limit the theory's usage (Sharma & Romas, 2012).

SCT- based interventions mainly target those who are prepared to change the behavior; in the process, such interventions miss a vast majority of the population (Sharma & Romas, 2012). The study used five constructs of the Social Cognitive Theory such as outcome expectations, self-efficacy about counseling, self-efficacy in overcoming barriers, self-control, and the environment about counseling.

However, by analyzing the effect of these constructs we missed the impact of another constructs that could have a significant influence on RDs counseling behaviors. Lastly, study participants self-reported to fill out questionnaires. This affected the reliability of the study results. It was expected to have a response rate of approximately 50%.

### **Instrumentation**

I developed the Using Social Cognitive Theory to Predict Counseling Behaviors in Registered Dietitians questionnaire (Appendix A) due to lack of instruments that could meet the research goals and questions. The tool was developed using the guidelines by Sharma and Petosa, 2014. The SCT foundations were used to create the study tool.

I contacted the experts via email asking for their participation in the evaluation phase. The letter (Appendix C) included the purpose of the study; a brief explanation of SCT constructs and operational definitions used in the research and timelines frames. A total of six experts agreed to evaluate the instrument.

The development of the study tool followed three evaluation rounds of experts on theory, evaluation methods and RDs with more than 20 years of experience in the counseling field (obesity). The panel of experts was asked to assess the validity and readability of the tool. Please refer to Appendix D.

I conducted the face and content validity of the tool; however, I performed construct validity by using confirmatory factor analysis. For reliability computing, Cronbach's alpha on the data collected tested the internal consistency for all subscales and the entire scale.

A test and retest reliability (stability) was performed by administering the questionnaire twice (after one week) for test, re-test reliability coefficient. The sample for the stability test had 30 RDs in the local area (El Paso, Texas) affiliated to the local chapter of the American Dietetic Association. Once the IRB approval was granted, the survey was sent to the American Dietetic Association for their approval before it is

distributed to its members. The American Dietetic Association provided a complimentary list of nationwide affiliated RDs to students who are completing research projects.

The instrument has the following scoring system.

- RDs counseling behaviors scale: *never* (1), *hardly ever* (2), *sometimes* (3), *almost always* (4), *always* (5). Summative score of items 6-7. Possible range: 2-10.
- RDs self- efficacy- counseling sessions: Scale: *Not at all confident* (1), *Somewhat Confident* (2), *Confident* (3), *Really Confident* (4), *Completely Confident* (5).  
Summative score of Items 6-9. Possible range: 4-20.
- RDs self-efficacy- overcoming barriers: Scale: *Not at all confident* (1), *Somewhat Confident* (2), *Confident* (3), *Really Confident* (4), *Completely Confident* (5).  
Summative score of Items 10-14. Possible range: 5-25.
- RDs self-control- counseling sessions: Scale: *Not at all confident* (1), *Somewhat Confident* (2), *Confident* (3), *Really Confident* (4), *Completely Confident* (5).  
Summative score of Items 15-17. Possible range: 3-15.
- Influence of environments -counseling sessions: Scale: *Never* (1), *Hardly ever* (2), *Sometimes* (3), *Almost always* (4), *Always* (5). Summative score of items 18-22.  
Possible range: 5-25.

### **Scoring Outcome Expectations and Outcome Expectancies About Counseling**

#### **Process**

- RDs outcome expectations- counseling process: Scale: *-Never* (1), *Hardly ever* (2), *Sometimes* (3), *Almost always* (4), *Always* (5). RDs outcome expectancies – counseling process: Scale: *Not all-important* (1), *Somewhat*

*important (2), Moderately important (3), Very important (4), Extremely important (5).*

The expectations score will be the result from multiplying each outcome with corresponding outcome expectancy and then summing up the scores to obtain the expectations score. The score of expectations of counseling process, possible range: 3-75.

### **Data Analysis Plan**

Descriptive statistics started the analysis process. I computed measures of central tendency such as the mean. The mean is the sum of a set of scores (participants' answers) divided by the numbers of scores. Mean is the best measure for interval data. It reveals more information than the others central tendency measures. Mean allows taking advantage of the most information, and usually mean becomes the most informative measure of central tendency (Salkind, 2009).

The standard deviation is the most commonly used measure of variability. Variability is the degree of spread or dispersion that characterizes a group of scores (Salkind, 2009). The standard deviation is the average amount that each of the individual scores varies from the mean of the set of scores. Standard deviation allowed assessing the variability of RDs responses (Salkind, 2009).

Descriptive statistics were used to describe the sample characteristics and inferential statistics were used to infer something about the population from which the sample was drawn based on the characteristics (Salkind, 2009). The goal of inferential statistics is to maximize the sample representativeness (infer from small samples to the large samples), (Salkind, 2009).

### **Threats to Validity**

The development of the tool addressed the content validity by having a panel of experts evaluating the sections of the tool designated to assess RDs counseling skills and attitudes towards weight loss clients. The construct validity was also addressed by using the constructs of SCT. Lastly, the tool also addressed the content threat by having the panel of experts analyzing the items and matching them with the goals of the study.

The internal validity of the tool could be at risk at choosing participants based on years of counseling, and areas of expertise. The researcher can select participants randomly to have the probability of being equally distributed among the sample. Mortality could also be a threat to the study validity since participants could drop out during the study due to many reasons (Creswell, 2009).

The external validity could be affected by characteristics of participants (interaction of selection and treatment) and settings (interaction of settings and treatment). These threats would not allow the researcher to generalize to individuals who do not share the sample characteristics (RDs with less than two years of experience in the weight loss field). In addition, the threat to settings would make difficult to generalize results to individuals in other settings (not the weight loss field), (Creswell, 2009).

External validity could also be affected by the threat of history and treatment. Results of this study are time-bound. I would not be able to generalize the results to past or future situations. The study would not be able to establish a connection between obesity progression and RDs counseling skills (Creswell, 2009).

### **Ethical Procedures**

I was granted authorization from Walden University IRB number was 01-29-18-0235761, before seeking the permission of the American Dietetic Association to contact RDs in the weight loss field.

The intervention participants were protected in the following ways. First, a structured questionnaire was distributed to participants that guaranteed their anonymity by dissociating names from responses during the coding and recording process.

Second, participants were advised that even if they chose to participate in the intervention, they have the right to drop out at any time for any reason without reprisal from any person or entity. Third, once data was analyzed, investigators will keep the results for 5 years.

Investigators would discard the data so that it neither does nor fall into hands of other researchers who might misappropriate it. Moreover, participants received a copy of their individual signed consent form.

It was also be explained that their confidentiality and privacy are of utmost importance and that the following were done to protect them: (a) numbers were used instead of names for the data collected via the survey instruments, (b) all digital data was kept on a data stick/thumb drive and was stored in a locked file cabinet in a locked office, and (c) names or personally identifying information in any data collected was never used, unless a participant had first provided full and informed written consent for such use.

## Summary

I performed a primary analysis of data collected from RDs in the weight loss field. I intended to collect data on five constructs of the Social Cognitive Theory such as self-efficacy, self-efficacy in overcoming barriers, self-control, environment and expectations. The Using Social Cognitive Theory to Predict Counseling Behaviors in Registered Dietitians questionnaire specifically developed for this investigation has five main sections matching SCT constructs previously described (Appendix A).

