Healing by Example: The Influences of Medical Residents' Attitudes and Health Behaviors on their Communication Skills and Counseling Practices

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ABSTRACT

The opportunity to educate obese patients on healthy lifestyle practices and address habits related to chronic disease development is present among many physician office visits, though this opportunity is often overlooked (Flocke, Stange, & Goodwin, 1998). Understanding ways to improve the medical education and enhance the counseling skills of future physicians are of practical and personal relevance to current research. By improving the ways in which physicians counsel obese patients on weight management practices, the healthcare paradigm is poised to create an indelible mark on the wellbeing of our nation.

Based on the need to address patient education and counseling, the purpose of this study was to investigate the relationship between physician attitudes and health behaviors on their overall communication and communication skills. The study surveyed 38 second-year medical residents at the New York University Bellevue School of Medicine using the Weight Management Survey developed by NYU researchers. Communication and counseling skills were measured using scores from Objective Structured Clinical Exams (OSCEs) administered on the same day as the Weight Management Counseling survey. Results of the survey and the OSCEs were analyzed to investigate relationships between each survey item of three categories of questions (attitudes toward weight management counseling, attitudes toward obese patients, physician health habits) and each of two sets of OSCE scores (obesity-related communication skills and overall counseling skills).

Results of the data analysis suggest significant relationships between physicians' personal health habits—specifically dietary habits—and obesity counseling–related communication skills. Results also suggest a significant relationship between physicians' attitudes toward obesity counseling–related communication skills and overall communication skills. Although an extensive body of evidence corroborates these relationships, future investigations should administer the surveys and methods used in this study in rural as well as other urban locations in order to improve variability among medical residents surveyed and assessed. These results also highlight the need to investigate more information about the learning environment of medical residents and also the working environment of physicians, in a variety of settings, in order to provide more depth to the body of literature suggesting providers' health habits improves patient health outcomes.

DEDICATION

This body of work is dedicated to the many patient, caring, and wonderful people who walk with me and support me in all my endeavors.

To my friends, too many to list: Thank you for your words of encouragement along the way. You embody the saying that "friends are the family you choose." Your emotional, spiritual, and physical presence in my life is one of the greatest gifts you could ever share with me. Meeting for a bottle of wine, a run on the greenway, a hike in the woods, a shopping trip—you all know who you are and how you help me appreciate every day we are granted on this earth. Thank you for being you and for being my friend.

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"This little light of mine, I'm gonna let it shine . . ."

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Chapter 1

Introduction

Self-reported data from a survey of physicians in Canada reflects a worldview of the United States that emphasizes the severity of our nation's poor health: "The North American culture is more dangerous to the health of people than any other culture" (Lovell, Lee, & Frank, 2009, p. 9). Obesity rates in the United States reinforce this view. The most current data collected by the Centers for Disease Control and Prevention (CDC, 2009) reports an average obesity rate of 20-29% of adults considered obese with only one state falling below 20% (Colorado) and several states exceeding 30% or more (Missouri, Oklahoma, Arkansas, Kentucky, West Virginia, Tennessee, Louisiana, Mississippi, and Alabama).

Reinforcing the severity of the obesity epidemic, diabetes rates increase "in parallel with the obesity epidemic" (Horowitz et al., 2008, p. 13). These co-morbidities are also associated with conditions such as sleep apnea, hypertension, and high total cholesterol, as well as diseases such as coronary heart disease, liver and gallbladder disease, and several types of cancer (CDC, 2010). Vazquez et al. (2007) revealed in their longitudinal population investigation that the incidence of obesity and Type II diabetes were almost mirror images of each other based on the statistical strength of the meta-analysis conducted. These results reveal disturbing trends that align with studies by Olshansky, Passaro, and Hershow (2005) and Fontaine, Redden, Wang, Westfall, and Allison (2003) outlining the new trend of decreasing life expectancy for the first time in nearly 200 years as a result of the rise in chronic and preventable diseases.

The current rate of growth and detrimental health implications of obesity in the United States (Centers for Disease Control and Prevention [CDC], 2009; Fontaine, Redden, Wang, Westfall, & Allison, 2003) illuminates the need for health professionals to address this public health crisis with utmost care and priority. Melanie Jay, a New York University (NYU) medical school faculty member, along with Sheira Schlair of the Montefiore Medical Center in the Bronx, New York, share the similar research interest of investigating obesity counseling and preventive medicine in medical school and physician settings as well as medical residents' and physicians' own health behaviors and attitudes towards obesity counseling. Specifically, Jay oversees the evaluation and implementation of the Obesity Counseling and Prevention arm of the Research on Medical Education Outcomes (ROMEO) project and is charged with research and development of current practices as well as future opportunities for improvements upon obesity knowledge, counseling skills and abilities to assist patients in achieving a healthy lifestyle (New York University [NYU], 2011). To that end, Jay and colleagues have conducted several recent studies evaluating current attitudes and practices among physicians as well as medical residents, and the results of these studies have served as the springboard from which future efforts are directed (Jay et al., 2009; Jay et al., 2010).

One of their recent collaborations was a 2009 cross-sectional study of physician obesity attitudes and how those attitudes may affect patient care (Jay et al., 2009). Though relationships were found between physician attitudes and patient care competencies, researchers found several limitations of interest and were noted as directions for future investigation, specifically the use of physicians' own health habits and behavior. Extensive evidence suggests that physicians who engage in healthy lifestyle habits and behaviors are more likely to share knowledge of these habits with their patients and provide preventive counseling (Abramson, Stein, Schaufele, Frates,

& Rogan, 2000; Cornuz, Ghali, Di Carlantonio, Pecoud, & Paccaud, 2000; Frank, Galuska, Elon, & Wright, 2004; Frank, Wright, Serdula, Elon, & Baldwin, 2002).

A second and more recent collaboration in 2010 implemented a theory-based obesity counseling curriculum with half of a group of internal medicine residents in order to "assess the impact of an obesity counseling curriculum for residents" (Jay et al., 2010, p. 415). Patients of the residents participating in the study, both the experimental group receiving the curriculum and the control group receiving no curriculum, were interviewed to assess quantity and quality of obesity-related counseling that occurred during their office visit. Jay et al. (2010) found that physicians in the experimental group provided significantly greater quality of counseling (standard b= 0.18, R^2 change = 2.9%, $p< 0.05$) when controlling for "patient, physician and visit characteristics" (Jay et al., 2010, p. 415).

Thus, in order to better address the relationship between physicians' own health behaviors and attitudes and how these factors relate to preventive medicine counseling efficacy, this study includes measurements of overall communication and communication skills as demonstrated by scores on observed structured clinical exams (OSCEs).

Purpose of the Study

There is no dispute among health professionals that the American obesity epidemic is costly to physical wellbeing as well as the financial health and management of resources within our country (CDC, 2009; Flegal, Carroll, Ogden, & Johnson, 2002; Fontaine et al., 2003; Olshansky, Passaro, & Hershow, 2005). There is dispute, however, as to how the obesity epidemic continues to grow, whether it is physical inactivity (Heini & Weinsier, 1997; Philipson,

2001; Prentice & Jebb, 1995; Weinsier, Hunter, Heini, Goran, & Sell, 1998;) or consuming too many (or poor nutrient-quality) calories (Cutler, Glaeser, & Shapiro, 2003; McCrory, Suen, & Roberts, 2002; Nielsen & Popkin, 2003; Stunkard, Berkowitz, Stallings, & Schoeller, 1999).

Physicians are uniquely able to make significant contributions to the health and wellbeing of our country's citizens by "seizing the opportunity to deliver preventive care during illness visits" (Cohen et al., 2004, p. 565). Researchers suggest that medical school and residency training are the ideal settings for improving empathy for and treatment of patients who are obese (Block, DeSalvo, & Fisher, 2003, p. 673) as well as encourage or maintain healthy lifestyle habits, later serving as a role model for patients as well as other medical staff (Frank, Hedgecock, & Elon, 2004). This unique opportunity gives rise to the importance of understanding medical residents' attitudes and behaviors toward and among obese patients in order to best address disparities that may exist which could detract from the quality of patient care necessary to facilitate these significant contributions (Block et al., 2003; Foster et al., 2003; Goff, Holmboe, & Curry, 2006; Harris, Hamaday, & Mochan, 1999; Kurtz, Nolan, & Rittinger, 2003; Teachman & Brownell, 2001).

The original purpose of the study by Schlair et al. (2008) was to assess the relationship between medical resident stage of change and weight management self-efficacy, as well as residents own counseling self-efficacy and performance. These previous investigations also examined relative impact of the "5 As" obesity counseling curriculum in relationship to quality of counseling received by patients (Jay et al., 2010). In addition, Sheira Schlair was investigating physician attitudes, personal health habits and obesity counseling and management for her fellowship and was guided by her fellowship mentor, Adina Kalet, to collaborate with Melanie Jay based on their similar research interests. Subsequently, the merged efforts and resources

identified the need to compare attitudes and behaviors to performance, rather than simply self-reported competency, in order to determine if a significant relationship existed.

Thus, the exploration of physicians' own health behaviors, attitudes regarding obesity and weight management counseling, and overall communication abilities as they related to clinical exam scores investigated the natural tendencies of medical residents, without an intervention such as the obesity counseling curriculum. This investigation was a crucial step in (1) understanding trends or patterns in how medical residents develop these attitudes and behaviors, (2) understanding how the medical residents are influenced during medical school training, and (3) guiding future research in improving physicians' knowledge of and appreciation for obesity and weight management counseling.

The purpose of this study was to investigate the relationship between physicians' attitudes regarding weight management counseling, physicians' attitudes toward obese patients, personal health behaviors and obesity counseling–related communication skills measured by objective structured clinical examinations (OSCEs). This study will also investigate the relationship between physicians' attitudes regarding weight management counseling, personal health behaviors, and overall communication skills, also measured by OSCEs.

Research Questions

1. What is the relationship between physicians' attitudes toward weight management counseling and obesity counseling–related communication skills on an OSCE?
2. What is the relationship between physicians' attitudes toward obese patients and obesity counseling–related communication skills on an OSCE?

3. What is the relationship between physicians' personal health habits and obesity counseling–related communication skills on an OSCE?
4. What is the relationship between physicians' attitudes toward weight management counseling and overall communication skills measured by an OSCE?
5. What is the relationship between physicians' personal health habits and overall communication skills measured by an OSCE?

Significance of the Study

This novel study is significant because it introduces a new variable in a previously researched equation. Specifically, this study investigates the relationship between physicians' attitudes toward obesity, weight management counseling, own health behaviors, and performance as measured by observed structured clinical examinations (OSCEs). The study from which this investigation was initiated examined the variables associated with influencing physicians' attitudes towards obesity counseling, but used self-reported survey data of perceived counseling efficacy as the counseling variable in their examination of these relationships; in this study, efficacy was an actual performance score as represented by scores on the OSCE exam, a novel approach to a rather popular topic in preventive medicine research (Jay et al., 2009).

The significance of this study and similar work is reinforced by recent changes in healthcare reimbursement policy. Effective November 29, 2011, Medicare began to cover obesity counseling provided by primary care physicians (Medicare, 2011). Previously, lack of reimbursement for obesity counseling has been a significant barrier to counseling provided by physicians (Bowerman et al., 2001), but because of these changes, research efforts similar to and

included in this study will play an increasingly important role as providers seek information regarding best practices for weight management counseling as the frequency of counseling increases.

Limitations

First, the small sample size and location of where the survey was conducted (urban New York hospital setting) does not allow for generalization of results to other settings in more rural areas or to a much larger population. In addition, residents' bodyweight could not be collected or assessed because the program directors felt that because there were so few obese medical residents, such information could be stigmatizing and increase the likelihood that these residents would be identifiable.

Also, the use of self-reporting of counseling practices and behaviors detracts from the reliability of the data. Research suggests assessment of counseling behavior be analyzed through objective measures such as training raters for direct observation of counseling practices and patient reports of these encounters (Podl, Goodwin, Kikano, & Stange, 1999; Stange, Zyzanski, & Smith, 1998; Urbani et al., 2002). In addition, rating provided by the standardized patients on the OSCEs may not accurately reflect the counseling habits practiced by the physicians based on the personal perspective of the standardized patient. Characteristics unique to the standardized patient on the day each physician completed the OSCE may have influenced the rating provided by the standardized patient.

In relationship to the OSCE exams, efficacy of counseling was not measured but may have been meaningful in research studies such as this investigation. The OSCEs only measured

frequency of counseling and to what extent the OSCE-related skills were done, however efficacy of those counseling skills were not measured and therefore may be considered for future research.

Finally, although there is a fairly extensive amount of current literature on weight-related bias and stigmatization in physician office settings, the literature regarding this specific topic is somewhat limited to a few key researchers who have spearheaded the movement to reform physician training and medical school curricula to reflect an emphasis on preventive medicine. In addition, many of the evidence-based reviews of literature on topics related to obesity counseling, such as physical activity intervention, were conducted ten years ago or more (Eden, Orleans, Mulrow, Pender, & Teutsch, 2002), so much of the evidence-based practice in use today is technically based on information that by research standards would be considered outdated.

Definition of Terms

Behavior change – operable term for the *complex process associated with making deliberate, consistent choices to alter or modify unhealthy habits and form new, healthier habits* (Zimmerman, Olsen, and Bosworth, 2000)

Built environment – refers to "*urban design, land use, and the transportation system, and encompasses patterns or human activity within the physical environment"* (Handy, Boarnet, Ewing, and Killingsworth, 2002, p. 65)

Comorbidity – refers to "*the association of two distinct diseases in the same individual at a higher rate than expected by chance"* (Bonavita and De Simone, 2008, p. 99)

Obesity – refers to *body mass index greater than or equal to 30 kg/m2* (Finkelstein, Trogden, Cohen, and Dietz, 2009)

OSCE – refers to *observed structured clinical examinations used by medical schools for the purpose of evaluating clinical skills by using standardized patients* (Casey et al., 2009)

Medical residents – operable term referencing *students who have completed four years of undergraduate coursework, plus another four years of undergraduate medical education and are then enrolled in another three to seven years of training called residency* (American Medical Association [AMA], 2011)

Medical school – operable term referencing *four years of medically-based coursework, following a four-year baccalaureate degree, which covers topics ranging from basic and applied sciences to medical professionalism and clerkships in practical settings working with real patients in a supervised environment* (Association of American Medical Colleges [AAMC], 2011)

Patient-centered health – refers to "*being responsive to a patients' needs, beliefs, values, and preferences*" (Jay et al., 2010)

Preventive medicine – refers to *"an approach to health that looks at systemic and population-based interventions to improve the health of individuals"* (American College of Preventive Medicine [ACPM], 2011, n.d.)

Self-efficacy – refers to *"beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments"* (Bandura, 1997, p. 3)

Standardized patient – refers to "*real or simulated patients who have been coached to present a clinical problem"* (Vu & Barrows, 1994)

Weight management – refers to *the ability to keep your body weight within a healthy range; for women, 100 pounds for every five feet plus five pounds per each additional inch of height, and for men, 106 pounds for every five feet of height plus five pounds per each additional inch of height* (American Dietetic Association [ADA], 2009)

Chapter 2

Review of Literature

Theoretical foundations. When considering health and health habits, such as eating more vegetables or losing body fat, setting goals and measuring outcomes are commonly associated measures by which progress may be assessed in a formative manner in order to achieve some form of a summative goal. Setting a goal, however, does not in turn mean that goal is achieved, and there are many reasons for which set goals may never be attained. A powerful predictor of one's ability to reach those goals and evaluate behaviors associated with achievement of goals is the theoretical concept known as self-efficacy, a foundational tenet of the trans-theoretical model (TTM; Bandura, 1977; Prochaska, DiClemente, & Norcross, 1992).

A body of evidence comprised of recent research, as well as more "mature" evidence suggests a strong relationship exists between elements of the trans-theoretical model and health behaviors such as regular and sustained engagement of physical activity (Baruth et al., 2010; Marcus & Simkin, 1994). First, the traditional trans-theoretical model is comprised of several stages of change, beginning with pre-contemplation and concluding with action and maintenance, as an ideal representation of how an individual may, in the case of physical activity adherence, shift from thinking about starting an exercise plan to adopting that plan and continuing it over time (Marcus & Simkin, 1993). This process may also be "cyclical as many individuals must make several attempts at behavior change before their goals are realized" (Marcus & Simkin, 1994, p. 1400).

Maintenance of behavior change is an important factor to consider when counseling patients on weight loss and setting goals associated with improved health behaviors that can be continued over time (Fjeldsoe, Neuhaus, Winkler, & Eakin, 2011). Despite a relatively low

number of studies that have reported investigation specifically of behavior change maintenance as an outcome to health behavior interventions (Fjeldsoe et al., 2011), research suggests behavior change is more likely to be achieved when there is follow-up with study participants after the primary intervention has concluded (Ryan et al., 2003). Among studies with multiple goals for behavior change (i.e. physical activity, dietary habits, smoking cessation), maintenance was achieved more frequently observed in dietary habits as compared with other behavior change goals (Eakin, Lawler, Vandelanotte, & Owen, 2007). This is attributed in part to evidence that dietary habits are less challenging to change than other habits such as starting or continuing a physical activity program (Eakin, Reeves et al., 2009).

Limited research suggests there are differences among the variables that influence the contemplation and maintenance phases of behavior change, especially for starting and maintaining a physical activity regimen, and that these differences should be considered when counseling patients on such goals (Williams et al., 2008). For instance, physical activity maintenance is attributed to intrinsic factors like self efficacy (to be discussed in more detail), whereas starting a physical activity routine was attributed to extrinsic factors like convenient access to exercise equipment (Williams et al., 2008). However, extensive research suggests there are differences between starting and maintaining changes in dietary habits as compared to physical activity habits, therefore providing the same type of counseling or behavioral intervention may not be effective when setting multiple health-related goals at the same time (Fjeldsoe et al., 2011) and should be considered separate but equally important facets of improved patient health.

Albeit not without flaws (Adams & White, 2005; Riemsma, Pattenden, & Bridle, 2002), research has shown the trans-theoretical model and, to a greater extent, constructs associated

with said model, have provided insight into the behavior change process not previously provided by other psychological theories (Prochaska et al., 1992). These constructs, formulated by physical activity behavior researchers Marshall and Biddle (2001), consist of self-efficacy, cognitive processes of change, behavioral processes of change, and decisional balance. In the context of weight management and weight loss, healthy and sustainable weight can best be maintained through the daily choices we make, but in order for overweight and obese individuals to achieve a healthy weight, behavioral and lifestyle modification is essential (Chobanian et al., 2003). Many behavior modification intervention programs employ critical components of self-efficacy, such as goal-setting and regular feedback of progress, in order to help motivate and track participants presenting risk factors for or living with obesity-related conditions (Burke et al., 2007). High levels of self-efficacy were also mentioned by Elfhag and Rosser (2005) as a predictor of sustained weight loss as well as a variable that could be enhanced during an experimental intervention.

Historically, a strong body of literature suggests just as intrinsic self-efficacy may improve health and weight loss through improved adherence to physical activity programs, the reverse relationship holds true as well. For example, McCauley (1992) discovered that both short and long-term experience with physical activity programs increased self efficacy among both male and female study participants. Two years later, McCauley, Lox, and Duncan (1993) confirmed their acute exercise results by demonstrating that the one-time exposure to use of a cycle ergometer "significantly enhanced efficacy cognitions to the point where they were no longer significantly different from the end of program levels" (p. 222).

McCauley et al. (1993) revealed an intriguing distinction between program compliance and program adherence. The former, asserted by McCauley (1992), is more closely aligned with

an individual's agreement or willingness to follow directions and guidance provided by another, whereas the latter implies a deliberate choice by the individual to follow a plan. Research suggests program adherence, as opposed to compliance, is the preferred method for structuring programs for which goal is to simply remain physically active and not necessarily follow a specific plan determined by sources extrinsic to the individual (Garcia & King, 1991; McCauley et al., 1993; Meichenbaum & Turk, 1987; McCauley, Lox and Duncan, 1992).

Much of what defines our ability or inability to follow goal-setting strategies is thought to be explained by an individual's attitudes toward a given behavior or behaviors. Social cognitive theory (Bandura, 1977) as well as the theory of planned behavior (Ajzen & Fishbein, 1980) emphasize the importance of attitude toward behavior as a powerful motivator for or detractor from one's ability to reach goals based upon previous experience with the behavior or already possessing skill related to the behavior that may be positively associated with achieving the goal (Ajzen & Fishbein, 1980; Bandura, 1977; Jay et al., 2009).

Results from a study conducted by Cheng, DeWitt, Savageau, and O'Connor (1999) reinforced the application of self-efficacy in a physician office visit; they found that higher self-reported levels of preventive medicine counseling abilities were associated with the overall communication habits of those physicians during office visits. Jay et al. (2009) suggest this linear relationship is due in part to physicians' perceptions that providing counseling will produce desired results and is therefore worth the time and effort. However, not all medical students, residents and physicians espouse these attitudes, and behavioral theories suggest looking to ecological factors such as work environment (Jay et al., 2009) and individual characteristics like gender and age (Kurtz et al., 2003; Schwartz, Chambliss, Brownell, Blair, & Billington, 2003; Teachman & Brownell, 2001;) for deeper understanding of how such attitudes are formed.

Factors associated with physician health. Self-efficacy is an important component of the obesity counseling paradigm, a "proximal and direct predictor of intention and of behavior" (Schwarzer & Luszczynska, 2008); both intention and behavior are important factors in considering both the physician-patient relationship and how the patient and physician view each other in the context of weight counseling. Research has demonstrated that physicians who share their personal health habits or intended health habits with their patients are viewed as more credible and trustworthy by those patients (Frank, Breyon, & Elon, 2000).

However, medical students' and physicians' good intentions are often trumped by stressors such as negative work environments or extremely large patient panels and accompanying workloads (Firth-Cozens, 2001). Limited research suggests that physician contentment is the deciding factor in a positive or negative patient-physician relationship (Lammers & Duggan, 2002). In addition, frustrations experienced by both the physician as well as the patient (uncertain diagnoses, long waiting periods, general poor health) create the potential for a very hostile interaction at the point of the office visit (Dube, Teng, Hawkins, & Kaplow, 2002; Lammers & Duggan, 2002). In fact, a study conducted by Kristiansen et al. (2001) revealed that of an array of physician specializations surveyed, family practice physicians reported having experienced the most negative interactions with patients and their families out of all the disciplines.

Medical students are not immune to these and other variables that may influence behavior and overall level of contentment. For instance, in addition to excessive school-related demands on their physical time and energy, medical students often endure the emotional stress of witnessing death and dying for the first time (Lovell et al., 2009). International students endure the unique challenge of acclimating to a potentially foreign environment in addition to the

stressors typically associated with medical school (Hall, Keely, Jojeiji, Byszewski, & Marks, 2004). Tyssen et al. (2009) conducted a national survey of medical residents in Norway and found that at the beginning of and during medical school, life satisfaction significantly declined. Heller, Watson, and Ilies (2004) suggest variables that contribute to life satisfaction are different from those that contribute to job satisfaction, and unfortunately a growing body of evidence reveals that medical students and physicians often have low levels of both as compared to people in the general population with similar years of education and income (Arnetz, 2001; Mechanic, 2003; Tyssen et al., 2009).

The common denominator in the cases of both physicians and medical students is that job-related demands create a significant source of stress to the degree that health and health behaviors may decline as a result of these demands (Cohen & Patten, 2005; Campbell & Delva, 2003). Naturally, good health and happiness are facets of life that many people strive to achieve and maintain, but in order for medical students and physicians to effectively manage others' health, treat disease, and practice preventive medicine, it is important that the health and wellbeing of those providing care receive equal emphasis (Firth-Cozens, 2001; Shanafelt, Sloan, & Habermann, 2003; Williams & Skinner, 2003).

Research has demonstrated the negative impact of poor physician health on patient health outcomes. Accumulation of stressors as previously mentioned have been demonstrated to lead to burnout both at the level of practicing physician as well as residency in medical school (Grunfeld et al., 2000; Shanafelt, Bradley, Wipf, & Back, 2002; Spickard, Gabbe, & Christensen, 2002). For example, 22% of medical residents surveyed by Cohen and Patten (2005) reported feelings of regret toward their choice of studying medicine instead of an alternate career path, although a more recent report suggests this value is closer to 16% as of a 2010 national survey of medical

school graduates; thus, more research is necessary to conclude current perceptions of ex-post-facto career choices (Association of American Medical Colleges [AAMC], 2010). In concurrence with the former perspective on this matter, Leiter et al. (2009) suggest recent medical school graduates are less likely to enjoy their jobs than career veterans, as well as physicians who report less independence than physicians who "always had control of their work" (Leiter, Frank, & Matheson, 2009, p. 1225).

On an individual level, poor physician health or feelings of frustration and burnout have been associated with "reduced standards of patient care, irritability and anger, and serious mistakes leading to patient death" (Wallace, Lemaire, & Ghali, 2009, p. 1717) as well as patient noncompliance, medical prescription errors, reduced patient counseling care and time, failure to recommend preventive screening, and dissatisfied patients (Shanafelt, Bradley, Wipf, & Back, 2002; Williams & Skinner, 2003). According to research, feelings of frustration and burnout among medical residents are even higher than that of physicians, however it is reported that patient care standards do not appear to suffer as a result (Leiter et al., 2009). In fact, Bakker, Schaufeli, Sixma, and Bosveld (2001) reported a known association between burnout and poor patient care or detriment to personal health among less than 10% of residents presenting with symptoms of burnout. Based on these results, it could be surmised that such factors have more detrimental effects on practicing physicians in comparison to medical students and residents due to the ubiquitous stressors and time demands associated with the nature of the job; in other words, the stressors introduced in medical school are the same if not multiplied later in life, with additional life events that may increase demands on personal time and subsequent struggles to maintain balance between work and family or social time (Gautum, 2001; Potee, Gerber, & Ickovics, 1999).

On a broader scale, poor physician health can negatively affect the medical office and even the medical organization at which the physician serves. Acutely, poor health and stress may contribute to an increase in absenteeism, but research has demonstrated these behaviors to lead to increased job turnover, early retirement, and increased spending at the organizational level for the rehiring process (Firth-Cozens & King, 2006; Linzer et al., 2001; Shi, 2006). Therefore, researchers strongly recommend the "increased awareness of the importance of physician wellbeing" for "increased job satisfaction and overall wellbeing, and reduced likelihood of…stress and burnout" (Wallace et al., 2009, p. 1719).

This study attempted to locate similar and related research with emphasis on the positive relationships between healthy lifestyle behaviors of physicians or residents and abilities to counsel patients on weight loss (self-efficacy scores). Research suggests other factors may influence weight loss counseling self-efficacy scores, such as personal dietary habits and weight-management self-efficacy. Therefore, it is beneficial to both current research as well as guiding future efforts to investigate these associations as well.

Physician behaviors, attributes, and attitudes. Research suggests residents and physicians are more likely to discuss weight management practices if they are familiar with those practices as a result of their own lifestyle behaviors (Frank, 2004; Frank, Elon, Carrera, & Hertzberg, 2007; Frank et al., 2004; Frank, Rothenberg, Lewis, & Fielding, 2000). Erica Frank, the Canada Research Chair and faculty member at the University of British Columbia, has conducted extensive investigation of this "practice what you preach" concept (Frank, Segura, Shen, & Oberg, 2010, p. 390), and not only has been able to repeatedly demonstrate this relationship (Frank, Breyan, & Elon, 2000; Frank, Carerra, Elon, and Hertzberg, 2007; Frank et al., 2010), but has also demonstrated significant relationships between "intention to become a

primary care physician" (Frank, Carerra, Elon, & Hertzberg, 2007, p. 79) and counseling behaviors, as well as gender and counseling behaviors ($p<0.0001$), where an increasing body of evidence reflects female physicians' increased time in counseling and preventive measures compared to their male counterparts (Bertakis, 2009; Frank, Elon, Carrera, & Hertzberg, 2007; Roter, Hall, & Aoki, 2002).

The work by Frank (2007) applies to physician practices and medical students not only in the United States but also in Canada and South America (Duperly et al., 2009; Frank, Breyan, & Elon, 2000; Frank, Elon, Carrera, and Hertzberg, 2007) where similar surveys revealed a direct link between physicians' personal health behaviors and counseling behaviors in the clinical setting. Despite the focus of this study residing within the United States, obesity is a worldwide public health problem, and thus such research-based evidence is beneficial on a global scale.

More recent research reinforces the importance of ecological factors such as built environment as underlying factors in physical activity adherence and behavior modification. For instance, individuals who live in safe neighborhoods or areas with connected streets are more likely to more frequently engage in physical activity (Heath, Brownson, & Kruger, 2006; King et al., 2006; Sallis, King, Sirard, & Albright, 2007; Transportation Research Board- Institute of Medicine [TRB-IRB], 2005). Conversely, lack of convenient and safe opportunities for physical activity as well as a poor aesthetic environment (dull scenery, vandalism, littering) is directly correlated with obesity (Boehmer et al., 2007; Poortinga, 2006).

Sara Bleich, Assistant Professor of Health Policy and Management at Johns Hopkins University, summarized the aforementioned evidence by saying "the environment is increasingly recognized as a critical piece of the puzzle…our environment contributes to obesity by increasing opportunities for consumption and reducing opportunities for exercise" (Bleich,

2009). In fact, a growing body of evidence suggests there are linear relationships between obesity and food-related environmental factors such as proximity to fast-food restaurants (Giles-Corti, Macintyre, Clarkson, Pikora, & Donovan, 2003; Maddock, 2004; Morland, Diez, & Wing, 2004; Sturn & Datar, 2005), and an inverse relationship between obesity and physical fitness levels, such as proximity to networked community walking paths or public recreation facilities (Burdette & Whitaker, 2004; Frank, Anderson, & Schmid, 2004; Rutt & Coleman, 2005; Bleich, 2009).

"Access" to healthy food options as well as safe physical activity venues is, as previously illustrated, important to determining lifestyle behaviors (Bleich, 2009). The most recent National Healthcare Quality and Disparities Report lists access to care for all Americans as a priority area for healthcare quality improvements in the future (Agency for Healthcare Research and Quality [AHRQ], 2010); therefore, it is a recognized disparity among Americans today that access to care, whether it be for medical attention or fresh seasonal produce, be placed in a position of priority. As demonstrated by McCauley et al. (1993), a single exposure to an activity or an experience can significantly improve self-efficacy of that activity or adherence to that behavior however that single exposure is a crucial step in the path toward behavior change. To that end, policy changes must be presented in order to incentivize Americans across the socioeconomic spectrum to make healthy choices and provide education where a wider range of choices may not be available (Bleich, 2009).

Several studies support the importance of social support, another ecological variable, not only to healthy lifestyle behaviors but health in general. Results from the national survey of Norwegian physicians conducted by Tyssen et al. (2009) revealed a significant relationship between social support and life satisfaction, both in actual support through a spouse or friend and

perceived support. These findings align with a growing body of evidence suggesting the critical nature of social support for medical students and physicians and should therefore be accentuated in medical school and physicians' places of work (Kjeldstadli et al., 2006; Shanafelt et al., 2003; Wallace & Lemaire, 2007).

In keeping with the consideration of environmental factors as influences in personal health behaviors, a compelling survey of medical school deans and medical students conducted by Frank, Hedgecock, and Elon (2004) revealed a common opinion among the deans surveyed that promoting healthy lifestyle behaviors among students is important and should be emphasized by the respective institutions. As commonly understood that knowledge does not automatically translate into actions, the deans also reported acknowledgement that emphasis on these factors could and should be improved upon in order to facilitate role modeling by medical students (Frank, Hedgecock, & Elon, 2004).

Extensive research exists to demonstrate the prevalence of bias toward overweight and obese individuals in various public settings including the realm of healthcare (Puhl & Heuer, 2009). Studies using self-reported measures often reveal a combination of bias and perceptions of patient behavioral concerns. For example, physicians who viewed patients as noncompliant and/or lazy often accompanied reports that those patients also exhibited behavioral problems contributing to obesity, such as lack of physical activity or poor eating habits (Bocquier et al., 2005; Campbell, Engell, Timperio, Cooper, & Crawford, 2000; Fogelman et al., 2002; Thuan & Avignon, 2005). In an experimental research design, Hebl and Xu (2001) found a direct relationship between patient body mass index (BMI) and attitudes toward the patient; specifically, researchers found as patient BMI increased, the physicians' attitudes toward the patient, his or her job as a physician, motivation to help the patient and feeling the patient would

benefit from counseling became increasingly more negative or pessimistic, respectively (Hebl & Xu, 2001).

Research suggests future physicians exhibit similar attitudes toward obese patients. Self-reported data from medical student surveys also reveal attitudes that obese patients are lazy and noncompliant (Wear, Aultman, Varley, & Zarconi, 2006; Wigton & McGaghie, 2001). In addition, the prevalence of defamatory humor toward obese patients is not unique to medical residents, however this cohort of respondents did reveal a new level of bias in that not only was humor employed but it was considered acceptable because obese patients often required more care than regular weight patients (Wigton & McGaghie, 2001). Medical as well as dental students acknowledged difficulty in empathizing with obese patients in part because their poor health is a result of their own behaviors (Magliocca, Jabero, Alto, & Magliocca, 2005; Wear, Aultman, Varley, & Zarconi, 2006).

Finally, counseling behaviors among physicians treating obese patients are diverse and somewhat inconsistent. For instance, some research suggests physicians are counseling obese patients on weight management counseling but wish they provided such counseling with less frequency or, ironically, provide counseling less to obese patients as compared with healthy weight patients (Befort et al., 2006; Bertakis & Azari, 2005; Hebl & Xu, 2001; Hebl, Xu, & Mason, 2003). Historically, obese patients have not received counseling on weight loss (Galuska et al., 1999; Wadden et al., 2000; Foster et al., 2003; Stafford et al., 2000) and a 2005 national survey reported a downward trend in obesity counseling of obese patients in primary care settings (Abid et al., 2005). In a study by Ko et al. (2008), 39% of obese patients received weight loss counseling or advice from the physician, and slightly more than half the patients who received weight loss counseling were advised to both exercise as well as reduce caloric intake,

the combination of which has been shown throughout the literature to be most efficacious in weight loss success (Blue & Black, 2005; Curioni & Lourenco, 2005; Knauper et al., 2005; Miller et al., 1997).

Ko et al. (2008) highlighted several other notable findings regarding physician counseling behaviors. First, researchers reported greater frequency of counseling among women versus men (Ko et al., 2008). Research suggests several explanations for this phenomenon, which has been demonstrated in other studies (Sciammana et al., 2000; Friedman et al., 2004), but the general agreement is that women espouse greater body-awareness than men (Wardle & Johnson, 2002) and therefore may visit their physician with greater frequency (Woodwell, 1997) or inquire about weight loss strategies more openly than males and more readily commit to health-related behavior changes such as physical activity (Galuska et al., 1999). Also, confirming results from a study by Jackson et al. (2005), elderly obese patients were not advised to lose weight or exercise as much as younger obese patients, which is "disconcerting as elderly individuals are at high risk for chronic diseases" (Ko et al., 2008, p. 590).

Training and resources. To the extent that obesity among adults and children remains a public health concern, research suggests medical school curricula and continuing education do not provide adequate training to address this concern (Wolff, Rhodes, & Ludwig, 2010). Fogelman et al. (2002) discovered 72% of family care physicians surveyed (N = 510) reported low efficacy in weight management counseling in response to poor medical training relevant to treating obesity. In a survey of 315 medical school faculty and residents, almost 50% of respondents reported an inability to counsel patients on weight loss strategies and nearly 20% reported inadequate competency in knowledge and skills of obesity management (Jay et al., 2008).

Similar findings were exhibited in a survey administered to 620 primary care physicians by Foster et al. (2000) in which 57% of respondents felt their attempts to help obese patients lose weight were ineffective if not futile. Of physician members surveyed from the American Academy of Family Physicians, 25% reported "not at all" or "only slightly" competent in their ability to counsel obese patients on weight loss (Jelalian, Boergers, Alday, & Frank, 2003). Block et al. (2003) reported a shocking one-third of internal medical residents surveyed perceived efforts as futile when counseling obese patients on weight management. More recently, a report by the American Association of Medical Colleges revealed almost a quarter of the medical students graduating between 2003-2005 felt unprepared to assess risks and provide appropriate counseling based on their medical training (American Association of Family Practitioners [AAFP], 2008).