The study participants were contacted once IRB approval was granted for the doctoral investigation. The investigator emailed the informed consents to prospective participants. Once each participant granted their permission to use their anonymous data, they were included in the study sample.

Chapter 4 provides an in-depth review of data collection and analysis and again enters into a discussion regarding the need for changes to RDs counseling behaviors. Chapter 5 guides the reader through SCT development and research outcomes with a view toward future recommendations for creating interventions that work in overweight and obese populations.

## Chapter 4: Results

### **Introduction**

The purpose of the research was to associate RDs' counseling behaviors, knowledge, attitudes, and expectations with weight loss clients using SCT constructs. I used the Using Social Cognitive Theory to Associate with Counseling Behaviors in Registered Dietitians questionnaire to gather dietitians' counseling behaviors with weight loss clients along with SCT constructs.

My aim was to test the relationship between five constructs of the SCT, including outcome expectations, self-efficacy about counseling, self-efficacy in overcoming barriers, self-control, and the environment in which RD weight loss counseling sessions occurred. Following are the research questions and hypotheses used in this doctoral investigation:

RQ1: To what extent is the SCT construct of expectations about counseling associated with the counseling behavior of RDs with weight management clients?

RQ2: To what extent is the SCT construct of self-efficacy associated with counseling behavior in RDs?

RQ3: To what extent is the SCT construct of self-efficacy related to overcoming barriers associated with counseling behavior in RDs with weight management clients?

RQ4: To what extent is the SCT construct of self-control associated with counseling behavior in RDs with weight management clients?

RQ5: To what extent is the SCT construct of counseling environment associated with counseling behavior in RDs with weight management clients?



## Statistical Hypotheses

The following are the research testable and alternate hypotheses:

*H1<sub>0</sub>*: SCT, as it relates to the construct outcome expectation, is not associated with RDs' counseling behaviors with weight management clients.

*H1<sub>a</sub>*: SCT, as it relates to the construct outcome expectation, is associated with RDs' counseling behaviors with weight management clients.

*H2<sub>0</sub>*: SCT outcome expectations and outcome expectancies constructs are not associated with RDs' counseling behaviors with weight management clients.

*H2<sub>a</sub>*: SCT outcome expectations and outcome expectancies constructs are associated with RDs' counseling behaviors with weight management clients.

*H3<sub>0</sub>*: The SCT environment construct is not associated with RDs' counseling behaviors with weight management clients.

*H3<sub>a</sub>*: The SCT environment construct is associated with RDs' counseling behaviors with weight management clients.

*H4<sub>0</sub>*: The SCT self-efficacy construct is not associated with RDs' counseling behaviors with weight management clients.

*H4<sub>a</sub>*: The SCT self-efficacy construct is associated with RDs' counseling behaviors with weight management clients.

*H5<sub>0</sub>*: SCT, as it relates to the construct of environment, is not associated with RDs' counseling behaviors with weight management clients.

*H5<sub>a</sub>*: SCT, as it relates to the construct of environment, is associated with RDs' counseling behaviors with weight management clients.

In this chapter, I present the outcomes of the study. In the first section of the chapter, I describe the pilot study and assess the test-retest questionnaire stability. In the second section, I explain the process of data collection as well the operationalization of variables used in the study.

I also provide information on the descriptive statistics and the inferential analyses results for each of the five research questions, for which I used nonparametric correlations, multivariate analysis of variance, and logistic regression. I used SPSS Version 23 software to conduct these analyses. The chapter concludes with a summary section.

### **Pilot Study**

I followed and adhered to the steps for questionnaire distribution, highlighted in the methodology section in Chapter 3. I performed the test and retest reliability (stability) by administering the questionnaire twice (after 1 week) for the test and retest reliability coefficient. The sample size for the stability test was 30 RDs from the local area (El Paso, Texas) who were affiliated with the local chapter of the American Dietetic Association. I contacted participants via email and they returned their questionnaires to me via email.

In the pilot study, I was able to collect most of the surveys distributed to RDs at the first and second round. Pearson's correlation coefficients were calculated between the scores on each variable at Time 1 (T1) and Time 2 (T2; 1week later). Table 4 highlights the correlations. The five SCT constructs analyzed showed positive correlations of 1.00 and .95 ( $p < .001$ ) for outcome expectations, self-efficacy about

counseling, self-efficacy in overcoming barriers, self-control, and the environment in which counseling occurred.

Table 4

*Test-Retest Reliability*

Variables	Pearson's correlation between T1 & T2
Outcome expectancies	1.00***
Self-efficacy – counseling sessions	.99***
Self-efficacy – overcoming barriers	.95***
Self-control – counseling sessions	.99***
Supportiveness of environment	.99***

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

## Results

The American Dietetic Association provided a list of RDs emails nationwide. In March, I sent 310 questionnaires to RDs nationwide. Participants returned consent forms and questionnaires between the end of April and the beginning May. One hundred and fifty questionnaires were collected. The number of participants, which was 150, matched the recommended number by the power analysis.

Tables 5, 6, and 7 highlight the features of the study participants with regard to gender, race, age, hours per week spent counseling, and years of counseling. Eighteen (10.1%) out of the 150 participants were male RDs currently conducting weight loss counseling, and 132 (73.7%) were females. Sixteen percent did not report their gender.

White professionals accounted for 53.6% of the participants, and Hispanic and African American professionals accounted for 24% and 5.0% respectively. The mean age of participants was 38.89 years, and the average years of practice in counseling were 6.46 years. In addition, data showed that RDs spent on average 10.01 hours per week counseling weight loss clients.

Table 5

*Participant Sociodemographics*

Characteristic	<i>N</i>	%
<b>Gender</b>		
Male	18	10.1
Female	132	73.7

Table 6

*Participant Sociodemographics*

Characteristic	<i>N</i>	%
<b>Race</b>		
White	96	53.6
Black/African American	9	5.0
Asian/Asian American	2	1.1
Hispanic	43	24.0

Table 7

*Participant Counseling Experience Description*

Characteristic	Range	Mean	Median	SD
Age	25-65	38.89	37.50	8.52
Hours/week counseling	3-22	10.01	10.00	3.61
Years counseling	2-26	6.46	5.00	4.17

I conducted an analysis of the variable reliability (consistency) by using Cronbach's alpha. Table 8 shows Cronbach's alpha, mean, median, and standard deviation for each of the scales. Outcome expectancies, self-efficacy in counseling sessions, self-efficacy in overcoming barriers, self-control in counseling sessions, and supportiveness of environment had scores between 70 and 83 scores. A Cronbach alpha of  $> 0.7$  is a measure of good consistency (Sharma & Romas, 2017). The purpose of Cronbach's alpha was to assess the internal reliability of the scale. The use of Cronbach's alpha is appropriate regardless of whether Spearman's rho or Pearson correlations were used.

Table 8

*Internal Reliability and Descriptive Statistics for Outcome Variables*

Variable	Possible range	Observed range	Cronbach's alpha	Mean	Median	Standard deviation
Outcome expectancies	1-25	4-19	.73	7.60	7.83	2.40
Self-efficacy – counseling sessions	1-5	1.25-4.00	.88	2.28	2.25	.52
Self-efficacy – overcoming barriers	1-5	1-4	.86	1.96	2.00	.42
Self-control – counseling sessions	1-5	1-4	.83	2.05	2.00	.39
Supportiveness of environment	1-5	2.00-3.60	.70	2.47	2.40	.39

I initially decided to conduct linear regressions to analyze study assumptions. However, histograms indicated some deviations from normality, especially for frequency of counseling weight loss clients and frequency of follow up with weight loss clients. Please refer to Figures 2, 3 and 4.

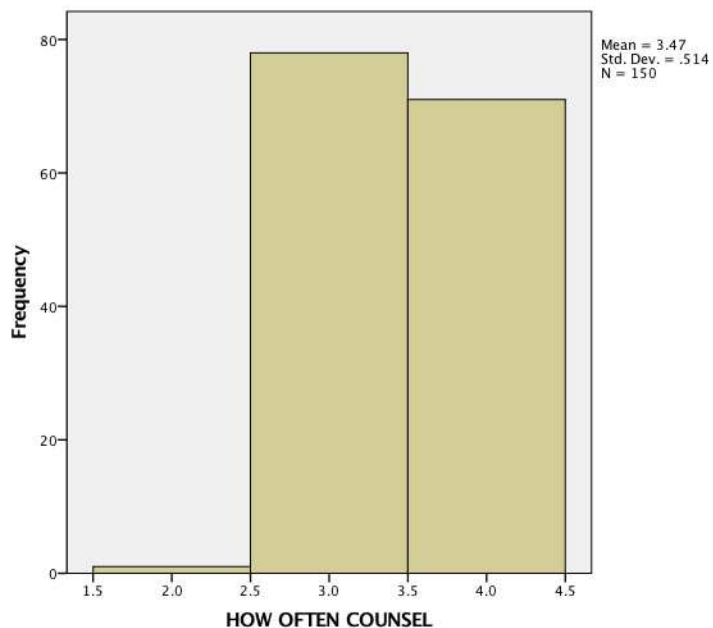


Figure 2. Weight loss counseling sessions frequency.

On average, RDs scored between *sometimes* and *almost always* on the measure of following up with weight loss clients. RDs scored between *somewhat confident* and *confident* for self-efficacy in weight loss counseling sessions. RDs scored *somewhat confident* in the section for self-efficacy in overcoming barriers at weight loss sessions.

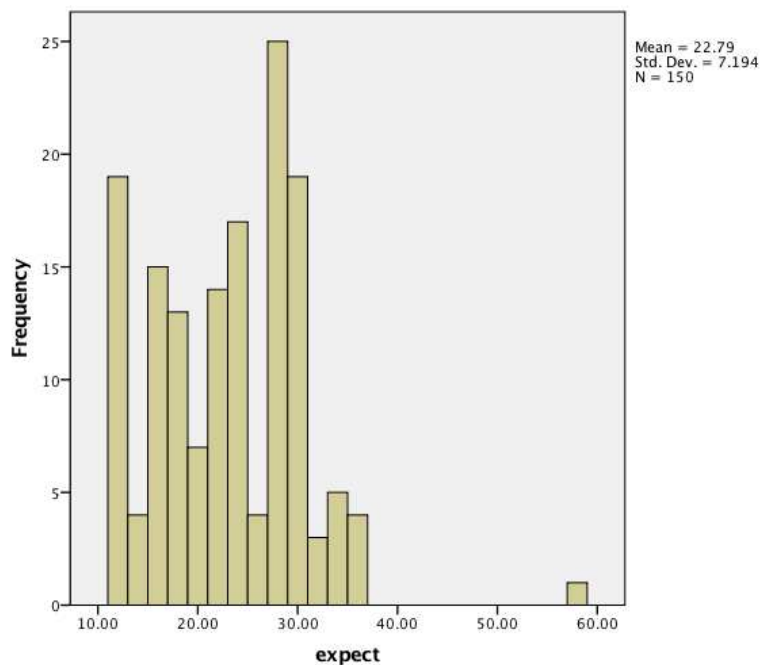


Figure 3. Weight loss counseling sessions expectations.

Expectations are defined by the SCT as the anticipation of the probable outcome that would ensure as a result of engaging in the behavior under discussion. RDs used the word *hardly ever* for expectations about counseling sessions. Most RDs chose *sometimes* more than *almost always* and *always* to describe their expectations about counseling sessions.



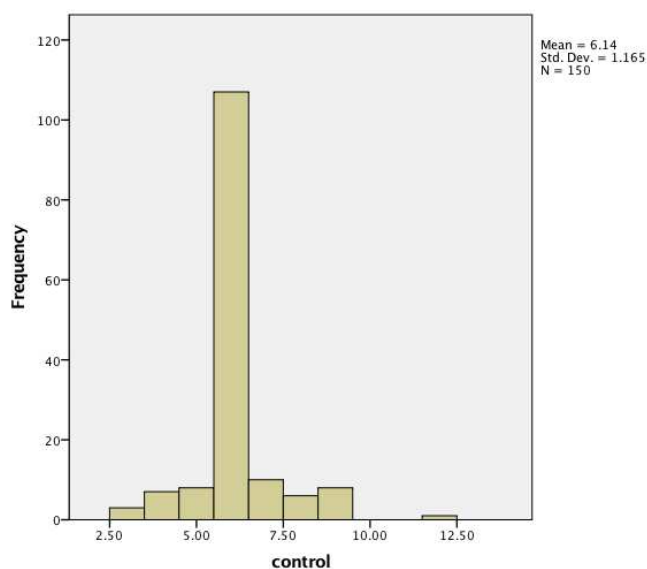


Figure 4. Weight loss counseling sessions self-control.

Most RDs rated the value they place on their self-control in counseling sessions as *somewhat confident*. RDs used the words *hardly ever* and *sometimes* to describe the influence of environment in counseling sessions. RDs used the words *somewhat important* and *moderately important* more frequently than *very important* and *extremely important* to describe the importance of feeling self-rewarded and thanked by clients.

### Research Questions and Hypotheses

I conducted Spearman's rho correlations to examine the relationship between the independent variables and dependent variables refer to Table 9. The dependent variables for the study were the RDs' counseling behaviors for obesity management clients

Table 9

*Predictors of Counseling Behaviors Using Spearman rho Correlations*

Predictor	Frequency of counseling weight loss clients	Frequency of follow up with weight loss clients
Outcome expectancies	.02	-.01
Self-efficacy – counseling sessions	34 <sup>***</sup>	32 <sup>***</sup>
Self-efficacy – overcoming barriers	15	.06
Self-control – counseling sessions	16 <sup>*</sup>	.03
Supportiveness of environments – counseling sessions	-.04	-.03

*Note.* \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

Generally, in Spearman rho correlation a correlation coefficient between 0-39 is considered small, 40-59 is moderate, 60 and above shows a strong correlation. The correlations could be small but significant. The independent variables were the Social Cognitive Theory constructs: outcome expectations, self-efficacy about counseling, self-efficacy in overcoming barriers, self-control, and the environment in which counseling occurred.