One mediating factor suggested by research to help facilitate conversations about weight management within clinical practice is to emphasize the importance of physicians' own attitudes and behaviors toward healthy lifestyle choices during the formative years of medical school training as well as throughout residency (Delnevo, Abetemarco, & Gotsch, 1996; Collier, McCue, Markus, & Smith, 2002; Frank, Galuska, Elon, & Wright, 2003; Levey, 2001). However, in order to follow these guidelines medical schools must be able to afford the resources necessary to develop and maintain such an environment. The medical students as well as medical school deans surveyed in the study by Frank, Hedgecock et al. (2004) reported observation of a disconnection between theoretical emphasis on student health and actual resources allocated for said purpose.

In addition, the students surveyed asserted the importance of preventive medicine and counseling role modeling by faculty in order to learn first-hand the skills and intricacies of

weight management and lifestyle counseling; faculty concurred that curricular changes to reflect an emphasis on preventive medicine are necessary steps that should be taken in order to achieve the aforementioned goals (Frank, Hedgecock, & Elon, 2004). In fact, a more recent study by Frank, Elon, Carrera and Hertzberg (2007) confirms the need for an emphasis on health at the environmental level by having demonstrated a linear relationship between more frequent and better quality patient counseling habits and a medical school environment reported as healthy.

Despite these viewpoints, the evidence regarding decline or increase of resources allocated to personal health and lifestyle habits of future physicians is mixed. For example, Cox et al. (2001) reported a decline in funding and personnel support of health-related programs and services for medical students and faculty based on the myriad other demands, financial as well as physical, required of medical school resources. An experimental study by Frank, Elon and Hertzberg (2007) suggests the status quo among medical schools does not sufficiently compensate for the aforementioned decline, as evidenced by a 14% drop in exercise behavior of a control group of medical students from the beginning of their freshman year to their senior year. By comparison, the experimental group that had received the intervention of health behavior-based coursework as well as extracurricular activities of the same nature exhibited little change within the same time frame (Frank et al., 2007). The experimental group also provided counseling on exercise and dietary habits half again as much as students in the control group during their objective structured clinical exams (OSCE) (Frank et al., 2007).

In contrast, a recent report from the Association of American Medical Colleges (2010) suggests opportunities for students to engage in hands-on learning with weight management counseling while enrolled in medical school are on the rise. For example, “providing health education” is listed as a voluntary learning experience available to medical students and was

comprised of opportunities such as "HIV/AIDS education, breast cancer awareness, and smoking cessation" until 2010 when "obesity" was added to the list (AAMC, 2010).

Physicians' feelings of frustration and futility are reinforced by a growing body of evidence that statistically, obese patients will remain obese (Puhl & Heuer, 2010). Combining the results of over 120 similar randomized controlled trials on weight loss interventions (and up to a 1-year follow up), results showed that an average of 10% loss in body weight was the maximal sustained weight loss across all groups (Franz, Van Wormer, Crain, et al., 2007; Dansinger, Tatsioni, Wong, Chung, & Balk, 2007; Wadden, Butryn, & Wilson, 2007; Powell, Calvin, & Calvin, 2007; Mann, Tomiyama, Westling, Samuels, & Chatman, 2007; Tsai & Wadden, 2005). Therefore, researchers conclude that goals for obese patients should be based on health-related outcomes as opposed to aesthetic goals or total weight loss (Puhl & Heuer, 2010). Should a specific weight loss "goal" be of interest, in addition to the health-related outcomes, a total body weight reduction of 10% has been associated with improved cardiovascular and metabolic health (Wadden, Butryn, & Byrne, 2004; Svetkey, Stevens, Brantley, et al., 2008; Wing & Phelan, 2005).

Research suggests that when counseling training is provided for health behaviors such as exercise or smoking cessation, not only is physician confidence in counseling enhanced, but those behaviors become more frequent and are of greater quality (Cornuz, Zellweger et al., 1997; Hudmon, Kroon, & Corelli, 2004; Pinto, Goldstein, PePue, & Milan, 1998). Even in the absence of formal obesity counseling training and education in medical school, physicians (and healthcare providers in general) are privileged to have access to current medical research through medical journals and publications from all over the world, thus providing opportunities for professional growth and continuing medical education through reading and study of this

information. However, of the studies assessing attitudes and bias toward obese patients, several found significant relationships between obesity attitudes and medical reading behavior; specifically, physicians reporting little or no regular review of medical literature also reported negative attitudes toward obese patients including feelings that obese patients were lazy, noncompliant or unmotivated (Bocquier et al., 2005; Campbell, Engell, Timperio, Cooper, & Crawford, 2000; Fogelman et al., 2002; Thuan & Avignon, 2005). Bocquier et al. (2005) suggest the absence of or infrequency of medical reading behavior facilitates a negative bias toward obese patients because these physicians may not fully comprehend the complexities associated with obesity as reflected in current medical research.

Counseling efficacy. Training and resources may help equip physicians to provide informed and appropriate care for obese patients, but research suggests the psychological and sociological variables associated with the patient-physician relationship are more influential in patient compliance (Woodley, Kane, Huges, & Wright, 1978). For example, in an ability to facilitate open communication with the patient, research suggests that the degree and length of self-disclosure of health habits is directly proportional to the degree and length of self-disclosure subsequently shared by the patient (Jaffe, 1970). Communication is also a critical pathway through which viewpoints on treating obesity may be shared, both by the physician and the patient, because in the case where these viewpoints on the causes of and contributing factors to obesity may differ frustrations and subsequent barriers to counseling may arise (Ruelaz, Diefenbach, Simon, Lanto, Arterburn, & Shekelle, 2006).

A qualitative study of patient encounters with primary care physicians was conducted by Cohen et al. (2004) and suggested two ways of note in which preventive counseling may be provided along with caring for an acute health concern. First, the provision of referrals to

preventive-care experts such as dieticians or smoking cessation counselors was labeled as "integrating preventive care into medical encounter closings" (Cohen et al., 2004). The second approach to providing preventive counseling at an acute-care visit was to utilize a technique called the "stepwise transition" which is described by the study researchers as "a shift from the patient's presenting problem into the delivery of health habit advice" (Cohen et al., 2004, p. 567). However, either of these techniques was only used by 17.2% of physicians during the acute-care visit, reinforcing the large body of literature that suggests occasions for preventive care counseling that may occur at the same time as an acute-care visit are largely missed (Flocke, Stange, & Goodwin, 1998; Stange, Flocke, & Goodwin, 1998) and counseling techniques are "underutilized" (Cohen et al., 2004, p. 571). The barrier to providing either method of counseling, according to the study's researchers and backed by previous research, is a lack of appropriate training in preventive care delivery (Wolff, Rhodes, & Ludwig, 2010; Jay, Gillespie, Ark, Richter, et al., 2008).

A growing body of evidence suggests obese individuals are at a significantly greater risk for depression than healthy-weight individuals (Puhl & Heuer, 2009; Hwang, Childs, Goodrick, Aboughali, Thomas, Johnson, Yu, & Bernstam, 2009; Friedman, Ashmore, & Applegate, 2008; Rosenberger, Henderson, Bell, & Grilo, 2007). There are also numerous studies that reinforce the seemingly profound impact of weight stigmatization on psychosocial elements of wellbeing such as mood, self esteem, and relative satisfaction with body image (Carr & Friedman, 2005; Carr, Friedman, & Jaffe, 2007; Chen, 2007; Friedman, Reichmann, Costanzo, Zelli, Ashmore, & Musante, 2005; Wadden, Sarwer, Fabricatore, Jones, Stack, & Williams, 2007). In fact, studies by Carr and Friedman (2005) and Grilo and Masheb (2005) illustrate the negative long-term impact of weight-based derogatory comments on self-esteem and body image where such

comments during childhood negatively correlated with self-esteem and body image in adulthood, especially among women. Therefore, in order to facilitate open communication and rapport in the patient-physician relationship, it is critical that providers practice compassion and empathy for obese patients in order to help improve their wellbeing and "that this opportunity is not lost due to weight bias" (Puhl & Heuer, 2009, p. 949).

Barriers to counseling. Just as there are many potentially positive influences on patient weight management outcomes in the patient-physician encounter, there are equal if not more barriers to providing such care. Studies that have investigated barriers to weight management counseling in an office visit have cited physician-reported barriers generally categorized by lack of time, lack of appropriate reimbursement, patient noncompliance and self-reported inadequacy of counseling skills (Cabana, Rand, & Powe, 1999; Ma, Urizar, Alehegn, & Stafford, 2004; McIlvain, Backer, Crabtree, & Lacy, 2002; Stafford, Farhatt, Misra, & Schoenfeld, 2000; Vickers, Kircher, Smith, Petersen, & Rasmussen, 2007; Wee, McCarthy, Davis, & Phillips, 1999).

According to the July 2008 review of Family Practice facts, a physician in the United States spends an average of 50.96 hours a week on patient-related services, such as face-to-face contact, authorization of administration related to patient care, etc. (AAFP, 2008). Similarly, Canadian physicians average 49 hours per week on patient care and patient-related activities (Frank & Segura, 2009). This is a more than eight-hour increase in patient service contact hours from the reported number in the study done by Kimberly et al. (2003) who studied the average time demands of family practice physicians in the United States based on a standard criteria of at least 25 services required per office visit by the US Preventive Services Task Force. Even at the time of their data collection and results, with reduced average patient contact hours compared to

the 2008 data, researchers concluded "it is not feasible for physicians to deliver all of the services recommended by the USPSTF" and that the "large number of screening recommendations for each patient, coupled with the large numbers of patients in a practice is likely a major reason for a failure to provide these services" (Kimberly, Yarnall, Pollak, Ostbye, Krause, & Michener, 2003, p. 637).

For their study, Kimberly et al. (2003) categorized preventive services into "A" and "B" prioritized lists, with "A" list examples being services such as smoking cessation counseling, mammograms, and cancer screens; the "B" list was comprised mostly of various types of screening tests, such as cholesterol, sexually-transmitted disease and dietary screen. This form of categorization in and of itself is evidence of an underlying concern reflected in the way we are able to deliver patient care, and the researchers in this study addressed the concern as well, stating in the discussion of their results that because physicians are responsible for management of both acute and chronic medical care, it is often the preventive services associated with chronic care that must suffer at the expense of providing care to immediate health risks (Kimberly et al., 2003, p. 638).

The patient-physician relationship illustrates a microcosm of the society in which we live, for just as time may be a crucial element for some, money is for others. As evidenced by the literature, in many cases where time may be addressed as a barrier to counseling, money is often mentioned in the same breath as a solution to the problem. For instance, Foster et al. (2003) found that more than 50% of physicians surveyed would increase time spent counseling patients, provided they were appropriately compensated for that time. As previously mentioned, recent changes in reimbursement policy stands to pay for weight management counseling of obese patients provided by a primary care physician. This change reflects acknowledgement at the

federal level that the obesity epidemic is a genuine risk to public health and primary care physicians are now equipped with additional support to provide much-needed information and support to obese patients who are ready to make positive lifestyle changes.

However, these changes are not yet able to address the financial burden caused by the obesity epidemic in the United States. According to the CDC (2010), the cost of care for obese persons in 2006 was an average of $1400 more than a person of healthy weight, and the total healthcare costs associated with obesity in 2008 weigh in around $147 billion. In fact, the National Bureau of Economic Research reports a disparity of $10,000 between obese and healthy weight individuals that suffer from diseases associated with obesity, such as diabetes and stroke (Bhattacharya & Sakthivel, 2005). A study by Ricci and Chee (2005) assessed a cross-sectional group of workers in the United States and found that obese workers cost employers an average of $42.29 billion in net work-related losses as compared with $30.59 billion in lost work-related product in healthy weight individuals. Wang and Beydoun (2007) estimated the combined direct and indirect costs associated with obesity accrued to over $110 billion, while a dated study by Must et al. (1999) provided the foundation for a now substantial body of evidence that the financial costs of obesity encumber the strength of both household incomes as well as that of the federal healthcare programs. Therefore, in light of the recent changes in healthcare reimbursement policy, again the significance of this research is emphasized and will be more heavily sought in the coming years as primary care physicians seek out best practices and evidence for obesity counseling and weight management strategies.

Patient non-compliance is frequently reported by physicians as barrier to weight management counseling (Andreyeva, Puhl, & Brownell, 2008; Puhl, Andreyeva, & Brownell, 2008; Teachman, Gapinski, Brownell, Rawlins, & Jeyaram, 2003; Foster, Wadden, Makris,

Davidson, Sanderson, Allison, & Kessler, 2003). However, non-compliance is not necessarily an objective measure of patients' abilities to follow physician recommendations. For example, many studies investigating weight counseling as experienced by the physician also investigated experiences of the overweight and obese patients, of which many of the respondents reported feeling disrespected or a lack of empathy in relationship to their physicians' comments about their weight (Anderson & Wadden, 2004; Brown, Thompson, Tod, & Jones, 2006; Puhl & Brownell, 2006). In some cases, overweight and obese patients have even postponed or altogether avoided seeking preventive care in order to evade weight stigmatization or humiliation (Puhl & Heuer, 2009; Amy, Aalborg, Lyons, & Keranen, 2006; Drury & Louis, 2002).

Research suggests patient compliance may also be heavily influenced by individual perspectives on weight and weight loss, such as differences between genders and among different racial and cultural groups. For instances, in a study by Hwang et al. (2009) surveying candidates for bariatric surgery, psychosocial variables like willpower and motivation were reported more frequently by women than men when asked why they felt they were unable to lose weight on their own. On the other hand, men reported influences on their physical activity levels (or lack thereof) such as medications or medical conditions as reasons why they were unsuccessful in weight loss attempts.

Cultural norms and social acceptance may influence patient motivation for compliance as well. In focus group discussions, for example, African American women often report the influence of family and cultural background on food choices and lifestyle behaviors (Blixen, Singh, & Thacker, 2006; Lynch, Chang, Ford, & Ibrahim, 2007).

Social circles and cultural norms fit into the larger framework of variables found in a person's environment that may and do determine how health behaviors are created or managed

throughout the lifespan (Puhl & Heuer, 2010). Cohen (2008) asserts that "a more accurate conceptualization of the obesity epidemic is that people are responding to the forces in their environment, rather than lacking in willpower and self-control" (p. S141). The impact of environment on health is supported by Zhang and Wang (2004), where social and economic disparities were inversely proportional to the rates of obesity in those areas: lower income and poorer living conditions were associated with higher rates of obesity. Some public health and health researchers feel so strongly about the role that environment plays in health behaviors that they prescribe a reallocation of resources from focusing on the individual to that of the community wherein lies the greater "issue of social justice" (Puhl & Heuer, 2010, p. 1025).

Based on the review of literature on barriers to counseling, it is evident that there are common concerns among physicians and their abilities to provide effective weight management counseling, but what about other practitioners in the healthcare setting? Douglas, Torrance, Teijlingen, Meloni and Kerr (2006) conducted a survey of nearly 800 primary care staff to find a discrepancy in counseling self-efficacy among types of providers; sadly, general practitioners reported lower self efficacy scores in patient counseling than nurses or "health visitors." Results from Douglas et al. (2006) corroborated common themes mentioned in this review, such as lack of reimbursement and lack of time, therefore highlighting perceived barriers to counseling as uniquely experienced by physicians. By comparison, nurses and health visitors were significantly less inclined to report lack of time and reimbursement as a barrier to counseling.

Objective structured clinical examinations (OSCEs). Since 1975, the objective structured clinical exam (OSCE) has been utilized in medical school settings to evaluate and assess the application of facts typically tested only by written examinations and teacher-student observations (Carraccio & Englander, 2000; Casey et al., 2009; Harden, Stevenson, Downie, &

Wilson, 1975). The benefits of incorporating OSCEs into assessment methods of medical residents are numerous, not the least of which include the ability to observe learners in a life-like setting by employment of standardized patients, thus reducing risks associated with patient interaction in an actual office visit (Casey et al., 2009). OSCEs also allow teachers and evaluators to assess skills that are difficult to quantify and measure on other traditional forms of examination, such as communication skills with patients or counseling abilities (Adamo, 2003), both of which are assessed in this investigation. Behavioral skills associated with effective communication, such as establishing rapport or body language, are measurable with OSCEs as well, both of which are important elements of "bedside manner" that, again, are difficult to measure on other customary forms of assessment (Mavis & Henry, 2002; Mazor et al., 2007).

OSCEs are also beneficial for assessment of skill improvement in addition to a cumulative assessment of skills, allowing for "formative and summative evaluation" (Walsh, Bailey, & Koren, 2009) processes. For this reason, many researchers and medical education faculty consider OSCEs the preferred method of assessing clinical skills, knowledge and application abilities among healthcare providers (Carraccio & Englander, 2000; Redfern, Norman, Calman, Watson, & Murrels, 2002; Roberts & Brown, 1990; Sloan, Donnelly, Schwartz, Felts, Blue, & Strodel, 1996; Walsh, Bailey, & Koren, 2009). Sloan et al. (1996) suggested that this depth of assessment also enables outside observers such as board members or accreditation committee members to identify areas for curricular improvement. Therefore, the benefits of OSCEs are not limited to medical students but serve to benefit to the community at large by educating more thoroughly-trained medical professionals (Walsh, Bailey, & Koren, 2009).

Although there are many benefits associated with use of OSCEs, one of the primary drawbacks is cost and resources often necessary to facilitate OSCE utilization (Tervo, Dimitrievich, Trujillo, Whittle, Redinius, & Wellman, 1997). Casey et al. (2009) report ways in which these costs may be mitigated, such as pooling of resources across departments to offer a "centralized OSCE" (Casey et al., 2009) or by a coordinated effort among medical school faculty and associated personnel to collaborate as a team to develop OSCEs.

Principle allocation of funds is directed toward the many staffing roles required to implement an OSCE, such as case writers, case examiners and standardized patients (Casey et al., 2009). Often, case-writers and case-examiners are already members of medical school faculty and are selected to write clinical cases by OSCE directors based on their knowledge and experience with the medical topic in question (Casey et al., 2009). Standardized patients may come from a variety of backgrounds and training levels, but they have a unique form of training in the ability to act in a consistent and believable manner while simultaneously observing the physician for interpersonal skills as well as clinical skills in response to their acting abilities (Adamo, 2003). These actors often require additional personnel formally trained in acting or drama to serve as a standardized patient coordinator and help teach standardized patients how to evaluate learners in a consistent and consequential manner (Casey et al., 2009).

Despite the additional resources often require to operate and manage OSCEs, a 2003 survey of accredited medical institutions in the United States found that almost 100 school use at least one OSCE at some point in their curriculum and of those, almost all use a comprehensive OSCE final at the end of medical school training (Barzansky & Etzel, 2003). Research suggests use of OSCEs is predictive of both board examination or licensing performance (Mavis & Henry, 2002) as well as clinical skills with patients after completion of medical school (Probert Probert,

Cahill, McCann, & Ben-Shlomo, 2003), thus the aforementioned time, personnel, and resources commonly associated with OSCEs appears to be worthwhile (Casey et al., 2009).