### **Research Question 1**

RQ1: To what extent is the SCT construct of expectations about counseling associated with the counseling behavior of RDs with weight management clients?

$H_{10}$ : SCT, as it relates to the construct outcome expectation, is not associated with RDs' counseling behaviors with weight management clients.

$H_{1a}$ : SCT, as it relates to the construct outcome expectation, is associated with RDs' counseling behaviors with weight management clients.

Outcome expectancies was not related to either frequency of counseling  $r = .02$  or frequency of follow up with weight loss clients  $r = -.01$ . The non-significant correlation between the independent and dependent variable, takes me to accept the null hypothesis.

### **Research Question 2**

RQ2: To what extent is the SCT construct of self-efficacy associated with counseling behavior in RDs?

$H_{20}$ : SCT self-efficacy construct is not associated with RDs' counseling behaviors with weight management clients.

$H_{2a}$ : SCT self-efficacy construct is associated with RDs' counseling behaviors with weight management clients.

There were positive correlations between self-efficacy about counseling sessions and the frequency of counseling and follow up with weight loss clients. Greater self-efficacy about counseling sessions was related to greater frequency of counseling weight loss clients,  $p = .34$ ,  $p = < .001$  and greater frequency of follow up with weight loss

clients,  $p = .32$ ,  $p < .001$ . The association between self-efficacy and frequency of follow up with weight loss clients was significant. I rejected the null hypothesis.

### **Research Question 3**

RQ3: To what extent is the SCT construct of self-efficacy related to overcoming barriers associated with counseling behavior in RDs with weight management clients?

$H_{3_0}$ : The SCT environment construct is not associated with RDs' counseling behaviors with weight management clients.

$H_{3_a}$ : The SCT environment construct is associated with RDs' counseling behaviors with weight management clients.

The association between self-efficacy in overcoming barriers and frequency of counseling ( $p = .15$ ), or frequency of follow up with weight loss clients ( $p = .06$ ), was non-significant. Due to lack of a relationship between variables, I accepted the null hypothesis.

### **Research Question 4**

RQ4: To what extent is the SCT construct of self-control associated with counseling behavior in RDs with weight management clients?

$H_{4_0}$ : The SCT self-control construct is not associated with RDs' counseling behaviors with weight management clients.

$H_{4_a}$ : The SCT self-control construct is associated with RDs' counseling behaviors with weight management clients.

There was a small correlation between self-control in counseling sessions and the frequency of counseling weight loss clients,  $.16, p < .05$ . Based on the significance of this finding, I rejected the null hypothesis.

### **Research Question 5**

RQ5: To what extent does the SCT construct of counseling environment is associated with counseling behavior in RDs with weight management clients?

*H5<sub>0</sub>*: SCT, as it relates to the construct of environment, is not associated with RDs' counseling behaviors with weight management clients.

*H5<sub>a</sub>*: SCT, as it relates to the construct of environment, is associated with RDs' counseling behaviors with weight management clients.

There was no correlation between a supportive environment and frequency of counseling weight loss clients  $-.04$ . Also, no correlation existed for frequency of follow up with weight loss clients. I accepted the null hypothesis.

### **Summary**

This chapter provides the findings on descriptive statistics and details from the inferential analysis as it relates to the research questions and hypotheses addressed in the current study. The descriptive analysis revealed there were more females in the study than males. There was a relatively similar representation of Asian and African American RDs; but the White and Hispanics professionals were more predominant in numbers among the participants.

The study showed a significant relationship between two SCT constructs such as self-efficacy in counseling sessions and self-control with RDs counseling behaviors. Self-

efficacy and expectations about counseling did not show significant associations with RDs counseling behaviors.

The Spearman's rho correlations analyses between independent and dependent variables showed positive relationships between self-efficacy in counseling sessions and RDs counseling behaviors .34. Self-efficacy in overcoming barriers .15, and self-control in counseling sessions .16. The correlations were small but positive. However, I was not able to link the relationship between the counseling environment and RDs' counseling behaviors with weight management clients.

## Chapter 5: Discussion, Conclusions, and Recommendations

### **Introduction**

In this cross-sectional and quantitative study, I examined the ability of SCT constructs to assess strengths and weaknesses of RDs' counseling methods for the management of obesity. I also used the questionnaire *using social cognitive theory to predict counseling behaviors in registered dietitians* to gather information about dietitians' counseling behaviors with weight loss clients. The aim of the study was to determine if a relationship exists between RDs' counseling behaviors, knowledge, attitudes, and expectations with weight loss clients using SCT.

I used SCT as the theoretical framework for this study. SCT explains behaviors as a result of the relationship between individuals' actions and the surrounding environment. I found that greater self-efficacy and self-control in counseling sessions had significant relationships with conducting counseling sessions.

RDs' experiences in weight loss counseling could be a vital factor influencing these findings compared to new RDs, giving them more tools and techniques to aid weight loss clients. However, self-control in counseling sessions did not have a significant relationship in follow-up sessions.

### **Interpretation of Findings**

Zinn et al. (2012) evaluated three aspects of RDs' involvement with weight loss clients in the private practice setting: the approach to treatment, characteristics of the consultation itself, and client characteristics. If RDs are to play a lead role in supporting

best-practice weight loss and maintenance treatment, then they need to address the lack of long-term follow-up on behalf of the client (Zinn et al., 2012).

Respondents who expressed self-efficacy and self-control in counseling sessions had high correlations with conducting and following up counseling sessions. However, there was not a significant correlation between self-control in counseling sessions with follow-up sessions. Lu and Dollahite (2010) found that RDs in private practice and outpatient settings had high self-efficacy scores, which led to longer and repeated sessions. Self-efficacy scores were positively correlated with counseling-related job characteristics.

Years of counseling experience and skill level significantly predicted self-efficacy scores (Lu & Dollahite, 2010). Participants who reported more years in counseling were associated with superior frequency of counseling and follow up with weight loss clients.

Self-efficacy is a predominant factor at influencing goal setting. Self-efficacy scores were positively correlated with counseling-related job characteristics. Years of counseling experience and skill level were significantly associated with self-efficacy scores (Lu & Dollahite, 2010).

Lu and Dollahite (2010) reported that RDs needed more training to develop their counseling skills and improve self-efficacy to meet clients' demands and improve clients' health and overall quality of life. Exposure to outpatient settings would allow RDs to gain the necessary skills to work in the weight management field (Lu & Dollahite, 2010; Sharma & Romas, 2012, 2017).



**Self-Efficacy**

Self-efficacy refers to RDs' conviction in their ability to control and modify actions. Professional training on weight loss techniques, plans, and tools are crucial in carrying out behavior changes in weight loss clients. Acquired knowledge could produce feelings of empowerment to perform change (Stacey et al., 2015).

Self-efficacy is the central construct in SCT because it affects behavior. This occurs directly through RDs' belief in their ability to apply skills effectively in stressful situations and indirectly through influencing goals, outcome expectations, as well as barriers and facilitators (Dewar et al., 2013; Plotnikoff et al., 2013; Stacey et al., 2014). The prerequisite for behavioral change is known as knowledge of the health risks and the positive results of health-related behaviors.