Summary

Given the prevalence of obesity rates within the United States (Ogden et al., 2006), coupled with the increased health risks and healthcare costs associated with obesity (Sturm, 2002), it is imperative that more efforts be taken in clinical practice through obesity screening and counseling, public health education through community outreach, ecological improvements and education, and systematic review of practice patterns and programmatic interventions designed to help mitigate the public health crisis associated with obesity (Ma, Xiao & Stafford, 2009; Kerr et al., 2010). The physical as well as financial costs are quickly overcoming our healthcare and infrastructure's ability to sustain such imbalances and steps must be taken at critical encounters such as physician visits to address matters related to obesity (Yaskin, Toner, and Goldfarb, 2008).

Despite the prevalence of obesity among adults in the United States, research suggests "obesity is underappreciated in office-based physician practices" (Ma et al., 2009, p. 1084) and there may be a significant relationship between physicians' own health behaviors, confidence in their abilities to counsel patients on weight loss, and their counseling behavior (Vickers, Kircher, Smith, Petersen, & Rasmussen, 2007). Provided obese patients are considering or desire to make positive lifestyle changes, physicians have the unique opportunity to initiate change in an office visit. Changes in reimbursement may help provide incentive or motivation for physicians and physician offices whom may previously been reluctant to provide such counseling. Physicians

should also consider their own health, relate to personal experience, and share the pursuit of improved health and healthy lifestyle practice with their patients in order to foster rapport and a sense of empathy which may reduce other barriers to counseling as perceived by the patient or the physician. The patient is ultimately responsible for his or her wellbeing but as physicians seek additional knowledge and strive to improve their own health, these barriers may be further reduced and counseling efficacy may be increased.

Chapter 3

Methods

Statement of the problem. The purpose of this study was to investigate the relationship between physicians' attitudes regarding weight management counseling, personal health behaviors, attitudes toward obese patients and obesity-related communication skills measured by objective structured clinical examinations (OSCEs). This study also investigated the relationship between physicians' attitudes regarding weight management counseling, personal health behaviors and clinical counseling skills, also measured by OSCEs.

Sample. The sample for this study included 38 second-year residents enrolled at the Bellevue New York University (NYU) internal residency program. All 38 residents completed an OSCE exam as part of their residency requirements. Residents followed a pre-determined clinical rotation in ambulatory blocks, scheduled between January and May of 2009. Surveys were distributed to all 38 second-year residents in this sample and completed on the day of their OSCE exams. Participant consent was waived as part of the NYU-IRB approval that subjects' identities remain protected. This cohort of physicians had not completed the obesity counseling curriculum.

Instruments. ***Survey.*** The instrument used to acquire this survey data was the Weight Management Counseling Survey administered to medical residents at the Bellevue-NYU internal medical residency program during the spring semester of 2009.

The Weight Management Counseling survey is comprised of two sets of questions including assessment of physicians' attitudes and self-reported competency based on Jay et al.' (2010) study of physicians' knowledge and competency in obesity care. Their survey, which included demographic information such as "training year and previous obesity training" (Jay et

al., 2010, p. 1067) was created based on a review of obesity prevention and treatment-related literature and arranged survey questions based on guidelines from the 5As model (National Heart, Lung, and Blood Institute [NHLBI], 1998; Sadovsky, 2003; Serdula, Khan, & Dietz, 2003; Whitlock, Orleans, Pender, & Allan, 2002). The latter sets of questions were derived from an initial study of the theory of reasoned action and planned behavior (Ajzen & Fishbein, 1980), exploring the relationship between physician attitudes, perceived competence in obesity counseling, weight management stage of change and personal health behaviors, and how any or all of these variables related to performance, measured by the OSCEs. Additional review of relevant literature aided in the creation of the rest of the survey questions. Survey items were organized and written as follows:

Survey Item #1, # 2 and #4. Item 1: Attitudes (24 questions: "Please indicate to what extent you agree or disagree with the following statements") and Item 2: 5As (18 questions: "Current ability to perform each of the following tasks"), and Item 4: Efficacy (12 questions: "Indicate how much you agree or disagree with each of the following statements about your clinical practice over the next few months") were created for the original purpose of the aforementioned study by Jay et al. (2010) and were included this survey based on the similar but still unique investigation goals. Responses to items 1 and 4 were scaled by "strongly disagree," "disagree somewhat," "agree somewhat" or "strongly agree." Item 2 responses were scaled by "not at all able to perform," "somewhat able to perform," "able to perform adequately" or "able to perform well."

Survey Item #3. Item 3: Knowledge about counseling (9 questions: "Knowledge about counseling patients") was derived from Laschinger and Tresolini's (1999) investigation of counseling self-efficacy among nursing and medical students. Responses to Item 3 were scaled

by “don’t know anything,” “I know a little bit,” “I know something about” or “I know a lot about.”

Survey Item #5. Item 5: Effect of own lifestyle practices on establishing and maintaining credibility as an obesity counselor (3 questions: “What you think about the effect of your own lifestyle practices on establishing and maintaining your credibility as an obesity counselor”) was based on two separate studies conducted by Dr. Frank and accompanying researchers: the first, a qualitative investigation of medical student health through implementation of a four-year health improvement intervention (Frank, Smith, & Fitzmaurice, 2005), and the second a quantitative , cross-sectional survey of medical students’ dietary habits and nutrition counseling habits (Spencer, Frank, Elon, Hertzberg, Serdula, & Galuska, 2006). Responses to item 5 mirror the response scale for items 1 and 4: “strongly disagree,” “disagree somewhat,” “agree somewhat” or “strongly agree.”

Survey Items #6 and #8. Item 6: “Please tell us where you currently are on the continuum of weight management: Choose the ONE response that best describes you” was created on a continuum of responses ranging from “I don’t need to lose weight because my weight is desirable” (Response #1) to “I’ve lost weight in the past and am consciously working to keep it off” (Response #10). This continuum of weight management descriptions was based on an application of the stages of change model (Norcross, Krebs, & Prochaska, 2011) to a dietary counseling study of obese patients in an outpatient setting in an attempt to predict which patients would lose weight or attend counseling appointments (Macqueen, Brynes, & Frost, 1999). Again, only one answer on the continuum was to be chosen. Item #8: “Please tell us… continuum of exercise practice” was created based on the same study by Macqueen et al. (1999).

Survey Items #7, #9, and #10. Survey items 7 and 9: "Please indicate how much you agree or disagree with each of the following statements" were derived from the same theoretical construct as survey item #10: "Please tell us how confident you are in your ability to do each of the following in the next four weeks": weight management self-efficacy. Items 7, 9 and 10 were based on the study by Dutton, Martin, Rhode and Brantley (2004) examining the validity of the weight efficacy lifestyle questionnaire (WEL) on overweight and obese patients undergoing obesity treatment. Item 7 (2 questions: "If I wanted to, it would be difficult for me to lose weight in the next month" and "I intend to lose weight in the next month") and item 9 (2 questions: "If I wanted to, it would be difficult for me to exercise regularly in the next month" and "I intend to exercise regularly in the next month") responses were measured by the four-item scale seen in previous items: "strongly agree," "disagree somewhat," "agree somewhat" or "strongly agree." Item 10, however, asked five questions regarding confidence in ability to do various tasks within the next four weeks and responses were listed on a scale based on confidence assessment: "not confident at all," "only a little bit confident," "somewhat confident" and "very confident."

All additional survey items. Other survey items, such as items 17- 21, were included at the request of stakeholders such Dr. Neil Shapiro, Associate Program Director of Internal Medicine, whose research interests include medical- reading habits of residents and physicians.

Objective structured clinical examination (OSCE). The instrument used to collect data on obesity counseling–related communication skills and overall communication skills was the Medicine Residency OSCE (Zabar et al., 2004). The OSCEs used for the purposes of this research were created in partnership with the Macy Initiative in Health Communication (Kalet et al., 2004). This collaboration helped develop checklist scales, focused on medical student communication skills, which were then proven to be reliable (Cronbach's alphas .70-.95) as well

as predictive of future performance scores on medical exams outside the OSCEs (Lee et al., 2008). The OSCE checklist, comprised of three core areas of assessment (communication, gathering patient history, and physical examination of the patient) is awarded a score in each core area based on a percent of the items scored as "well done." Mean overall scores among classes between 2004 and 2010 demonstrate consistency by measuring from 53.0% to 61.5% with a standard deviation no greater than 14.4%.

Data Analysis

In the Weight Management Counseling survey, medical residents (N=38) selected the extent to which they agreed or disagreed with statements related to weight management counseling with obese patients. Self-reporting survey results utilized a four-point Likert scale ranging from "strongly disagree" to "strongly agree" or, in one instance measuring physicians' personal health habits, relative confidence in their abilities to practice healthy lifestyle habits ranging from "Not confident at all" to "Very confident." Descriptive statistics for each set of questions as compared with OSCE exam results (physicians' attitudes toward weight management counseling, physicians' attitudes toward obese patients, physicians' personal health behaviors) are reported in Appendix D.

Pearson Product-Moment Correlation Coefficient analyses were used to examine the relationship between each attitude item on the weight management counseling survey and the obesity-related communication skills measured by the OSCE. A statistically significant Pearson correlation value was measured as a probability of less than .05 ($p < 0.05$). However, because the OSCE scores were not normally distributed and therefore would not meet the required

assumptions for Pearson correlation coefficients, Spearman's rho was used for all correlation analyses. Statistical tests were conducted using the Statistical Program for Social Sciences (SPSS), Version 20.0.

In order to generate OSCE scores of skills done well or not done well, the original responses from the OSCE data (0= not done, 1- partly done, 2= done well) were reformatted into a yes-no configuration (0=not done well or partly done, 1= done well) in SPSS. Then, these items in each category of the OSCE data (obesity counseling communication skills or overall communication skills) were summed to form a score from 0 to 11 or 0 to 10, respectively.

Data Retrieval

New York University School of Medicine (NYUSOM) Internal Review Board (IRB) granted permission (approval #07-923) to pursue the proposed investigation. Approval was granted on December 26, 2008 and has been reapproved annually since the original approval date. Surveys were completed prior to the OSCE but administered on the same day as the exam. Survey data were retrieved online from survey monkey by a representative of the NYU research analysis team. OSCE scores were recorded by the standardized patient(s) acting in the OSCE cases and results were collected by NYU research analysis team members. Survey results as well as all OSCE scores were filed confidentially for later analysis on a protected computer by Colleen Gillespie, one of the NYU research team members.

Chapter 4

Findings and Discussion

Introduction to the data. The purpose of this study was to investigate the relationship between physicians' attitudes regarding weight management counseling and communication skills, as well as personal health behaviors and obesity-related communication skills, as measured by objective structured clinical examinations (OSCEs). This chapter describes and explains the quantitative data and information gathered from the Weight Management Counseling Survey as well as qualitative data recorded from the OSCE exams.

In order to address the aforementioned relationships, the following research questions were established:

1. What is the relationship between physicians' attitudes toward weight management counseling and obesity counseling–related communication skills on an OSCE?
2. What is the relationship between physicians' attitudes toward obese patients and obesity counseling–related communication skills on an OSCE?
3. What is the relationship between physicians' personal health habits and obesity counseling–related communication skills on an OSCE?
4. What is the relationship between physicians' attitudes toward weight management counseling and overall communication skills measured by an OSCE?
5. What is the relationship between physicians' personal health habits and overall communication skills measured by an OSCE?

The purpose of this chapter is to report the findings of the study as well as provide a detailed discussion of related information as divided into these categories: (a) Introduction to the Data; (b) Findings (Relationship Between Physicians' Attitudes toward Weight Management

Counseling and Obesity Counseling-Related Communication Skills on an OSCE; Relationship Between Physicians' Attitudes toward Obese Patients and Obesity Counseling-Related Communication Skills on an OSCE; Relationship Between Physicians' Personal Health Habits and Obesity Counseling-Related Communication Skills on an OSCE; Relationship Between Physicians' Attitudes toward Weight Management Counseling and Overall Communication Skills Measured by an OSCE; Relationship Between Physicians' Personal Health Habits and Overall Communication Skills Measured by an OSCE; and (c) Discussion.

The sample for this study included 38 second-year residents enrolled at the Bellevue New York University (NYU) internal residency program. All 38 residents completed an OSCE exam as part of their residency requirements. Residents followed a pre-determined clinical rotation in ambulatory blocks, scheduled between January and May of 2009. Surveys were distributed to all 38 second-year residents in this sample and completed on the day of their OSCE exams. Participant consent was waived as part of the NYU-IRB approval that subjects' identities remain protected. Demographic information on the medical residents such as gender, age, and ethnicity was not collected due to the small sample size and the researchers' intention to protect respondent anonymity.

Survey items were separated into categories that the researchers felt best represented each research question as follows: physicians' attitudes toward weight management counseling; physicians' attitudes toward obese patients; and physicians' own health habits. A summary of frequencies, including the mean and standard deviation for each response, is reported in Appendix D. Most of the survey responses were identified on a scale ranging from 1 (strongly disagree) to 4 (strongly agree). One section of physicians' own health habits (five items) range from 1 (not at all confident) to 4 (very confident) regarding confidence in his or her ability to

execute various health-related tasks within the next four weeks at the time the survey was administered. Frequencies were run for the survey items that related to the research questions as previously mentioned and are listed in Appendix D.

Findings

Frequency tables for the two sets of OSCE scores, obesity counseling–related communication skills and overall communication skills, are summarized in Table 1 and Table 2, respectively. Overall communication skill scores are concentrated closer to a "done well" score of 2 and further away from the "not done" score of 0, reflecting a negative skew of the data. In contrast, results from obesity counseling–related communication skill scores are mixed. Several scores reflect a negative skew similar to that of overall communication skills OSCE scores, while other scores reflect a positive skew or even distribution of responses between the three scores of 0, 1, or 2.

Table 1

*Obesity Counseling-Related Communication Skills**

Survey Item	Mean	Std. Deviation	N
Assessed current diet using 24 hour recall or typical daily diet	1.75	.44	36
Assessed motivation or confidence	.69	.75	36
Assessed level of exercise	1.58	.73	36
Counsels me about my weight loss goal	.97	1.00	36
Discusses specific diet, exercise and/or self monitoring goals	1.86	.42	36
Works with you to set specific diet, exercise and/or self monitoring goals	1.28	.74	36
Elicits and addresses barriers to exercise and diet change	1.03	.85	36
Made you want to change your eating, exercise, and or self monitoring behavior	1.25	.60	36
Made you feel like you would be able to change your eating, exercise, and self monitoring habits	1.11	.75	36
Encourage frequent (within 1 month) follow up to monitor progress/goals	1.25	.94	36

*3 point scale: 0= not done, 1= partially done, 2= well done

Table 2

*Overall Communication Skills**

Survey Item	Mean	Std. Deviation	N
Elicited your responses using appropriate questions	1.72	.62	36
Clarified information	1.58	.77	36
Allowed you to talk without interrupting	1.83	.38	36
Communicated concern or intention to help	1.61	.65	36
Non-Verbal behavior enriched communication	1.72	.57	36
Acknowledged emotions/feelings appropriately	1.28	.85	36
Was accepting/ non-judgmental	1.89	.40	36
Used words you understood and/or explained jargon	1.83	.38	36
Asked questions to see what you understood	1.53	.60	36
Provided clear explanations/information	1.64	.54	36
Collaborated with you	.56	.50	36

*3 point scale: 0= not done, 1= partially done, 2= well done

Research Question #1: What is the relationship between physicians' attitudes toward weight management counseling and obesity counseling–related communication skills on an OSCE?

There were no significant relationships between physicians' attitudes toward weight management counseling and obesity counseling–related communication skills. A summary of results for this relationship is presented in Table 3.

Table 3

Relationship Between Physicians' Attitudes Toward Weight Management Counseling and Obesity Counseling-Related Communication Skills on an OSCE

Survey Item	Spearman's *rho* (r_s)	*p-value*
The best role for a physician in weight management is referral not treatment	.14	.41
My patients' acute health problems take precedence over weight loss counseling	-.03	.86
In most cases, obese patients' health improves when physicians counsel them about weight management	.16	.33
Most obese patients will reduce their weight to a healthy range when physicians counsel them about weight management	.05	.76
Patients are more likely to lose weight when their physician speaks to them about obesity and weight management	-.08	.66
It's easier to screen for obesity than perform weight management counseling	-.19	.26

*4-point scale: 1= strongly disagree, 2= disagree somewhat, 3= agree somewhat, 4= strongly agree

Research Question #2: What is the relationship between physicians' attitudes toward obese patients and obesity counseling-related communication skills on an OSCE?

All of the respondents' attitudes toward obese patients were not related to their obesity counseling–related communication skills on the OSCE exam (Table 4).

Table 4

Relationship Between Physicians' Attitudes Toward Obese Patients and Obesity Counseling-Related Communication Skills on an OSCE

Survey Item	Spearman's *rho* (r_s)	*p-value*
Most obese patients will not lose a significant amount of weight	.04	.80
I have been successful in treating patients for obesity	.10	.55
Most obese patients could reach a normal weight if motivated to do so	-.02	.92
Obesity is primarily caused by behavioral factors like overeating and physical inactivity	-.17	.30
Obesity is caused primarily by genetic factors	.03	.84
Obesity is caused primarily by lack of willpower	-.15	.38
Treating obese patients is very frustrating	.03	.88
I feel qualified to treat obese patients	-.16	.33
I have negative reactions towards the appearance of obese patients	-.24	.15
I am uncomfortable with counseling my obese patients about losing weight	.08	.62
Obesity is a treatable condition	-.17	.31
Most obese patients are well aware of the health risks of obesity	-.21	.20
I feel competent in prescribing weight loss programs for obese patients	-.13	.43
I feel uncomfortable when examining an obese patient	.01	.98
It's difficult for me to feel empathy for an obese patient	.11	.53

*4-point scale: 1= strongly disagree, 2= disagree somewhat, 3= agree somewhat, 4= strongly agree

Research Question #3: What is the relationship between physicians' personal health habits and obesity counseling-related communication skills on an OSCE?

Most of the respondents' personal health habits were not related to their obesity counseling–related communication skills on the OSCE exam (Tables 5 and 6). The exception was the personal health habit survey item "my diet was much better before I started residency," which was significantly related to obesity counseling–related communication skills on the OSCE

[r_s (34) = .39, p<.05]. The positive correlation suggested that physicians who performed better on the obesity counseling–related OSCE exam also tended to agree that their diets were better before they began their residency program. This significant relationship is presented in Table 5. Two tables were created for the same survey item category (physicians' personal health habits) because Table 6 reflects a four-point scale using different responses for each item assessing self-reported confidence levels in his or her abilities to perform certain health habits (1= not at all confident, 2= only a little bit confident, 3= somewhat confident, 4= very confident).

Similar to the results presented in preceding tables, Tables 5 and 6 illustrate results that, although lacking relationships of statistical significance, warrant further discussion and investigation into the nature of these meaningful results. For example, the negative response to "Physicians should be role models by maintaining a normal weight" is surprising when considering the result trends toward a significant relationship [r_s (34) = -.26, p = .13]. Considering the moderate strength of this association, further investigation in future research may inquire as to the role physicians feel they should play when modeling behaviors for their patients.

Table 5

Relationship Between Physicians' Personal Health Habits and Obesity Counseling-Related Communication Skills on an OSCE

Survey Item	Spearman's *rho* (r_s)	*p-value*
Physicians should be role models by maintaining a normal weight	-.26	.13
My patients will find me to be more credible and effective obesity counselor if they know that I eat a healthy diet	.08	.67
My patients will find me to be a more credible and effective obesity counselor if they know that I exercise and stay fit	.02	.92
My patients will find me to be a more credible and effective obesity counselor if they know that I maintain a healthy weight	-.06	.74
Food is one of my main coping mechanisms	-.15	.38
My diet was much better before I started residency	**.39****	**.02**
I consume an adequate amount of protein	.10	.55
I meet recommended daily allowances of vitamins and minerals	-.25	.15
I've had problems with eating in the past	.05	.80
Food is an important part of my life	-.14	.42
I vigorously exercise at least 3x/week consistently	.16	.35
I've been obese (>30% above ideal body weight)in the past	-.23	.19

*4-point scale: 1= strongly disagree, 2= disagree somewhat, 3= agree somewhat, 4= strongly agree

****Correlation is significant at the 0.05 level (2-tailed).**

Table 6

Relationship Between Physicians' Personal Health Habits and Obesity Counseling-Related Communication Skills on an OSCE

Survey Item	Spearman's *rho* (r_s)	*p-value*
I can avoid overeating in situations where I sometimes eat too much (e.g. at night, when I'm down, at holidays)	.29	.08
I can vigorously exercise (+ 30 mins) regularly (at least 3x/week)	.18	.30
I can read food labels and make healthy choices	-.26	.13
I can eat several small, healthy meals a day	-.07	.70
I can control my eating	.26	.13

*4-point scale: 1= not at all confident, 2= only a little bit confident, 3- somewhat confident, 4= very confident

Research Question #4: What is the relationship between physicians' attitudes toward weight management counseling and overall communication skills on an OSCE?

Overall counseling skills were significantly correlated with the survey item "it's easier to screen for obesity than perform weight management counseling" (r_s (36) = -.35, p<.05). The negative correlation between the overall communication skills and the survey item indicated that the better physicians performed on the counseling OSCE exam, the less they agreed with weight management counseling as more difficult than screening for obesity. However, the other survey items categorized as physicians' attitudes toward weight management counseling were not significantly correlated with their overall communication skills as measured by the OSCE exam (Table 7).

Table 7

Relationship Between Physicians' Attitudes Toward Weight Management Counseling and Overall Communication Skills on an OSCE

Attitude Item	Spearman's rho (r_s)	p-value
The best role for a physician in weight management is referral not treatment	.10	.57
My patients' acute health problems take precedence over weight loss counseling	-.13	.46
In most cases, obese patients' health improves when physicians counsel them about weight management	.10	.55
Most obese patients will reduce their weight to a healthy range when physicians counsel them about weight management	.20	.24
Patients are more likely to lose weight when their physician speaks to them about obesity and weight management	-.01	.94
It's easier to screen for obesity than perform weight management counseling	**-.35****	.03

*4-point scale: 1= strongly disagree, 2= disagree somewhat, 3= agree somewhat, 4= strongly agree

**Correlation is significant at the 0.05 level (2-tailed).

Research Question #5: What is the relationship between physicians' personal health habits and overall communication skills on an OSCE?

All of the respondents' personal health habits were not significantly related to overall communication skills as measured on the OSCE exam (Tables 8 and 9). Personal health habits were divided into two tables to reflect the differences in scoring.

Table 8

Relationship Between Physicians' Personal Health Habits and Overall Communication Skills on an OSCE (Agreement Scale)

Survey Item	Spearman's *rho* (r_s)	*p-value*
Physicians should be role models by maintaining a normal weight	-.25	.16
My patients will find me to be more credible and effective obesity counselor if they know that I eat a healthy diet	-.03	.84
My patients will find me to be a more credible and effective obesity counselor if they know that I exercise and stay fit	-.05	.76
My patients will find me to be a more credible and effective obesity counselor if they know that I maintain a healthy weight	-.07	.68
I consistently avoid eating high fat foods	.24	.17
Food is one of my main coping mechanisms	-.25	.14
I eat 5 or more daily servings of fruits and vegetables	.08	.63
My diet was much better before I started residency	.23	.17
I consume an adequate amount of protein	-.13	.45
I meet recommended daily allowances of vitamins and minerals	-.03	.84
I've had problems with eating in the past	-.06	.74
Food is an important part of my life	.02	.93
I vigorously exercise at least 3x/week consistently	-.18	.30
I've been obese (>30% above ideal body weight)in the past	.29	.09

*4-point scale: 1= strongly disagree, 2= disagree somewhat, 3= agree somewhat, 4= strongly agree

Table 9

Relationship Between Physicians' Personal Health Habits and Overall Communication Skills on an OSCE (Confidence Scale)

Survey Item	Spearman's *rho* (r_s)	*p-value*
I can avoid overeating in situations where I sometimes eat too much (e.g. at night, when I'm down, at holidays)	.17	.50
I can vigorously exercise (+ 30 mins) regularly (at least 3x/week)	.27	.11
I can read food labels and make healthy choices	-.02	.89
I can eat several small, healthy meals a day	.25	.15
I can control my eating	.18	.28

*4-point scale: 1= not at all confident, 2= only a little bit confident, 3= somewhat confident, 4= very confident

Discussion

Given the prevalence of obesity in the United States, it is imperative that health professionals seek to preventively address the many factors that may contribute to unhealthy weight gain. Recent efforts by Melanie Jay and Sheira Schlair of the New York University School of Medicine (NYUSOM) to improve the attitudes and personal health habits of medical residents focused on measuring overall communication skills of medical residents as they related to these attitudes and behaviors. The theory of *self efficacy* (Bandura, 1977) would suggest that physicians will be more likely to counsel obese patients on weight loss and have more empathy for obese patients if they, for example, practice healthy habits or feel confident in their abilities to provide weight management counseling through increased knowledge and understanding of the complexities associated with obesity.

In this study, the Weight Management Counseling survey was administered by NYU researchers to a convenience sample of 38 second-year medical residents at the Bellevue School

of Medicine at NYU. Researchers hoped to learn more about the relationship, if any, between attitudes and habits of medical residents and their respective communication and counseling scores on an actual OSCE. Previous research demonstrated a potential connection between improved counseling skills of physicians who practice healthy habits themselves or have confidence in their abilities to provide weight management counseling to obese patients, but this is the first study to use overall communication scores as opposed to self-reported confidence and self-efficacy scores of counseling abilities.

Significant results. This study was conducted to determine the relationship between two different sets of OSCE scores in comparison to three categories of survey questions: physicians' attitudes toward weight management counseling, physicians' attitudes toward obese patients, and physicians' own health habits. OSCE scores were reformatted to report skills as either "done well" or "not done well." Although many items on the survey were not significantly correlated with either overall communication skills or obesity-related communication skills, a few significant relationships were found. First, the positive correlation between obesity counseling–related communication skills and the personal health habits survey item "my diet was much better before I started residency" suggested medical residents who scored higher on the obesity counseling OSCE were also more aware of how to eat healthfully and how those eating habits may have changed as a result of time demands during medical residency training.

Although other items were not significantly correlated with the obesity counseling–related communication skills, it is possible that respondents did not answer truthfully on questions regarding attitudes toward obese patients or attitudes toward weight management counseling because of fear that their responses may negatively influence their residency training. The surveys were administered on the same day as the OSCE exams from which the scores for

this study were gathered, therefore it could be suggested that respondents answered questions with a more positive attitude toward obesity and weight management because they had recently undergone testing for counseling abilities with obese patients.

Overall communication skills were not found to be significantly related to most of the survey items. However, the attitude toward weight management counseling survey item that read "it's easier to screen for obesity than perform weight management counseling" was negatively correlated with overall communication skills on the OSCE. This result suggested that medical residents who performed overall communication skills well felt that screening for obesity was not easier than performing weight management counseling. Physicians who performed well on the counseling OSCE may have felt that both obesity screening and providing weight management counseling were of the same level of difficulty, or those physicians may not have been familiar with obesity screening techniques and therefore produced a survey response that was not an accurate representation of their knowledge and abilities. Screening for obesity, whether by means of calculating body mass index (BMI) or use of body fat analysis methods, is arguably simpler and therefore easier than the complex nature of counseling, which would involve more than just one test or one office visit. Effective and patient-centered obesity counseling would more than likely involve multiple office visits and multiple means by which information is disseminated, so these results contradict an expected response that physicians who were rated well on overall communication skills would also acknowledge that screening for obesity is inherently easier than providing weight loss counseling.

Although a few significant relationships were found, range-restriction in reference to the convenience sample used in this study (N= 38) may be responsible for the overall lack of correlation within the data (Howell, 2007). The small sample size and the population from which

the sample was taken (second year medical residents at the NYU Bellevue School of Medicine), a lack of variability may also be responsible for a lack of correlation among the data. For example, half of the residents in the sample scored either a "4" or a "7" on the overall communication skills OSCE, while half of the residents scored at the top two values for the obesity counseling–related OSCE. This lack of variability in OSCE scores may have restricted the range in which correlations could be found.

Mean OSCE scores. In comparing the two sets of mean OSCE scores, it is disappointing that many of the obesity-counseling related communication skills were reported as "partly done" as opposed to "well done." In fact, all but three obesity counseling–related communication items could be categorized as closer to "partly done." These three highest values, "assessed current diet using 24-hour recall or typical daily diet" (M= 1.75), "assessed level of exercise" (M= 1.58), and "discusses specific diet, exercise and/or self-monitoring goals" (M= 1.86) are skills related to the 5As counseling framework used in previous research conducted by NYU researchers (Jay et al., 2010), and such skills may be rated closer to "well done" because they can be carried out as if giving instructions, similar to that of writing a prescription or referring to a medical specialist. The other items reflect an emphasis on skills that relate to "patient-centeredness," another benchmark of quality obesity counseling by physicians that involves collaborating with the patient to best determine ways to meet his or her goals on an individual level (Epstein et al., 2005; Jay et al., 2010).

The highest mean value responses could also be perceived as objective responses from the patient perspective, in so much as "yes," my physician assessed my diet using a 24-hour recall, or "no," my physician did not assess my diet using a 24-hour recall. In contrast, other obesity-counseling related skills such as "Made you want to change your eating, exercise, and/or

self-monitoring behavior," reflected a lower mean score (M= 1.25) but could arguably be considered a highly subjective survey item in regard to patient perception and response. Given the relative strength of overall communication skills, it is likely that patient perspective of counseling efficacy in conjunction with lack of familiarity with the nuances of patient-centered obesity counseling are responsible for the lower mean obesity counseling–related communication scores.

Discussion of meaningful results. *Research Question #1: What is the relationship between physicians' attitudes toward weight management counseling and obesity counseling–related communication skills on an OSCE?*

Though many of the results from this study were not statistically significant, other results suggest further investigation due to the intriguing or, in some cases, contradictory nature of these results. For example, results from investigating the relationship between physicians' attitudes toward weight management and obesity-related communication skills suggest that physicians who feel their role in weight management should be referral as opposed to treatment may receive higher scores on obesity counseling–related communication skills than physicians who did not agree with this statement. Research suggests integration of preventive measures such as referral to other health professionals specialized in certain areas health-related treatment may be an effective method of improving patient health outcomes (Cohen et al., 2004). In contrast, because research has demonstrated that many physicians are not confident in their abilities to provide weight management counseling for overweight and obese patients (Fogelman et al., 2002; Jay et al., 2008), higher obesity counseling–related communication scores may illustrate patients' perception that physicians who take the time to make health-related referrals acknowledges on

the part of the physician an interest in providing patient-centered care (Epstein et al., 2005; Jay, Gillespie, Schlair, Sherman, & Kalet, 2010).

Although no significant relationship was found, physicians who felt that patients will improve their health when their physician counsels them on weight management may be rated higher on obesity counseling–related communication skills than those who would disagree with this statement. If a significant relationship existed, it may be suggested that the relationship would be attributed to physicians' confidence in their abilities to provide weight loss counseling. Better obesity counseling–related communication skills may be attributable to higher self efficacy among physicians who agree that patients' health improves as a result of discussing weight management with them (Jay et al., 2009).

There were no significant relationships between obesity counseling–related communication skills and the following weight management attitude survey items: "My patients' acute health problems take precedence over weight loss counseling," "Most obese patients will reduce their weight to a healthy range when physicians counsel them about weight management," and "Patients are more likely to lose weight when their physician speaks to them about obesity and weight management." Range restriction prevented any determination of a relationship. For example, 84% of the respondents disagreed with the item about reducing weight to a healthy range; there just was not enough variability for a relationship to exist.

Finally, physicians who did not feel that obesity screening was easier than weight management counseling were associated, but not significantly, with higher scores on obesity counseling–related communication OSCE skills. Physicians who would disagree that obesity screening is easier than weight management counseling may perform better on obesity counseling–related communication skills because they are comfortable with the psychological

dynamics of weight management counseling in that the conversation about patient weight loss has already begun. The extent that these physicians may perform better on obesity counseling–related communication skills suggests the process by which broaching the subject of weight loss elicits feelings of discomfort and awkwardness. Therefore simply screening for obesity is not inherently easier than weight management counseling. However, lower obesity counseling–related scores may be associated, but not significantly, with agreement that obesity screening is easier than weight management counseling may suggest physicians do not feel confident in their abilities to provide weight loss counseling for obese patients (Fogelman et al., 2002; Jay et al., 2008) and poor performance on obesity counseling–related communication skills may be attributed to lack of confidence in counseling abilities (Cheng, DeWitt, Savageau, & O'Connor, 1999).

Research Question #2: What is the relationship between physicians' attitudes toward obese patients and obesity counseling–related communication skills on an OSCE?

To address the second research question, "What is the relationship between physicians' attitudes toward obese patients and obesity counseling–related communication skills on an OSCE," none of the results were statistically significant. Several of the results from the correlation between obesity counseling–related communication exams and physicians' attitudes toward obese patients were not significant as a result of range restriction: "Most obese patients will not lose a significant amount of weight," "I have been successful in treating obese patients for obesity," "Treating obese patients is very frustrating," "I am uncomfortable with counseling my obese patients about losing weight," "I feel uncomfortable when examining an obese patient," and "It's difficult for me to feel empathy for an obese patient."

Although lacking a relationship but approaching significance, results from the survey item "I have negative reactions toward the appearance of obese patients" compared with obesity counseling–related communication skills suggest physicians who disagreed with this statement may be more likely to perform better on obesity counseling–related communication OSCE skills if the relationship were statistically significant [r_s (34) = -.24, p = .15]. Previous research suggests as a patient's body mass index increases, attitudes toward the patient become more negative as do physicians' attitudes that patients will not benefit from counseling (Hebl & Xu, 2001; Wigton & WcGaghie, 2001). Therefore, it would be expected that obesity counseling–related communication skills may not be rated as well among physicians who have negative reactions toward the appearance of obese patients as physicians who do not have negative reaction toward the appearance of obese patients.

The remainder of results reflects no relationship between physicians' attitudes toward obese patients and obesity counseling–related communication skills. However, in several instances where relationships do not exist, further research may be necessary in order to justify why no relationships are present. For instance, the survey item "most obese patients could reach a normal weight if motivated to do so" is not significantly related to obesity counseling–related communication skills. Therefore, whether physicians agree or disagree with this statement has no bearing on their obesity counseling–related communication skills. This lack of influence on counseling skills is interesting in that research suggests many physicians exhibit bias toward obese patients (Puhl & Heuer, 2009) and choose not to or avoid weight management counseling with obese patients because they feel that they are lazy or unmotivated to comply with physician advice (Bocquier et al., 2005; Campbell, Engell, Timperio, Cooper, & Crawford, 2000; Fogelman et al., 2005), which may contribute to an overall decline in counseling frequency

(Befort et al., 2006P; Bertakis, & Azari, 2005; Hebl & Xu, 2001; Hebl, Xu, & Mason, 2003). That there is no relationship between these two variables would suggest such bias and attitudes of physicians does not influence obesity counseling–related communication skills and warrants further investigation.

The same question may be applied to the lack of relationships between responses to survey items "Obesity is primarily caused by behavioral factors like overeating and physical inactivity," "Obesity is a treatable condition," and "Obesity is caused primarily by a lack of willpower" and obesity counseling–related communication skills. The fact that physicians who agree with these statements would have no better or worse obesity counseling–related communication skills than physicians who disagree with these statements contradicts what outcomes may be expected based on previous research. Again, it has been demonstrated that as patients' body mass index increases, physicians' attitudes toward patients becomes more negative and physicians' willingness or motivation to provide counseling decreases (Befort et al., 2006P; Bertakis & Azari, 2005; Hebl & Xu, 2001; Hebl, Xu, & Mason, 2003). These absences of significant relationships may be attributable to the physicians' decision to keep personal beliefs and professional behaviors separate and therefore provide a high quality of obesity counseling despite personal beliefs, or it may be a result of poor ability to translate empathy for obese patients into obesity counseling–related communication skills that may require additional years of experience and professional practice in actual patient encounters.