In this study, there was a significant correlation between self-efficacy in conducting counseling sessions and the high frequency of conducting counseling sessions with weight loss clients. There was a positive correlation between self-efficacy in conducting sessions and a high frequency in following up with weight loss clients.

**Self-Control**

There is a positive correlation between self-control and counseling sessions. The correlation between self-control and conducting frequent following up sessions was small but significant. SCT constructs influence behavior and motivation and are influenced by the environment.

RDs are the best-trained professionals in weight management. However, many believe that their specialist weight management training is inadequate (Zinn et al., 2012).

A clear problem is that dietitians lack sufficient preparation in behavior counseling methods and motivational techniques (Zinn et al., 2012).

### **Environment**

There was no correlation between environment and frequency of conducting counseling and follow-up sessions with weight loss clients. Researchers have not reported a correlation between the influence of counseling environments and weight loss sessions. Most respondents complained about the lack support provided from physicians, clients' families, and supervisors (Collins, 2004; Grace, 2011).

In the current climate of evidence-based practice, the need to evaluate dietetic interventions, as well as demonstrate efficacy and inform service development, is essential (Collins, 2004; Grace, 2011; Zinn et al., 2012).

### **Expectations**

Outcome expectations are the consequences of individuals' actions that people anticipate their actions could produce. These actions could be categorized as physical, social, and self-evaluative. Social issues include interpersonal interactions and the significance of individuals at reinforcing or discouraging behaviors (W.H.Ng & Lucianetti, 2015; Plotnikoff, et al., 2013).

There was no correlation between outcome expectations and frequency of conducting counseling and follow-up sessions. Outcome expectation is a vital factor that could determine the success of weight loss plans. RDs need to outline priorities that they would expect as result of counseling sessions and address these expectations with weight

loss clients before, during, and after interventions to encourage compliance with short-term and long-term goals (W.H.Ng & Lucianetti, 2015; Plotnikoff, et al., 2013).

I did not include a hypothesis to analyze the relationship between RDs feeling self-rewarded and weight loss counseling sessions. However, when analyzing the survey results, I noted that RDs used the words *somewhat important* and *moderately important* (mean = 22.79) to describe the importance of feeling self-rewarded and thanked by clients. I recommend that future researchers analyze the impact of these factors on RDs' counseling behaviors.

### **Limitations of the Study**

The study limitations are related to the cross-sectional design. This design is a limitation because it does not allow drawing conclusions about causality. It is not clear whether the SCT constructs influence changes in RDs counseling behaviors.

Generalizability is another limitation. The mostly female sample may not be able to generalize findings to male RDs (Sharma & Romas, 2012). The generalizability of this study could be limited to similar communities of RDs. RDs chosen for the study had counseling experience with weight management of more than 2 years. This could have limited the assessment of counseling behaviors among RDs with less experience and professionals recently graduated from nutrition programs.

SCT is a robust behavioral theory, and its advantage is its quick application. However, this theory is not designed specifically for understanding changes in behavior (Sharma & Romas, 2012). The multiple theory constructs inhibit verification of each of these constructs, which tends to limit the theory's application. By not analyzing the effect

of these constructs, I could have missed the impact of other constructs that could have had a significant influence on RDs' counseling behaviors. Lastly, study participants completed self-report questionnaires. This could have affected the reliability of the study results. Participants may have chosen the appropriate answer but not necessarily the real answer.

### **Recommendations for Further Studies**

Faghri and Buden (2015) reported that obesity has become an epidemic in the United States and other countries around the world. The CDC declared that American society has become obesogenic (as cited in Faghri & Buden, 2015). Obesity affects more than 30% of Americans, which mirrors the rate of smoking as the leading preventable cause of disease and death in the United States (Faghri & Buden, 2015).

RDs can be crucial tools as they use their expertise in the field of food science and nutrition (Anderson et al., 2007; Zinn et al., 2012). RDs listen to and translate theoretical and scientific information into concrete actions and practical skills for clients. RDs are essential in managing the obesity rates in the United States (Anderson et al., 2007; Zinn et al., 2012).

Dietitians are experts in weight management (Anderson et al., 2007; Zinn et al., 2012). However, there is little scientific literature on the behaviors and tools that dietitians employ to achieve clients' weight-loss. There is little evidence on how efficient and prepared dietitians are to handle a public health crisis such as obesity (Anderson et al., 2007; Zinn et al., 2012).

I found that both the presence of and correlations between factors of self-efficacy, self-control, expectations, counseling environment, and counseling behaviors influenced the frequency of assessing and following up with weight loss clients. Similarly, the absence of some factors, such as self-efficacy, influenced frequency of follow-up sessions.

In the future, researchers could analyze the influence of all SCT constructs and their effects on RDs' counseling behaviors. By analyzing the effect of all SCT constructs, researchers may be able to assess their impact on RDs' counseling behaviors and perhaps easier to identify exterior factors. Additionally, it would be interesting to assess the cause for a positive correlation between self-efficacy and follow up; perhaps successful clients compliant with counseling recommendation may cause the positive correlation.

Further research that uses a larger sample size could test the validity of the findings of this study. Other ways researchers could expand upon this study are by including recent graduates of nutrition programs and RDs with less counseling experience. By including recent graduates, the gathered data could be more demonstrative of the population of interest.

### **Implications for Social Change**

The evolving obesity pandemic has a measurable impact on physical and mental health, quality of life, and has generated considerable direct and indirect costs to society. Weight loss is the most effective therapy for obesity and obesity related co-morbidity (Hammond & Levine, 2010; Vandevijvere et al., 2015).

There is gap in the theory and practice of nutrition science literature that could affect the conclusion that RDs' clinical practices are evolving and meeting recommended guidelines (Zinn et al., 2012). The lack of literature makes it difficult to determine how current the training and counseling skills of dietitians is with respect to promoting successful weight loss treatments (Zinn et al., 2012).

The study adds to the literature on weight loss and RDs' counseling skills and creates the foundation for further research studies to reduce obesity by improving counseling skills among RDs. Results of future studies could bring positive social change by improving the education of RDs. Health professionals with high-quality and up-to-date training are best equipped to help communities and individuals struggling with obesity.

### **Conclusions**

In the United States, approximately two-thirds of the adult population is now either overweight or obese and more women (33.4%) than men (27.5%) are obese (Annesi, Unruh, Marti, Gorjala, & Tennat, 2011). At any given time, approximately 44% of adults in the United States are trying to lose weight, by trying to eat less food. However, restricting caloric intake (dieting) for weight loss has been overwhelmingly ineffective (Annesi & Whitaker, 2009).

Identifying appropriate health behavioral theories is essential to improve behavioral changes and designing efficient programs. McCabe et al. (2015) reported evidence to show that interventions guided by a specific theory produced stronger results than interventions created without a theory (McCabe et al., 2015).

For instance, by using and integrating SCT constructs such as self-efficacy, self-control, counseling environment, and expectations made it possible to measure the impact of personal, social and economic factors on Registered Dietitians' (RDs) counseling behaviors with obese clients.