Responses to the survey items "Most obese patients are well aware of the health risks of obesity," "I feel qualified to treat obese patients," and "I feel competent in prescribing weight loss programs for obese patients" lack significant relationships with obesity counseling–related communication skills. However, if the relationships had been significant, physicians who

performed better on the obesity counseling–related OSCE skills may have also disagreed with these statements. Physicians who may perform well on the obesity counseling–related communication OSCE may feel that obese patients do not fully understand the negative impact of obesity on their overall health and therefore spend more time providing obesity-related counseling for those patients. Female physicians, for example, may be more likely to spend this time educating and counseling obese patients regarding the nature of their health and how obesity may influence it (Ko et al., 2008). Research has also demonstrated that female physicians are more "body-aware" (Wardle & Johnson, 2002) and provide obesity counseling more frequently than their male counterparts (Frank, Carerra, Elon, & Hertzberg, 2007; Ko et al., 2008), and although researchers did not collect general demographic information on the surveyed participants, it could be suggested that the female physicians participating in this study took additional time to educate patients on the risks associated with obesity and may therefore be awarded higher scores on obesity counseling–related communication skills.

The latter survey items, "I feel qualified to treat obese patients," and "I feel competent in prescribing weight loss programs for obese patients," again resulted in no significant relationships with obesity counseling–related communication skills but suggest that if significant relationships were present, physicians who scored higher on the obesity counseling–related OSCE may have disagreed with these statements. The chance that this association would exist may relate to compensation of obesity counseling–related communication skills despite physicians' low self efficacy regarding their weight loss counseling abilities (Fogelman et al., 2002) or knowledge of obesity management (Jay et al., 2008). Perhaps physicians who feel inadequately trained and prepared then put great effort into obesity counseling–related communication skills when such opportunities are presented and whatever lack of training or

skill they may perceive is overcome by effort and patient-centered care (Epstein et al., 2005; Jay et al., 2010).

Finally, there was no relationship between obesity counseling–related communication skills and the response to the survey item "Obesity is caused primarily by genetic factors." However, again if a relationship existed, physicians who performed well on obesity counseling–related communication skills may also agree that obesity is primarily caused by genetic factors. Were it true that obesity counseling–related communication skills were indeed related to physicians' response to this survey item, it may also be true that physicians who do not "blame" the patient for their weight would also then take time to provide a higher level of counseling and therefore perform better on obesity counseling–related communication OSCE skills. Physicians may acknowledge genetic factors as contributing to development of obesity if they have previously been obese themselves and feel empathy for the patient, disclosing personal information about their health struggles or strategies by which they try to stay healthy and therefore open communication lines with the patient (Jaffe, 1970). They may also understand the role that genetic factors like race combine with ecological factors like socioeconomic status to negatively impact patients' health habits and attitudes, again replacing blame with empathy and providing a higher quality of obesity counseling–related communication skill (Cohen, 2008; Puhl & Heuer, 2010).

Research Question #3: What is the relationship between physicians' personal health habits and obesity counseling–related communication skills on an OSCE?

Aside from the significant relationship between obesity counseling–related communication skills and responses to the survey item "my diet was much better before I started residency," results from the third research question, "What is the relationship between

physicians' personal health habits and obesity counseling–related communication skills on an OSCE," were not statistically significant. Relationships between obesity counseling–related communication skills and the following survey items could not be determined due to range restriction: "my patients will find me to be a more credible and effective obesity counselor if they know that I exercise and stay fit," "my patients will find me to be a more effective and credible obesity counselor if they know that I maintain a healthy weight," "I consume an adequate amount of protein," "I've had problems with eating in the past," and "I can eat several small, healthy meals a day."

There was no relationship between obesity counseling–related communication skills and whether physicians agreed with the statement "My patients will find me to be a more credible and effective obesity counselor if they know that I eat a healthy diet." The absence of a relationship between these two variables may be partially attributable to evidence that referral to preventive care health experts is viewed by patients as demonstrating good counseling skills (Cohen et al., 2004), therefore referral would not require self-disclosure of physicians' health habits such as dietary habits. Therefore, physicians who are skilled at obesity counseling–related communication may not necessarily need to share such personal information in order to provide preventive counseling. These physicians were trained in methods of preventive care delivery therefore personal health habits or patients' perceptions of personal health habits may not influence how skilled physicians are when practicing obesity counseling–related communication (Wolff, Rhodes, & Ludwig, 2010; Jay, Gillespie, Ark, Richter, et al., 2008).

Though not significantly related, physicians who performed well on obesity counseling–related communication skills may have disagreed with the following statements: "physicians should be role models by maintaining a normal weight," "food is one of my main coping

mechanisms," "I meet recommended daily allowances of vitamins and minerals," "food is an important part of my life," and "I've been obese in the past." Physicians who performed well on obesity counseling–related communication skills may have also disagreed that they can read food labels and make healthy choices. Despite the lack of influence on obesity counseling–related communication skills, disagreement with these statements suggests physicians may lack nutritional knowledge or time to prepare healthy meals and still effectively provide obesity counseling–related communication skills in a patient-physician relationship.

Previous research has shown that physicians and medical residents have reported lack of health food choices and declines in funding to support healthy lifestyle choices within medical schools and physicians' places of work, which inhibit abilities to practice such behaviors (Cox et al., 2001; Frank, Elon, & Hertzberg, 2007). However, frequent and better patient counseling habits have been directly linked to work and school environments reported as healthy, therefore physicians' perceptions of environmental health may contribute to or detract from their responses to this survey item (Frank, Elon, Carerra, & Hertzberg, 2007). Regardless of previous health history (whether or not the physician had previously been obese), their preoccupation or lack thereof with food and food used for coping, or nutritional knowledge, physicians were able to demonstrate good obesity counseling–related communication skill independent from these factors.

In contrast, physicians who performed well on obesity counseling–related communication skills may have agreed with statement "I vigorously exercise at least three times per week consistently" and also may have reported having confidence in their abilities to participate in or exhibit the following behaviors: "I can avoid overeating in situations where I sometimes eat too much," "I can vigorously exercise regularly," and "I can control my eating." To address the latter

section of questions, which asked physicians to rate their confidence in their abilities to perform certain behaviors, physicians with greater self-efficacy in habits such as physical activity or eating healthy foods may be more effective in obesity counseling–related communication skills because their self-confidence is projected into their ability to communicate effectively with patients (Burke et al., 2007; Cheng, DeWitt, Savageau, & O'Connor, 1999; McCauley, 1991). Also, it may be true that patients find physicians who exhibit traits of greater self efficacy to be more effective obesity counseling–related communicators because patients may perceive them as more credible (Frank, Breyon, & Elon, 2000).

Although lacking a relationship but approaching significance, results from the survey item "I can avoid overeating in situations where I sometimes eat too much (at night, when I'm down, holidays)" compared with obesity counseling–related communication skills suggest physicians who agreed with this statement may be more likely to perform better on obesity counseling–related communication OSCE skills if the relationship were statistically significant [r_s (34) = .29, p = .08]. Physicians who performed well on obesity counseling–related communication skills may also have greater confidence in their abilities to provide weight-related counseling, and self-efficacy has been demonstrated to foretell overall communication habits of physicians during office visits (Cheng, DeWitt, Savageau, & O'Connor, 1999).

Also, physicians who are confident in their abilities to avoid situations where they usually eat too much infers that they may be aware of personal circumstances in which they have struggled to make healthy food choices and therefore may be better able to empathize with patients. Physicians who have learned from and changed behaviors such as dietary habits may be better equipped to share these experiences with patients and, by promoting behavior change and maintenance based on their personal struggles, potentially improve obesity counseling–

related communication skills (Chobanian et al., 2003; Fjeldsoe, Neuhaus, Winkler, & Eakin, 2011; Eakin, Lawler, Vandelanotte, & Owen, 2007).

Confidence in their abilities to vigorously exercise on a regular basis may also be an indicator that physicians do in fact exercise on a regular basis. Research has demonstrated that physicians who practice healthy habits are more likely to discuss these habits with others (Frank, 2004; Frank, Elon, Carrera, & Hertzberg, 2007; Frank et al., 2004; Frank, Rothenberg, Lewis, & Fielding, 2000). Counseling behaviors have been shown to be significantly related with personal health habits; therefore, patients may perceive better and more frequent counseling as skills parallel to overall communication skills (Frank, Elon, Carrera, & Hertzberg, 2007).

Research Question #4: What is the relationship between physicians' attitudes toward weight management counseling and overall communication skills measured by an OSCE?

Aside from the significant relationship between overall communication skills and responses to the survey item "It's easier to screen for obesity than provide weight management counseling," results from the fourth research question, "What is the relationship between physicians' attitudes toward obese patients and obesity counseling–related communication skills on an OSCE," were not statistically significant. Relationships between overall communication skills and two of the survey items, "the best role for a physician in weight management is referral not treatment" and "patients are more likely to lose weight when their physician speaks to them about obesity and weight management" could not be determined due to range restriction.

The other survey items associated with physicians' attitudes toward weight management counseling were not related to overall communication skills. For instance, overall communication scores were not related to whether physicians agreed that their patients' acute health problems took precedence over weight loss counseling. Overall communications scores

were also not related to whether or not physicians agreed that obese patients will reduce their weight to a healthy range when physicians counsel them about weight management. However, if significant relationships did exist, physicians who scored well on overall communication skills may have agreed that obese patients will reduce their weight when physicians counsel them and disagreed that patients' acute health status is more important than weight management counseling. Communications skills may be independent of physicians' perceptions of patients' weight loss abilities in part because research has demonstrated that obese patients will not lose a significant amount of weight (Puhl & Heuer, 2010). Over 120 randomized controlled trials were reviewed for sustained weight loss among obese patients and found an average of 10% reduction in body weight across all groups surveyed after a one-year follow up (Franz, Van Wormer, Crain et al., 2007; Dansinger, Tatsioni, Wong, Chung, & Balk, 2007; Wadden, Butryn, & Wilson, 2007; Powell, Calvin, & Calvin, 2007; Mann, Tomiyama, Westling, Samuels, & Chatman, 2007; Tsai & Wadden, 2005). Physicians may be able to effectively communicate with obese patients without allowing their personal beliefs regarding obesity influence those communication skills.

Physicians who would perform well on overall communication skills and disagree that acute health status is more important than weight management counseling may feel that preventive medicine practices such as weight loss counseling are part of the bigger picture of patient-centered health (Epstein et al., 2005) as opposed to simply treating symptoms present in an isolated circumstance. Also, physicians who disagree that acute health status is more important that weight management counseling may have higher communication skills due to personal health habits. A large body of evidence suggests physicians are more comfortable with and likely to discuss weight management with patients when they practice healthy habits in their personal lives (Frank, 2004; Frank, Elon, Carrera, & Hertzberg, 2007; Frank et al., 2004; Frank,

Rothenberg, Lewis, & Fielding, 2000). Therefore, communication skills may be higher among physicians who place value on preventive medicine practices such as maintaining a healthy weight because they are familiar with these practices and therefore more comfortable discussing and recommending them to patients (Cohen et al., 2004).

Finally, there was no significant relationship between overall communication skills and responses to the survey item "In most cases, obese patients' health improves when physicians counsel them about weight management." Therefore, overall communication skills were not related to whether physicians agreed that obese patients' health will improve when physicians counsel them about their weight. Again, research has demonstrated that obese patients will probably not lose a significant amount of weight when counseled to do so (Puhl & Heuer, 2010) but physicians are trained throughout medical school and residency to effectively communicate with patients independent of health outcomes such as patient compliance (Woodley, Kane, Huges, & Wright, 1978). Physicians likely also recognize the many factors that contribute to patient health improvement or decline, like ecological factors such as access to healthy food (Bleich, 2009) or living in a safe neighborhood (Health, Brownson, & Kruger, 2006; King et al., 2006; Sallis, King, Sirard, & Albright, 2007; TRB-IRB, 2005). In essence, physicians' overall communication skills probably have little to do with personal beliefs regarding obesity and weight management and more to do with factors that may influence the patient-physician dynamic like lack of time (Kimberly et al., 2003).

Research Question #5: What is the relationship between physicians' personal health habits and overall communication skills measured by an OSCE?

To address the fifth and final research question, "What is the relationship between physicians' personal health habits and overall communication skills measured by an OSCE,"

none of the results were statistically significant. Relationships between overall communication skills and the following personal health habit survey items could not be determined due to range restriction: “My patients will find me to be more credible and effective obesity counselor if they know that I eat a healthy diet,” “My patients will find me to be a more credible and effective obesity counselor if they know that I exercise and stay fit,” “My patients will find me to be a more credible and effective obesity counselor if they know that I maintain a healthy weight,” “I’ve had problems with eating in the past,” “Food is an important part of my life,” and “I can read food labels and make healthy choices.”

Of the survey items with the four-point scale ranging from 1 (strongly agree) to 4 (strongly disagree), there was no significant relationship between overall communication skills and whether physicians agreed or disagreed with the statement “I meet recommended daily allowances of vitamins and minerals.” Communication skills may not have been affected by responses to this survey item in part because physicians are not familiar with vitamin and mineral recommended daily allowances, or physicians are aware of vitamin and mineral recommended daily allowances and know they are not meeting these requirements as a result of demands on their time necessary to prepare healthy balanced meals (Kimberly et al., 2003). Research suggests limited food choices may be a contributing factor to poor health or eating habits of physicians and therefore ability to not meet recommended daily allowances for vitamins and minerals is hindered by lack of variety and convenience of healthy foods available to physicians and medical students (Cox et al., 2001; Frank, Hedgecock, & Elon, 2004; Frank, Elon, Carrera, & Hertzberg, 2007)., these results suggest overall communication skills are not related to whether or not physicians feel that they meet these recommended daily allowances and

therefore either lack of nutritional knowledge or inability to eat balanced, nutrient-rich foods do not affect overall communication abilities.

Other responses were not related to overall communication skills, however several interesting results were observed. For example, physicians who disagreed with the survey items "Physicians should be role models by maintaining a normal weight" and "Food is one of my main coping mechanisms," although not significantly, may be related to higher scores on overall communication skills on the OSCE. Overall communication skills may not be related to the latter survey item regarding use of food as a coping mechanism due in part to physicians' time constraints (Kimberly et al., 2003) or selection of alternative coping mechanisms aside from food.

In addition, physicians who disagree that they should be role models by maintaining a healthy weight may still perform well on overall communication skills if they believe practicing such alternative coping mechanisms such as physical activity, for example, would serve as modeling behavior for patients and such habits may open communication lines between the physician and patient (Jaffe, 1970). However, simply because they exercise does not necessarily mean they are also of a healthy body weight, therefore physicians may be able to effectively communicate with patients despite whether or not they have a healthy body weight or believe as such in order to communicate effectively.

Similarly, physicians who scored well on overall communication skills may have disagreed that they eat enough protein or that they vigorously exercise on a consistent basis at least three times per week. Although not significantly related, physicians who disagreed that they eat enough protein or exercise at least three times per week may still have scored well on overall communication skills because such beliefs suggest a level of self-awareness that research

suggests lends itself to opening communication pathways with patients (Woodley, Kane, Huges, & Wright, 1978).

In contrast, physicians who scored well on overall communication skills may have agreed with the statements "my diet was much better before I started residency" and "I've been obese in the past." Again, overall communication skills may be associated with physicians who tend to agree that their eating habits have room for improvement because research suggests such willingness to admit personal flaws or faults facilitates more open communication with others (Woodley, Kane, Huges, & Wright, 1978). Also, willingness to disclose personal information such as dietary habits or, in the case of the latter survey item regarding past history of obesity, may help patients feel more comfortable in the physician-patient relationship and therefore perceive good communication skills (Jaffe, 1970).

Finally, good overall communication skills may have been associated, although not significantly, with physicians' confidence in their abilities to avoid overeating in situations where overeating is common (holidays, at night), exercise vigorously on a regular basis, eat several small healthy meals a day, and control their eating. Physicians' self-confidence and intrinsic self efficacy may foster improved communication skills with patients because they are confident in their knowledge and abilities as a physician as well confidence in themselves (Burke et al., 2007; Cheng, DeWitt, Savageau, & O'Connor, 1999; McCauley, 1991). Thus, physician self-efficacy may be an indicator of overall communication abilities due to physicians' perceptions that their counseling and communication skills will be effective and, by taking the time to communicate well, demonstrate patient-centered care through their communication and counseling efforts (Jay et al., 2009).

Although lacking a relationship but approaching significance, results from the survey item "I can vigorously exercise regularly" compared with overall communication skills suggest physicians who agreed with this statement may be more likely to perform better on overall communication OSCE skills if the relationship were statistically significant [r_s (34) = .27, p = .11]. Again, physicians with greater self-efficacy in habits such as physical activity or eating healthy foods may be better communicators because their self- confidence is projected into their ability to communicate effectively with patients (Burke et al., 2007; Cheng, DeWitt, Savageau, & O'Connor, 1999; McCauley, 1992). Also, it may be true that patients find physicians who exhibit traits of greater self efficacy to be more effective communicators because patients may perceive them as more credible and trustworthy (Frank, Breyon, & Elon, 2000). Confidence in their abilities to vigorously exercise on a regular basis may also be an indicator that physicians do in fact exercise on a regular basis, and extensive research has demonstrated that physicians who practice healthy habits are more likely to discuss these habits with others (Frank, 2004; Frank, Elon, Carrera, & Hertzberg, 2007; Frank et al., 2004; Frank, Rothenberg, Lewis, & Fielding, 2000). Although the present relationship involves overall communication skills, not obesity counseling–related communication skills, counseling behaviors have been demonstrated to be significantly related with personal health habits therefore patients may perceive better and more frequent counseling as skills parallel to overall communication skills (Frank, Elon, Carrera, & Hertzberg, 2007).

Summary

Though most of the relationships were not statistically significant, several themes emerged from further analysis of the results. First, although not statistically significant, physicians' tended to perform well on both obesity counseling–related communication OSCE

skills and overall communication OSCE skills when they provided some level of patient-centered care (Epstein et al., 2005; Jay et al., 2010). In some instances, this was illustrated by providing a referral, and in some cases this was demonstrated by physicians' agreement that obese patients may reduce their weight when counseled by their physician to do so.

Physicians tended to perform well on both sets of OSCEs when they did not blame the patient for being obese or exhibited empathy for the patient. In some cases, physicians may have felt that patients' obesity was a result of factors outside of their control, and in others, physicians showed signs of optimism for the patients' improved health by agreeing that they could lose weight if the physician discussed weight management practices with them.

Finally, physicians tended to perform well on both the obesity counseling–related communication skills and overall communication skills, and generally the performance was greater in overall communication skills, when they reported some level of confidence in their abilities to perform health-related behaviors such as exercise regularly or make healthy food choices. Despite the responses suggesting physicians' dietary habits could use improvement, the overarching theme that emerged from these results reinforced previous research, which suggested physicians who practiced healthy habits (or were confident in their abilities to do so) were more likely to discuss these habits with their patients (Frank, 2004; Frank, Elon, Carerra, & Hertzberg, 2007; Frank et al., 2004; Frank, Rothenberg, Lewis, & Fielding, 2000) and open communication lines with patients as well (Jaffe, 1970).

Chapter 5

Summary and Conclusions

Summary. As previously suggested by the literature, medical school and residency training are the ideal settings for improving empathy for and treatment of patients who are obese (Block, DeSalvo, & Fisher, 2003, p. 673). This unique opportunity highlighted the importance of understanding medical residents' attitudes and behaviors toward and among obese patients in order to best address disparities that may exist, which could detract from the quality of patient care necessary to facilitate these significant contributions (Block et al., 2003; Foster et al., 2003; Goff, Holmboe, & Curry, 2006; Harris, Hamaday, & Mochan, 1999; Kurtz, Nolan, & Rittinger, 2003; Teachman & Brownell, 2001).

Research also suggested that psychological and sociological variables associated with the patient-physician relationship were influential in patient compliance (Woodley, Kane, Huges, & Wright, 1978). In cases where viewpoints on the causes of and contributing factors to obesity may differ, barriers to counseling and subsequent feelings of frustration or anger may arise (Ruelaz, Diefenbach, Simon, Lanto, Arterburn, & Shekelle, 2006), therefore as suggested by research, communication plays an important role in providing opportunities for both the physician and the patient share ideas and emotions.

The study from which this investigation was initiated examined the variables associated with influencing physicians' attitudes towards obesity counseling, but used self-reported survey data of perceived counseling efficacy as the counseling variable in their examination of these relationships; this study was novel because efficacy was an actual performance score as represented by scores on the OSCE exam, a novel approach to a rather popular topic in preventive medicine research (Jay et al., 2009).

Therefore, the purpose of this study was to investigate the relationship between physicians' attitudes regarding weight management counseling, personal health habits and communication skills using scores from objective structured clinical examinations (OSCEs). This study also investigated the relationship between these attitudes and behaviors, and obesity-related communication skills, also as measured by scores on OSCEs. Researchers hoped to investigate these relationships in order to learn new and valuable information regarding medical school curricula planning as well as directions for future research by using the novel approach of including actual OSCE scores instead of only self-reported survey data.

After data was gathered, OSCE scores were converted into a yes/no format in order to better assess obesity-related communication skills and overall communication skills as "done well" or "not done well." Frequency calculations of OSCE scores prior to data analysis revealed that overall, physicians scored higher on overall communication scores than obesity-counseling communication skills. Mean overall communication skills ($M = 1.57$) fall between 2 "done well" and 1 "partly done," whereas mean obesity counseling communication skills ($M = 1.28$) fall between 0 "not done" and 1 "partly done"; therefore, future research efforts should, based on these results, focus more on counseling specific to obesity and weight management.

Conclusions. Data analysis revealed only a few statistically significant results between the two sets of OSCE scores and survey items. Overall communication skills were negatively related to one of the weight management attitudes survey questions labeled "it's easier to screen for obesity than provide weight management counseling," suggesting that respondents are unfamiliar with obesity screening techniques or respondents felt that weight management counseling and obesity screening are equally difficult. As suggested by research, residents and physicians are more likely to discuss weight management practices if they are familiar with those

practices as a result of their own lifestyle behaviors (Frank, 2004; Frank, Elon, Carrera, & Hertzberg, 2007; Frank et al., 2004; Frank, Rothenberg, Lewis, & Fielding, 2000); therefore, respondents may have been less familiar with tenets of weight management to the extent that they were not confident in their abilities to provide such counseling. More research is needed in order to ensure a baseline understanding of obesity screening and weight management principles that may be shared with patients but also practiced by physicians as well.

Data analysis also revealed a statistically significant relationship between obesity counseling–related communication skills and a personal health habit survey item labeled "my diet was much better before I started residency, suggesting a level of awareness regarding healthy eating habits to the extent that respondents' were aware of negative changes in dietary intake as a result of the demands associated with residency. These results parallel previous research that highlighted a lack of time as a significant barrier to providing patient counseling in addition to taking time to exercise and pay attention to healthy eating habits (Kimberly et al., 2003).

Due to the considerable body of evidence suggesting a significant positive relationship between physicians' personal health habits and attitudes regarding obesity and obesity treatment, researchers were surprised to find no relationship between these two variables in this study. However, again the lack of correlations found is likely associated with the range-restriction among attitude items as well as the lack of variability in OSCE scores. The overall counseling scores for both sets of OSCEs were relatively high, therefore researchers believe these results are a testament to the quality of the medical residency training program at NYU and, for future research, these relationships should be investigated in other medical schools were obesity counseling and weight management is not as heavily emphasized.

In addition to the level and quality of medical training provided, NYU is located in an urban area where sidewalks and public transportation are commonplace. These relationships may have more variability in areas that are rural and/or less commuter-friendly. Though New York City is both an expensive and heavily-populated place to live, it is also relatively easy to maneuver about the city without owning a motorized vehicle; other areas of the country are nearly impossible to navigate without a car or, in some cases, without four-wheel drive. Medical facilities that serve rural and poor populations are often situated in similar surroundings, therefore access to paved roads or public transportation may prohibit daily physical activity choices such as walking or biking to work.

Recommendations

More research is necessary to assess the quality and variety of dietary choices available to hospital employees as well as patients and visitors to assess whether a positive change in food offerings would change perceptions of work environment and job satisfaction. Previous research has mentioned "physician burnout" as a significant source of stress for medical residents and physicians, so assessing these factors while physicians are still in residency may be a valuable benefit for preventing medical staff turnover and improving overall morale and health of hospital workers (Frank, Hedgecock, & Elon, 2004; Shanafelt et al., 2003; Wallace & Lemaire, 2007). It is unlikely that time demands of medical residents and physicians will abate but it is possible that hospitals and medical facilities may improve work environments in order to provide access to healthy choices and lifestyle behaviors to which we expect our healthcare professionals to adhere (Frank, Hedgecock, & Elon, 2004). Dietary habits of health professionals may or may not be influenced by the selection available to them in their respective work environments, but previous

research suggests such employers stand to benefit from investing in the health of their employees (Frank, Hedgecock, & Elon, 2004).

Though limited significant relationships were found in this study, researchers discovered several areas in which future research may be directed. First, results from this study align with previous research to suggest further investigation of "work" environment satisfaction among physicians, medical students and residents and how satisfaction may relate to patient health outcomes, productivity and employee retention rates. For this study, researchers included personal health habits along in their data collection and found that healthy lifestyle choices, especially access to healthy food choices, are areas of opportunity for medical schools and workplaces to improve upon in order to support those choices.

In addition, further research is necessary to better understand the extent to which obesity treatment, counseling and empathy is taught both in medical schools as well as emphasized in continuing medical education. Obesity is an extremely complex condition, worsened by concomitant biological factors such as high blood pressure and high cholesterol, ecological factors like access to healthy foods and walking paths, and lifestyle factors such as use of nicotine or physical activity levels. Given both the complexity and prevalence of obesity, physicians and physicians-in-training must have a baseline understanding of these factors in order to provide high-quality patient care and improve patient health outcomes. From this study, researchers concluded that the general counseling abilities from this cohort were relatively strong, though it was unclear if obesity counseling was challenging or if physicians were not confident in their abilities to provide weight management counseling for obese patients. In any case, these results suggest more research is needed to determine what factors may contribute to

or detract from weight management counseling and preventive health discussions in the patient-physician dynamic.

Other future research efforts may investigate the real-world applications of obesity counseling practices during physician office visits. Although most attitudes and behaviors of physicians did not significantly impact counseling and communication skills, frequency of counseling may be better observed through qualitative measures in physician office visits or other means that would assess counseling habits during actual medical appointments. The objective structured clinical exams (OSCEs) used by NYU and other medical schools cannot capture a comprehensive understanding of counseling and communication abilities by physicians because these scenarios are essentially an artificial representation of real-life situations. Thus, the lack of relationships found in this study may not be attributed to an absence of significant influence by these attitudes and behaviors on OSCE scores, but rather the OSCE scores are a simulated assessment of how physicians may counsel obese patients in an office visit and therefore future research efforts may investigate such circumstances in real life to gain further insight into frequency and quality of counseling in real life.

Finally, future research efforts may be placed in a greater variety of geographic and socioeconomic areas in which medical schools are located. As previously mentioned, NYU's campus is located in an urban setting with ample access to sidewalks, public transportation, and other commuter-friendly options that are not viable in other areas of the country. This study may be replicated, including use of the same survey and sample of second-year medical residents' OSCE scores (or similar exams), however researchers believe a greater variability would be available should research be conducted at institutions of a variety of settings. Obesity is not unique to one section of the country; however, prevalence of obesity is greater in certain parts of

the country and therefore may be more pervasive among populations of medical residents whose upbringings may differ from the student who attends NYU.

References

Abid, O., Galuska, D., Khan, L. K., Gillespie, C., Ford, E. S., & Serdula, M. K. (2005). Are healthcare professionals advising patients to lose weight? A trend analysis. *Medscape General Medicine, 7*(4), n.p.

Abramson, S., Stein, J., Schaufele, M., Frates, E., & Rogan, S. (2000). Personal exercise habits & counseling practices of primary care physicians: A national survey. *Clinical Journal of Sport Medicine, 10*(1), 40-48.

Adamo, G. (2003). Simulated & standardized patients in OSCEs: Achievements & challenges 1992-2003. *Medical Teaching, 25,* 262-270.

Adams, J., & White, M. (2005). Why don't stage-based activity promotion interventions work? *Health Education Research, 20,* 237-245.

Agency for Healthcare Research and Quality. (2010). 2010 National healthcare quality and disparities report. Retrieved March 30, 2011 from http://www.ahrq.gov/qual/qrdr10.htm

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes & predicting social behavior.* Upper Saddle River, NJ: Prentice-Hall.

American Association of Family Physicians. (2008). Average number of contact hours per week by family physicians, July 2008. Retrieved March 5, 2011 from http://www.aafp.org/online/en/home/aboutus/specialty/facts/14.html

American Association of Medical Colleges. (2011). The road to becoming a doctor. Retrieved November 15, 2011 from https://www.aamc.org/students/considering/

American College of Preventive Medicine. (2011). What do preventive medicine physicians do? Retrieved from http://www.acpm.org/about.htm

American Dietetic Association. (2009). Position statement: Weight management. *Journal of the American Dietetic Association, 109*(2), 330-346.

American Medical Association. (2011). Requirements for becoming a physician. Retrieved from http://www.ama-assn.org/ama/pub/education-careers/becoming-physician.page?

Amy, N. K., Aalborg, A., Lyons, P., & Keranen, L. (2006). Barriers to routine gynecological cancer screening for White & African-American obese women. *International Journal of Obesity, 30,* 147-155.

Anderson, D. A., & Wadden, T. A. (2004). Bariatric surgery patients' views of their physicians: Weight-related attitudes & practices. *Obesity Research, 12,* 1587-1595.

Andreyeva, T., Puhl, R. M., & Brownell, K. D. (2008). Changes in perceived weight management discrimination among Americans: 1995-1996 through 2004-2006. *Obesity (Silver Spring), 16,* 1129-1134.

Arnetz, B. (2001) Psychological challenges facing physicians of today. *Social Science Medicine, 52,* 203-213.

Association of American Medical Colleges. (2010). GQ medical school graduation questionnaire, 2010. Retrieved from https://www.aamc.org/download/140716/data/2010_gq_all_schools.pdf

Bakker, A. B., Schaufeli, W. B., Sixma, H. J., & Bosveld, W. (2001). Burnout contagion among general practitioners. *Journal of Social & Clinical Psychology, 20(*1*),* 82-98.

Bandura, A. (1977). Self-efficacy toward a unifying theory of behavioral change. *Psychology Review, 84(*2*),* 191-215.

Bandura, A. (1997). *Self-efficacy: The exercise of control.* W.H. Freeman & Company.

Baruth, M., Wilcox, S., Dunn, A. L., King, A. C., Marcus, B. H., Rejeski, W. J., . . . Blair, S. N. (2010). Psychological mediators of physical activity & fitness changes in the activity counseling trial. *Annals of Behavioral Medicine, 39,* 274-289.

Barzansky, B., & Etzel, S. (2003). Educational programs in US medical schools, 2002-2003. *Journal of the American Medical Association, 290,* 1190-1196.

Befort, C. A., Greiner, K. A., Hall, S., Pulvers, K. M., Nollen, N. L., Charbonneau, A., . . . Ahluwalia, J. S. (2006). Weight-related perceptions among patients and physicians: How well do physicians judge patients' motivation to lose weight? *Journal of General Internal Medicine, 21*(10), 1086-1090.

Bertakis, K. D. (2009). The influence of gender on the doctor-patient interaction. *Patient Education & Counseling, 76*(3), 356-60.

Bertakis, K. D., & Azari, R. (2005). The impact of obesity on primary care visits. *Obesity Research, 13,* 1615-1622.

Bhattacharya, B. B., & Sakthivel, S. (2004). Regional growth & disparity in India: Comparison of pre- & post-reform decades. *Economic & Political Weekly,* March 6, 1071-1077.

Bleich, S. (2009). A roadmap for encouraging a healthier environment. *Epidemic Proportions, 6*(1), 41-43.

Blixen, C. E., Singh, A., & Thacker, H. (2006). Values & beliefs about obesity & weight reduction among African American & Caucasian women. *Journal of Transcultural Nursing, 17(3),* 290-297.

Block, J. P., DeSalvo, K. B., & Fisher, W. P. (2003). Are physicians equipped to address the obesity epidemic? Knowledge & attitudes of internal medicine residents. *Preventive Medicine, 36,* 669-675.

Blue, C. L., & Black, D. R. (2005). Synthesis of intervention research to modify physical activity and dietary behaviors. *Research and Theory for Nursing Practice, 19*(1), 25-61.

Bocquier, A., Verger, P., Basdevant, A., Andreotti, G., Baretge, J., Villani, P., & Paraponaris, A. (2005). Overweight & obesity: knowledge, attitudes & practices of general practitioners in France. *Obesity Research, 13,* 787-795.

Boehmer, T. K., Hoehner, C. M., Deshpande, A. D., Ramirez, L. K., & Brownson, R. C. (2007). Perceived & observed neighborhood indicators of obesity among urban adults. *International Journal of Obesity, 31*(6), 968-977.

Bonavita, V., & De Simone, R. (2008). Towards a definition of comorbidity in the light of clinical complexity. *Neurological Sciences, 29*(1), 99-102.

Brown, I., Thompson, J., Tod, A., & Jones, G. (2006). Primary care support for tackling obesity: A qualitative study of the perceptions of obese patients. *British Journal of General Practice, 56,* 666-672.

Burdette, H. L., & Whittaker, R. C. (2004). Neighborhood playgrounds, fast food restaurants, and crime: Relationships to overweight in low-income preschool children. *Preventive Medicine, 38*(1), 57-63.

Burke, V., Beilin, L. J., Cutt, H. E., Mansour, J., Williams, A., & Mori, T. A. (2007). A lifestyle program for treated hypertensives improved health-related behaviors & cardiovascular risk factors, a r&omized controlled trial. *Journal of Clinical Epidemiology, 60,* 133-141.

Bhattacharya, J., & Neeraj, S. (2005). Health insurance & the obesity externality. *Advances in health economics & health services research, 17,* 279-318.

Cabana, M. D., Rand, C. S., & Powe, N. R. (1999). Why don't physicians follow clinical practice guidelines? A framework for improvement. *Journal of the American Medical Association, 282(*15*),* 1458-65.

Campbell, K., Engel, H., Timpiero, A., Cooper, C., & Crawford, D. (2000). Obesity management: Australian general practitioners' attitudes & practices. *Obesity Research, 8,* 459-466.

Campbell, S., & Delva, D. (2003). Physician do not heal thyself: Survey of personal health practices among medical residents. *Canadian Family Physician, 49,* 1121-1127.

Carr, D., & Friedman, M. A. (2005). Is obesity stigmatizing? Body weight, perceived discrimination, & psychological wellbeing in the United States. *Journal of Health & Social Behavior, 46,* 244-259.

Carr, D., Friedman, M. A., & Jaffe, K. (2007). Underst&ing the relationship between obesity & positive & negative affect: The role of psychosocial mechanisms. *Body Image, 4,* 165-177.

Carraccio, C., & Englander, R. (2000). The objective structured clinical examination: A step in the direction of competency-based evaluation. *Archives of Pediatrics & Adolescent Medicine, 154(*7*),* 736-741.

Casey, P. M., Goepfert, A. R., Epsey, E. L., Hammoud, M. M., Kaczmarczyk, J. M., Katz, N. T., . . . Peskin, E. (2009). To the point: Reviews in medical education: The Objective Structured Clinical Examination. *American Journal of Obstetrics & Gynecology,* 25-34.

Centers for Disease Control & Prevention. (2009). CDC vital signs: U.S. state info. Retrieved March 6, 2011 from http://www.cdc.gov/vitalsigns/AdultObesity/StateInfo.html

Centers for Disease Control & Prevention. (2010). Obesity: Halting the epidemic by making health easier: At a Glance 2010. Retrieved March 8, 2011 from http://www.cdc.gov/chronicdisease/resources/publications/aag/obesity.htm

Chen, E. Y. (2007). Depressed mood in class III obesity predicted by weight-related stigma. *Obesity Surgery, 17,* 669-671.

Cheng, T. L., DeWitt, T. G., Savageau, J. A., & O'Connor, K. G. (1999). Determinants of counseling in primary care pediatric practice: Physician attitudes about time, money, & health issues. *Archives of Pediatric & Adolescent Medicine, 153,* 629-635.

Chobanian, A. V., Bakris, G. L., Black, H. R., Cushman, W .C., Green, L. A., Izzo, J. L., . . . Roccella, E. J. (2003). The seventh report on the Joint National Committee on Prevention, Detection, Evaluation & Treatment of High Blood Pressure. *Journal of the American Medical Association, 289,* 2560-2570.

Cohen, D., DiCicco-Bloom, B., Strickland, P. O., Headley, A., Orzano, J., Levine, J., . . . Crabtree, B. (2004). Opportunistic approaches for delivering preventive care in illness visits. *Preventive Medicine, 38,* 565-573.