RDs who believe in their abilities (i.e. have high self-efficacy) are more likely to follow up with clients. We know follow-up predicts good outcomes for clients. Therefore, if we increase self-efficacy in RDs we can, by extension, promote better outcomes in their clients.

There was no correlation between the counseling environment and the frequency in conducting counseling and follow up sessions with weight loss clients. Studies have not found a correlation between the influence of the counseling environment and weight loss sessions.

Most respondents complained about the lack support provided from physicians, clients' families, and supervisors. Many respondents also reported as inappropriate the counseling environment for weight loss sessions. This highlights the importance in providing an appropriate and supportive environment to health professionals and weight loss clients.

## References

- Anderson, E., Winett, R., & Wojcik, J. (2007). Self-regulation, self-efficacy, outcome expectations, and social support: Social cognitive theory and nutrition behavior. *Annals of Behavioral Medicine, 34*(3), 304-312. Doi.10.1007/BF02874555
- Annesi, J., & Whitaker, A. (2009). Psychological factors discriminating between successful and unsuccessful weight loss in a behavioral exercise and nutrition education treatment. *International Journal of Behavioral Medicine, 17*. 168-175. Doi.10.1007/s12529-009-9056-2
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall, Inc.
- Bandura, A. (2004). Health promotion by social cognitive means. *Health Education & Behavior, 31*(2). 143-164. Doi.10.11772F1090198104263660
- Cohen, D., Collins, R., Hunter, G., Gosh-Dastidar, B., & Dubowitz. (2015). Store impulse marketing strategies and body mass index. *American Journal of Public Health, 105*(7), 1446-1451. Doi. 10.2105/AJPH.2014.302220
- Collins, C. (2004). Survey of dietetic management of overweight and obesity and comparison with best practice criteria. *Nutrition Dietetics, 60*, 177-184. <https://daa.asn.au/wp-content/uploads/2016/12/60-3-survey-of-dietetic.pdf>
- Creswell, J. (2009). *Research design*. Thousand Oaks, CA: Sage Publications, Inc.
- Delahanty, L. (2010). An expanded role for dietitians in maximizing retention in nutrition and lifestyle intervention trials: Implications for clinical practice. *Journal of*



*Human Nutrition and Dietetics*, 23, 336-343. Doi.10.1111/j.1365-277X.2009.01037

Dewar, D., Plotnikoff, R., Morgan, P., Okely, A., Costigan, S & Lubans, D. (2013).

Testing social-cognitive theory to explain physical activity change in adolescent girls from low-income communities. *Research Quarterly for Exercise and Sport*, 84, 483-491. Doi.10.1080/02701367.2013.842454

Dixon, J. (2009). Review: The effect of obesity on health outcomes. *Molecular and*

*Cellular Endocrinology*. 316, 104-108. Doi.10.1016/j.mce.2009.07.008

Drieling, R., Ma, J., & Stafford, R. (2011). Evaluating clinic and community-based

lifestyle interventions for obesity reduction in a low-income Latino neighborhood:

Vivamos Activos Fair Oaks program. *BMC Public Health*, 11(98), 2-10. Doi.

10.1186/1471-2458-11-98

Faghri, P., & Buden, J. (2015). Health behavior knowledge and self-efficacy as predictors

of body weight. *Journal of Nutrition Disorders Therapy*, 5(169), 1-5. Doi.

10.4172/2161-0509.1000169

Finkelstein, E., Khavjou, O., Thompson, H., Trogdon, J., Pan, L., Sherry, B., & Dietz, W.

(2012). Obesity and severe obesity forecasts through 2030. *American Journal of*

*Preventive Medicine*, 42(6), 563-570. Doi.10.1016/j.amepre.2011.10.026

Flegal, K., Carroll, M., Kit, B., & Ogden, C. (2012). Prevalence of obesity and trends in

the distribution of body mass index among US adults, 1999-2010. *American*

*Journal of the American Association*, 307(5), 491-497. Doi.

10.1001/jama.2012.39

- Flegal, K., Carroll, M., Ogden, C., & Curtin, L. (2010). Prevalence and trends in obesity among US adults, 1999-2008. *American Journal of American Medical Association, 303*(3), 235-241. Doi. 10.1001/jama.2009.2014
- Grace, C. (2011). A review of one-to-one dietetic obesity management in adults. *Journal of Human Nutrition and Dietetics, 24*, 13-22. Doi.10.1111/j.1365-277X.2010.01137.x
- Hammond, R., & Levine, R. (2010). The economic impact of obesity in the United States. *Diabetes, Metabolic Syndrome and Obesity: Targets and Therapy, 3*, 285-295. Doi.10.21472FDMSOTT.S7384
- King, C., Byham-Gray, L., Parrot, S., Maillet, J., & Splett, P. (2014). Applying social cognitive theory to registered dietitian research involvement. *Journal of Allied Health, 43*(4), 201-210. <https://search-proquest-com.ezp.waldenulibrary.org>
- Lu, A., & Dollahite, J. (2010). Assessment of dietitians' nutrition counseling self-efficacy and its possible relationship with reported skill usage. *Journal of Human Nutrition and Dietetics, 23*, 144-153. Doi. 10.1111/j.1365-277X.2009.01024.x
- McCabe, B., Plotnikoff, R., Dewar, D., Collins, C, & Lubans, D. (2015). Social cognitive mediators of dietary behavior change in adolescent girls. *American Journal of Health Behavior. 30 (1)*51-61. Doi.10.5993/AJHB.39.1.6
- Martin, J., McCaughtry, N., Flory, S., Murphy, A. & Wisdom, K. (2011). Using social cognitive theory to predict physical activity and fitness in underserved middle

school children. *Research Quarterly for Exercise and Sport*. 82 (2), 1-9.

Doi.10.1080/02701367.2011.10599752

Masters, R., Reither, E., Powers, D., Yang, C., Burger, A., & Link, B. (2013). The impact of obesity on US mortality levels: the importance of age and cohort factors in population estimates. *American Journal of Public Health*, 103(10), 1895-1901.

Doi. 10.2105/AJPH.2013.301379

Mink, M., Evans, A., Moore, C., Calderon, K., & Deger, S. (2010). Nutritional imbalance endorsed by televised food advertisements. *American Dietetic Association*, 110, 904-910. Doi.10.1016/j.jada.2010.03.020

Doi.10.1016/j.jada.2010.03.020

Murillo, R., Ali, S., Carmack, C., & Doss, D. (2016). Activity and weight misperception among overweight and obese adults. *American Journal of Health Behaviors*,

40(1), 12-20. Doi.10.5993/AJHB.40.1.2

Murnan, J., Sharma, M., & Lin, D. (2006). Predicting childhood obesity prevention behaviors using social cognitive theory: Children in China. *International*

*Quarterly of Community Health Education*, 26(1), 73-84. Doi. 10.21902FRV25-395T-25N3-PN14.

Plotnikoff, R., Costigan, S., Karunamuni, N., & Lubans, (2013). Social cognitive theories used to explain physical activity behavior in adolescents: A systematic review and meta-analysis. *Preventive Medicine*. 56, 245-253.

Doi.10.1016/j.ypmed.2013.01.013

Salkind, N. (2009). *Exploring research*. Upper Saddle River, NJ: Pearson Prentice Hall.

- Sharma, M., & Wilkerson, J. (2006). Predicting childhood obesity prevention behaviors using social cognitive theory. *International Quarterly of Community Health Education, 24*(3), 191-203. Doi.10.2190%2FCPVX-075A-L30Q-2PVM
- Sharma, M., & Romas, J. (2012). *Theoretical foundations of health education and health promotion*. Sudbury, MA: Jones & Bartlett Learning.
- Stacey, F., James, E., Chapman, K., Courneya, K. & Lubans, D. (2015). A systematic review and meta-analysis of social cognitive theory-based physical activity and/or nutrition behavior change interventions for cancer survivors. *Journal Cancer Survivor, 9*, 305-338. Doi.10.1007/s11764-014-0413-z
- Vandevijvere, S., Chow, C., Hall, K., Umali, E., & Swinburn, B. (2015). Increased food energy as a major driver of the obesity epidemic: Global analysis. *Bulletin of the World Health Organization, 93*(7), 446-456. Doi.10.24710.2471/BLT.14.150565
- W. H. Ng, T., & Lucianetti, L. (2015). Within-individual increases in innovative behavior and creative, persuasion, and change self-efficacy over time: A social cognitive theory perspective. *Journal of Applied Psychology, 101*(1), 14-34. Doi. 10.1037/apl0000029
- Xin, X., Variyam, J., Zhao, Z., & Chaloupka, F. (2014). Relative food prices and obesity in US metropolitan areas: 1976-2001. *Plos One, 9*(12), 114707. Doi.10.1371/journal.pone.0114707
- Yanovski, S., & Yanovski, J. (2011). Obesity prevalence in the United States – Up, down, or sideways? *New England Journal of Medicine, 364*(11). 987-989. Doi. 10.1056/NEJMp1009229

Zinn, C., Schofield, G., & Hopkins, W. (2012). Management of adult overweight and obesity: Consultation characteristics and treatment approaches of private practice dietitians. *Nutrition & Dietetics*, 70(2), 113-119. Doi.10.1111/j.1747-0080.2012.01639.x

Appendix A: Using Social Cognitive Theory to Associate With Counseling Behaviors in  
Registered Dietitians

**OPERATIONAL DEFINITIONS**

- 1. Self-efficacy:** Social Cognitive Theory (SCT) defines self-efficacy as the confidence of a person has on his or her ability to pursue a behavior. Self-efficacy plays a central role in behavior change. In this study, self-efficacy has been defined as the confidence of RDs to influence behavior changes in obese clients. The ability of RDs to reassurance with clients that have failed weight loss attempts. This is being measured by item 9, 10, 11, 12 in this study with a possible range 4-20.
- 2. Self-efficacy in overcoming barriers:** SCT defines self-efficacy in overcoming barriers as the confidence of a person has in overcoming barriers while performing a given behavior. The study defines this construct as RDs confidence in solving problems while counseling (language barriers, religion). Items 13, 14, 15, 16, 17 are measuring this construct. The possible range is 5-25.
- 3. Self-control:** This construct is defined by SCT as the ability to setting and developing plans to accomplish chosen behaviors. In this study, this construct includes the confidence in setting realistic goals and developing plans for weight loss clients. Items 18, 19, 20 are measuring this construct. The possible range is 3-15.
- 4. Environment:** SCT defines this construct as the physical or social circumstance or conditions that surround a person. The study defines environment as the support for RDs by physicians and clients' families on the weight loss process. Items 21, 22, 23, 24, 25 are measuring this construct. The possible range is 5-25.
- 5. Expectations:** SCT defines outcome expectations as the anticipation of the probable outcomes that would ensue as a result of engaging in the behavior under discussion. The study defines expectations as the RDs expectations for clients to loose weight and change behaviors in planned time frame. Items 26, 27, 28 are measuring this construct. Outcomes expectancies refer to the value (importance) a person places on the probable outcomes that result from the learned behavior. Items 29, 30, 31 are measuring this construct. The possible range of Expectations is 3-75.



7. How often do you follow up with weight loss clients?					
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**RDs self- efficacy: counseling sessions**

	Not at all Confident	Somewhat Confident	Confident	Really Confident	Completely Confident
8. How confident do you feel influencing behavior change in obese clients?					
9. How confident do you feel using persuasion in changing behaviors?					
10. How confident do you feel using reassurance with weight loss clients?					
11. How confident do you feel in supporting clients as they maintain new weight loss behaviors?					

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**RDs self-efficacy: overcoming barriers**

	Not at all Confident	Somewhat Confident	Confident	Really Confident	Completely Confident
12. How confident do you feel in addressing clients' religious beliefs, which may be a barrier in weight loss counseling sessions (ex. making substitutions for meats and dairy products)?					



13. How confident do you feel in addressing clients' cultural beliefs in your weight loss counseling sessions (ex. eating patterns)?					
14. How confident do you feel in addressing clients' language barriers in your weight loss counseling sessions (ex. able to translate tools/plans to multiple languages)?					
15. How confident do you feel in addressing clients' economic status in your weight loss counseling sessions (able to buy fruits, meats, vegetables)?					
16. How confident do you feel in addressing clients' education level in your weight loss counseling sessions?					

.....

**RDs self-control: counseling sessions**

	Not at all Confident	Somewhat Confident	Confident	Really Confident	Completely Confident
17. How confident do you feel in setting realistic goals for yourself in helping your weight loss clients?					
18. How confident do you feel in your ability to develop reasonable weight loss plans for your clients?					

19. How confident do you feel in your counseling skills to solve problems with your clients?					
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**Influence of environments: counseling sessions**

	Never	Hardly Ever	Sometimes	Almost Always	Always
20. Do you feel that you have sufficient support from physicians to achieve positive weight loss results?					
21. Do you feel that you have sufficient support from clients' families to achieve positive weight loss results?					
22. Do you feel that you have sufficient support from supervisors and colleagues to achieve productive weight loss results?					
23. Do you think that you offer an accessible and comfortable environment to clients?					
24. Do you do follow up sessions for your clients?					

.....

**RDs expectations: counseling process**

	Never	Hardly Ever	Sometimes	Almost Always	Always
25. Do you feel self-rewarded by counseling weight loss					

clients?					
26. Do you get any monetary compensation by counseling weight loss clients?					
27. Do weight loss clients' thank you after the session?					

	Not at all important	Somewhat important	Moderately Important	Very Important	Extremely Important
28. How important is it for you to feel self-rewarded?					
29. How important is it for you to get monetary compensation?					
30. How important is it for you to be thanked by the patients?					

## SCORING

**RDs counseling behaviors:** Scale: Never (1), Hardly ever (2), Sometimes (3), Almost always (4), Always (5). Summative score of items 6-7. Possible range: 2-10.

**RDs self- efficacy- counseling sessions:** Scale: Not at all confident (1), Somewhat Confident (2), Confident (3), Really Confident (4), Completely Confident (5). Summative score of Items 8-11. Possible range: 4-20.

**RDs self-efficacy- overcoming barriers:** Scale: Not at all confident (1), Somewhat Confident (2), Confident (3), Really Confident (4), Completely Confident (5). Summative score of Items 12-16. Possible range: 5-25.

**RDs self-control- counseling sessions:** Scale: Not at all confident (1), Somewhat Confident (2), Confident (3), Really Confident (4), Completely Confident (5). Summative score of Items 17-19. Possible range: 3-15.

**Influence of environments -counseling sessions:** Scale: Never (1), Hardly ever (2), Sometimes (3), Almost always (4), Always (5). Summative score of items 20-24. Possible range: 5-25.

**Scoring Outcome Expectations and Outcome Expectancies about counseling process:**

- **RDs outcome expectations- counseling process:** Scale: -Never (1), Hardly ever (2), Sometimes (3), Almost always (4), Always (5). Summative score of items 25-27.
- **RDs outcome expectancies – counseling process:** Scale: Not all-important (1), Somewhat important (2), Moderately important (3), Very important (4), Extremely important (5). Summative scores of Items 28-30.

The expectations score will be the result from multiplying outcome expectations and outcome expectancies. These results will be sum up obtaining the expectations score.

The score of expectations of counseling process, possible range: 3-75.

## Appendix B: Study Invitation

You are invited to take part in a research study about RDs counseling behaviors with weight loss clients using the social cognitive theory. The researcher is inviting RDs with counseling experience to be in the study. I obtained your name/contact info via ADA.

A researcher named Marianela Guerrero who is a doctoral student at Walden University is conducting this study.

You may contact the researcher via email [XXX@waldenu.edu](mailto:XXX@waldenu.edu). If you want to talk privately about your rights as a participant, you can call the Research Participant Advocate at my university at 612-312-1210. Walden University's approval number for this study is **01-29-18-0235761** and it expires on **January 28, 2019**.

If you are interested on participating on this study please reply to this email with the word "Interested".

Thank you,

Marianela Guerrero

## Appendix C: Experts Letter

Dear Expert,

I am conducting a study entitled, “Using Social Cognitive Theory to Associate With Counseling Behaviors in Registered Dietitians.”

Based on your expertise in the area of behavioral theories and instrument development, you have been identified as an expert to help us establish the face and content validity of my instrument. Attached please find the draft instrument with all the subscales and with scoring instructions on the last page. Please read the operational definitions and look at the corresponding items on the subscales, and then determine the following:

**Face validity:** Does each item appear to measure the intended construct as operationally defined?

**Content validity:** Do the items in each subscale adequately assess the construct within the universe of content as operationally defined?

**Readability:** Is the meaning of each item clear and language appropriate for Register Dietitians? Present Flesch-Kincaid Reading Ease is 78.2 & Flesch-Kincaid Grade level is 3.7

Kindly respond to all aspects and return the instrument with your valuable comments to Marianela Guerrero by **December 12, 2016**. After receiving your inputs and inputs from other experts I will revise the instrument and send it to you again on **December 28, 2016** for a second review. The comments on second review would be

expected by **January 12, 2017**. If you have any questions Marianela Guerrero can be reached at XXX (phone), or [XXX@waldenu.edu](mailto:XXX@waldenu.edu) (email).

**Operational definitions:**

- 1. Counseling behavior:** RDs counseling sessions seek to identify and help change potentially unhealthy behaviors among weight loss clients. RDs counseling functions on the idea that clients' behaviors are learned and those unhealthy behaviors can be changed. RDs could identify, assist and provide guidance in resolving social problems and difficulties that could be affecting weight management clients. Items 6,7 are measuring this construct. The possible range is 2-10.
- 2. Self-efficacy:** Social Cognitive Theory (SCT) defines self-efficacy as the confidence of a person has on his or her ability to pursue a behavior. Self-efficacy plays a central role in behavior change. In this study, self-efficacy has been defined as the confidence of RDs to influence behavior changes in obese clients. The ability of RDs to reassurance with clients that have failed weight loss attempts. This is being measured by item 8, 9, 10, 11 in this study with a possible range 4-20.
- 3. Self-efficacy in overcoming barriers:** SCT defines self-efficacy in overcoming barriers as the confidence of a person has in overcoming barriers while performing a given behavior. The study defines this construct as RDs confidence in solving problems while counseling (language barriers, religion). Items 12, 13, 14, 15, 16 are measuring this construct. The possible range is 5-25.

- 4. Self-control:** This construct is defined by SCT as the ability to setting and developing plans to accomplish chosen behaviors. In this study, this construct includes the confidence in setting realistic goals and developing plans for weight loss clients. Items 17, 18, 19 are measuring this construct. The possible range is 3-15.
- 5. Environment:** SCT defines this construct as the physical or social circumstance or conditions that surround a person. The study defines environment as the support for RDs by physicians and clients' families on the weight loss process. Items 20, 21, 22, 23, 24 are measuring this construct. The possible range is 5-25.
- 6. Expectations:** SCT defines outcome expectations as the anticipation of the probable outcomes that would ensue as a result of engaging in the behavior under discussion. The study defines expectations as the RDs expectations for clients to loose weight and change behaviors in planned time frame. Items 25, 26, 27 are measuring this construct. Outcomes expectancies refer to the value (importance) a person places on the probable outcomes that result from the learned behavior. Items 28, 29, 30 are measuring this construct. The possible range of Expectations is 3-75.

I am extremely thankful for your time, and would like to convey my anticipatory gratitude for your valuable comments on the instrument. I look forward to working with you, if you are interested.

Sincerely,

Marianela Guerrero

enc. Instrument draft



## Appendix D: Validity and Readability of the Study Tool

**Face validity:** Does each item appear to measure the intended construct as operationally defined?

**Content validity:** Do the items in each subscale adequately assess the construct within the universe of content as operationally defined?

**Readability:** Is the meaning of each item clear and language appropriate for Registered Dietitians? Present Flesch-Kincaid Reading Ease is 78.2 & Flesch-Kincaid Grade level is 3.7.

The panel of experts suggested the following changes in rounds 1 and 2. In round 3 the panel of experts approved the final tool.

### Round 1:

- Correction of typos: religious, culture values, weight loss issues, “that promotes weight loss”, compensation vs. benefits.
- Change of answer choices: somehow confident; confident.
- How confident do you feel in addressing clients’ religious beliefs in your weight loss counseling sessions?
- How confident do you feel in addressing clients’ culture beliefs in your weight loss counseling sessions?
- How confident do you feel in addressing clients’ language barriers in your weight loss counseling sessions?
- Do you feel the weight loss goal was met after counseling the client?

- How important is it for you to help your client meet their weight loss goal?
- How confident do you feel in supporting clients as they maintain new weight loss behaviors?
- How confident do you feel in addressing clients' education level in your weight loss counseling sessions?
- How long have you been counseling weight loss clients?
- How confident do you feel in addressing clients' economic situation?
- Do you do follow up sessions for your clients?

**Round 2:**

- Change of answer choices: somewhat confident; somewhat important.
- Detailed explanations on the process on getting the expectation score.
- Correction of typos: cultural values.
- Change monetary benefits for monetary compensation.