Cohen, J. S., & Patten, S. (2005). Wellbeing in residency training: A survey examining resident physician satisfaction both within & outside of residency training & mental health in Alberta. *BMC Medical Education, 5,* 21.

Collier, V., McCue, J., Markus, A., & Smith, L. (2002). Stress in medical residency: Status quo after a decade of reform. *Annals of Internal Medicine, 136(5),* 384-390.

Cornuz, J., Ghali, W. A., Di Carlantonio, D., Pecoud, A., & Paccaud, F. (2000). Physicians' attitudes towards prevention: Importance of intervention-specific barriers & physicians' health habits. *Family Practice, 17*(6), 535-540.

Cornuz, J., Zellweger, J. P., Mounoud, C., Decrey, H., Pecoud, A., & Burnand, B. (1997). Smoking cessation counseling by residents in an outpatient clinic. *Preventive Medicine, 26,* 292-6.

Cutler, D., Glaeser, E., & Shapiro, J. (2003). Why have Americans become more obese? *Journal of Economic Perspectives, 17*(3), 93-118.

Cox, C. C., Cambre, K. M., Wolf, T. M., Webster, M .G., & Hooper, J. (2001). Trends in number & administrative characteristics of medical school health promotion programmes. *Medical Education, 35(2),* 173-174.

Curioni, C. C., & Lourenco, P. M. (2005). Long-term weight loss after diet & exercise: A systematic review. *International Journal of Obesity, 29(*10*),* 1168-1174.

Dansinger, M. L., Tatsioni, A., Wong, J. B., Chung, M., & Balk, E. M., (2007). Meta-analysis: The effect of dietary counseling for weight loss. *Annals of Internal Medicine, 147(*1*),* 41-50.

Delnevo, C. D., Abetemarco, D. J., & Gotsch, A. R. (1996). Health behaviors & health promotion/ disease prevention: Perceptions of medical students. *American Journal of Preventive Medicine, 12(*1*),* 38-43.

Douglas, F., Torrance, N., Van Teijlingen, E., Meloni, S., & Kerr, A. (2006). Primary care staff's views & experiences related to routinely advising patients about physical activity. *BMC Public Health, 138(*6*).* Retrieved January 29, 2011 from http://www.biomedcentral.com/1471-2458/6/138

Drury, C. A., & Louis, M. (2002). Exploring the association between body weight, stigma of obesity, & health care avoidance. *Journal of the American Academy of Nursing Practice, 14,* 554-560.

Dube, L., Teng, L., Hawkins, J., & Kaplow, M. (2002). Emotions, the neglected side of patient-centered health care management: The case of emergency department patients waiting to see a physician. In G. T. Savage, J. D. Blair, & M. D. Fottler (Eds.), *Advances in Health Care Management* (161-193). Oxford, UK: Elsevier Science.

Duperly, J., Lobelo, F., Segura, C., Sarmiento, F., Herrera, D., Sarmiento, O. L., & Frank, E. (2009). The association between Colombian medical students' healthy personal habits & a positive attitude toward preventive counseling: Cross-sectional analyses. *BMC Public Health, 9(218),* accessed from http://www.biomedcentral.com/1471-2458/9/218

Dutton, G. R., Martin, P. D., Rhode, P. C., & Brantley, P. J. (2004). Use of the weight efficacy lifestyle questionnaire with African American women: Validation and extension of previous findings. *Eating Behavior, 5*(4), 375-384.

Eakin, E. G., Lawler, S. P., Vandelanotte, C., & Owen, N. (2007). Telephone interventions for physical activity & dietary behavior change: A systematic review. *American Journal of Preventive Medicine, 32,* 419-434.

Eakin, E. G., Reeves, M., Lawler, S. P., Graves, N., Oldenburg, B., Del Mar, C., & Barnett, A. (2009). Telephone counseling for physical activity & diet in primary care patients. *American Journal of Preventive Medicine, 32,* 142-149.

Eden, K. B., Orleans, T., Mulrow, C. D., Pender, N. J., & Teutsch, S. M. (2002). Does counseling by clinicians improve physical activity? A summary of the evidence for the U.S. Preventive Services Task Force. *Annals of Internal Medicine, 137,* 208-215.

Elfhag, K. & Rosser, S. (2005). Who succeeds in maintaining weight loss? A conceptual review of factors associated with weight loss maintenance & weight regain. *Obesity Review, 6,* 67-85.

Epstein, R. M., Franks, P., Fiscella, K., Shields, C. G., Meldrum, S. C., Kravitz, R. L., & Duberstein, P. R. (2005). Measuring patient-centered communication in patient-physician consultations: Theoretical and practical issues. *Social Science Medicine, 61(*7), 1516-1528.

Fjeldsoe, B., Neuhaus, M., Winkler, E., & Eakin, E. (2011). Systematic review of maintenance of behavior change following physical activity & dietary interventions. *Health Psychology, 30*(1), 99-109.

Flegal, K. M., Carroll, M. D., Ogden, C. L., & Johnson, C. L. (2002). Prevalence & trends in obesity among US adults, 1999-2000. *Journal of the American Medical Association, 14,* 1723-1727.

Finkelstein, E. A., Trogdon, J. G., Cohen, J. W., & Dietz, W. (2009). Annual medical spending attributable to obesity: Payer- & service-specific estimates. *Health Affairs (Millwood), 28,* w822-w831.

Firth-Cozens, J. (2001). Interventions to improve physicians' well-being & patient care. *Social Science Medicine, 52,* 215-222.

Firth-Cozens, J., & King, J. (2006). Are psychological factors linked to performance? In J. Firth-Cozens, J. King, A. Hutchinson, & P. McAvoy (Eds.), *Understanding doctors' performance* (pp. 61-70). Oxford, UK: Radcliffe Publishing.

Flocke, S. A., Stange, K. C., & Goodwin, M. A. (1998). Patient & visit characteristics associated with opportunistic preventive services delivery. *Journal of Family Practice, 47(*3*),* 202-208.

Fogelman, Y., Vinker, S., Lachter, J., Biderman, A., Itzhak, B., & Kitai, E. (2002). Managing obesity: A survey of attitudes & practices among Israeli primary care physicians. *International Journal of Obesity, 26,* 1393-1397.

Fontaine, K. R., Redden, D. T., Wang, C., Westfall, A. O., & Allison, D. B., (2003). Years of life lost due to obesity. *Journal of the American Medical Association, 289,* 187-193.

Foster, G. D., Wadden, T. A., Makris, A. P., Davidson, D., Sanderson, R. S., Allison, D. B., & Kessler, A. (2003). Primary care physicians' attitudes about obesity & its treatment. *Obesity Research, 11,* 1168-1177.

Frank, E. (2004). Physician health & patient care. *Journal of the American Medical Association, 291,* 637.

Frank, E., Breyan, R. & Elon, L. (2000). Physician disclosure of healthy personal behaviors improves credibility & ability to motivate. *Archives of Family Medicine, 9,* 287-290.

Frank, E., Elon, L., Carrera, J. S., & Hertzberg, V. S. (2007). Predictors of US medical students' prevention counseling practices. *Preventive Medicine, 44,* 76-81.

Frank, E., Elon, L, & Hertzberg, V. (2007). A quantitative assessment of a 4-year intervention that improved patient counseling through improving medical student health. *Medscape General Medicine, 9(2),* 58.

Frank, E., Galuska, D. A., Elon, L. K., & Wright, E. H. (2004). Personal & clinical exercise-related attitudes & behaviors of freshmen U.S. medical students. *Research Quarterly in Exercise & Sport, 75*(2), 112-121.

Frank, E., Hedgecock, J., & Elon, L. K. (2004). Personal health promotion at US medical schools: A quantitative study & qualitative description of deans' & students' perceptions.

BMC Medical Education, 4(29). Retrieved from http://www.biomedcentral.com/1472-6920/4/29/abstract/

Frank, E., & Segura, C. (2009). Health practices of Canadian physicians. *Canadian Family Physician, 55,* 810-817.

Frank, E., Segura, C., Shen, H., & Oberg, E. (2010). Predictors of Canadian physicians' prevention counseling practices. *Canadian Journal of Public Health, 101*(5), 390-395.

Frank, E., Smith, D., & Fitzmaurice, D. (2005). A description & qualitative assessment of a 4-year intervention to improve patient counseling by improving medical student health. *Medscape General Medicine, 7(2),* 4.

Frank, E., Rothenberg, R., Lewis, C., & Fielding, B. (2000). Correlates of physicians' prevention-related practices. Findings from the Women Physicians' Health Study. *Archives of Family Medicine, 9*(4), 359-367.

Frank, E., Wright, E. H., Serdula, M. K., Elon, L. K., & Baldwin, G. (2002). Personal & professional nutrition-related practices of US female physicians. *American Journal of Clinical Nutrition, 75*(2), 326-332.

Frank, L., Andresen, M. A., & Schmid, T. L. (2004). Obesity relationships with community design, physical activity, and time spent in cars. *American Journal of Preventive Medicine, 27*(2), 87-96.

Franz, M. J., Van Wormer, J. J., Crain, A. L., Boucher, J. L., Histon, T., Caplan, W., . . . Pronk, N. P. (2007). Weight-loss outcomes: A systematic review & meta-analysis of weight-loss clinical trials with a 1-year follow-up. *Journal of the American Dietetic Association, 107(*10*),* 1755-*1767.*

Friedman, K. E., Ashmore, J. A., & Applegate, K .L. (2008). Recent experiences of weight-based stigmatization in a weight loss surgery population: Psychological & behavioral correlates. *Obesity (Silver Spring), 16(*2*),* S69-S74.

Friedman, K. E., Reichmann, S. K., Costanzo, P. R., Zelli, A., Ashmore, J. A., & Musante, G. J. (2005). Weight stigmatization & ideological beliefs: Relation to psychosocial functioning in obese adults. *Obesity Research*, 13, *907-916.*

Galuska D. A., Will, J. C., Serdula, M. K., & Ford, E. S. (1999). Are health care professionals advising obese patients to lose weight? *Journal of the American Medical Association, 282,* 1576-1578.

Garcia, A. W., & King, A. C. (1991). Predicting long-term adherence to aerobic exercise: A comparison of two models. *Journal of Sport & Exercise Psychology, 13,* 394-410.

Gautam, M. (2001). Women in medicine: Stresses & solutions. *Western Journal of Medicine, 174*(1), 37-41.

Giles-Corti, B., Macintyre, S., Clarkson, J. P., Pikora, T., & Donovan, R. J. (2003). Environmental and lifestyle factors associated with overweight and obesity in Perth, Australia. *The Science of Health Promotion, 18*(1), 93-102.

Goff, S. L., Holmboe, E. S., & Curry, L. (2006). Barriers to obesity training for pediatric residents: A qualitative exploration of residency director perspectives. *Teaching & Learning in Medicine, 18*(4), 348-355.

Grilo, C. M., & Masheb, R. M. (2005). Correlates of body image dissatisfaction in treatment-seeking men & women with binge eating disorder. *International Journal of Eating Disorders, 38,* 162-166.Cancer care workers in Ontario: Prevalence of burnout, job stress & job satisfaction. *Canadian Medical Association Journal, 163(*2*),* 166-169.

Grunfeld, E., Whelan, T. J., Zitzelsberger, L., Montesanto, B., & Evans, W. (2000). Cancer care workers in Ontario: Prevalence of burnout, job stress & job satisfaction. *Canadian Medical Association Journal, 163(2),* 166-169.

Hall, P., Keely, E., Dojeiji, S., Byszewski, A., & Marks, M. (2004). Communication skills, cultural challenges & individual support: Challenges of international medical graduates in a Canadian healthcare environment. *Medical Teaching, 26,* 120-125.

Handy, S. L., Boarnet, M. G., Ewing, R., & Killingsworth, R. E. (2002). How the built environment affects physical activity: Views from urban planning. *American Journal of Preventive Medicine, 23*(2S), 64-73.

Harden, R. M., Stevenson, M., Downie, W. W., & Wilson, G. M. (1975). Assessment of clinical competence using objective structured examination. *British Medicine, 1,* 447-450.

Harris, J. E., Hamaday, V., & Mochan, E. (1999). Osteopathic family physicians' attitudes, knowledge, & self-reported practices regarding obesity. *Journal of the American Osteopathic Association, 99*(7), 358-365.

Heath, G. W., Brownson, R. C., & Kruger, J. (2006). The effectiveness of urban design & l& use & transport policies & practices to increase physical activity, a systematic review. *Journal of Physical Activity & Health, 3,* 55-76.

Hebl, M. R. & Xu, J. (2001). Weighing the care: Physicians' reactions to the size of a patient. *International Journal of Obesity, 25,* 1246-1252.

Hebl, M. R., Xu, J., & Mason, M. F. (2003). Weighing the care: Patients' perceptions of physician care as a function of gender & weight. *International Journal of Obesity, 23,* 269-275.

Heini, A. F., & Weinsier, R. L. (1997). Divergent trends in obesity & fat intake patterns: The American paradox. *The American Journal of Medicine, 102*(3), 259-264.

Heller, D., Watson, D., & Ilies, R. (2004). The role of person versus situation in life satisfaction: A critical examination. *The Psychological Bulletin, 130,* 574-600.

Horowitz, C. R., Goldfinger, J. Z., Muller, S. E., Pulichino, R. S., Vance, T. L., Arniella, G., & Lancaster, K. J. (2008). A model for using community-based participatory research to address the diabetes epidemic in East Harlem. *Mount Sinai Journal of Medicine, 75*, 13-21.

Howell, D. C. (2010). *Statistical Methods for Psychology.* Belmont, CA: Cengage Wadsworth Learning.

Hudmon, K. S., Kroon, L. A., Corelli, R. L., Saunders, K. C., Spitz, M. R., Bates, T. R., & Liang, D. (2004). Training future pharmacists at a minority educational institution: Evaluation of the *Rx for Change* tobacco cessation training program. *Cancer Epidemiology, Biomarkers & Prevention, 13*(3), 477-481.

Hwang, K. O., Childs, J. H., Goodrick, G. K., Aboughali, W. A., Thomas, E. J., Johnson, C. W., . . . Bernstam, E. V. (2009). Explanations for unsuccessful weight loss among bariatric surgery c&idates. *Obesity Surgery, 19,* 1377-1383.

Jackson, J. E., Doescher, M. P., Saver, B. G., & Hart, L. G. (2005). Trends in professional advice to lose weight among obese adults, 1994 to 2000. *Journal of General Internal Medicine, 20(*9*),* 814-818.

Jaffe, P. (1978). A further effect of experimenter's self-disclosure on subjects' self-disclosure. *Journal of Counseling Psychology, 17,* 252-257.

Jay, M., Gillespie, C., Ark, T., Richter, R., McMacken, M., Zabar, S., . . . Kalet, A. (2008). Do internists, pediatricians, & psychiatrists feel competent in obesity care? Using a needs assessment to drive curriculum design. *Journal of General Internal Medicine, 23(7), 1066-1070.*

Jay, M., Kalet, A., Ark, T., McMacken, M., Messito, M. J., Richter, R., . . . Gillespie, C. (2009). Physicians' attitudes about obesity & their associations with competency & specialty: A cross-sectional study. *BMC Health Services Research, 9,* 106.

Jay, M., Schlair, S., Caldwell, R., Kalet, A., Sherman, S. & Gillespie, C. (2010). From the patient's perspective: The impact of training on resident physician's obesity counseling. *Journal of General Internal Medicine, 25*(5), 415-422.

Jelalian, E., Boergers, J., Alday, C. S., & Frank, R. (2003) Survey of physicians attitudes & practices related to pediatric obesity. *Clinical Pediatrics, 42(3),* 235-245.

Kalet, A., Pugnaire, M. P., Cole-Kelly, K., Janicik, R., Ferrara, E., Schwartz, M. D., . . . Lazare, A. (2004). Teaching communication in clinical clerkships: Models from the Macy Initiative in health communications. *Academic Medicine, 79(6),* 511-520.

Kerr, J., Norman, G. J., Adams, M. A., Ryan, S., Lawrence, F., Sallis, J. F., . . . Patrick, K. (2010). Do neighborhood environments moderate the effect of physical activity lifestyle interventions in adults? *Health & Place, 16,* 903-908.

Kimberly, S. H., Yarnall, M. D., Pollak, K. I., Ostbye, T., Krause, K. M., & Michener, J. L. (2003). Primary care: Is there enough time for prevention? *American Journal of Public Health, 93, 635-641.*

King, A. C., Toobert, D., Ahn, D., Resnicow, K., Coday, M., Riebe, D., . . . Sallis, J. F. (2006). Perceived environments as physical activity correlates & moderators of interventions in five studies. *American Journal of Health Promotion, 21,* 24-35.

Kjeldstadli, K., Tyssen, R., Finset, A., Hem, E., Gude, T., Gronvold, N. T., . . . Vaglum, P. (2006). Life satisfaction & resilience in medical school- a six-year longitudinal, nationwide & comparative study. *BMC Medical Education, 6(*48). Retrieved from http://www.biomedcentral.com/1472-6920/6/48

Knauper, B., Cheema, S., Rabiau, M., & Borten, O. (2005). Self-set dieting rules: Adherence & prediction of weight loss success. *Appetite, 44(*3*),* 283-288.

Ko, J. Y., Brown, D. R., Galuska, D. A., Zhang, J., Blanck, H. M., & Ainsworth, B. E. (2008). Weight loss advice U.S. obese adults receive from health care professionals. *Preventive Medicine, 47,* 587-592.

Kristiansen, I. S., Forde, O. H., Aasland, O., Hotvedt, R., Johnsen, R., & Forde, R. (2001). Threats from patients and their effects on medical decision making: A cross-sectional, randomized trial. *The Lancet, 357(*9264), 1258-1261.

Kurtz, M. E., Nolan, R. B., & Rittinger, W. J. (2003). Primary care physicians' attitudes & practices regarding complementary & alternative medicine. *Journal of the American Osteopathic Association, 103*(12), 597-602.

Lammers, J. C., & Duggan, A. (2002). Bringing the physician back in: Communication predictors of physicians' satisfaction with managed care. *Health Communication, 14,* 493-519.

Laschinger, H. K., & Tresolini, C. P. (1999). An exploratory study of nursing & medical students health promotion counseling self-efficacy. *Nurse Education Today, 19(*5*),* 408-418.

Lee, J., Triola, M., Gillespie, C., Gourevitch, M., Hanley, K., Truncali, A., . . . Kalet, A. (2008). Working with patients with alcohol problems: A controlled trial of the impact of a rich media web module on medical student performance. *Journal of General Internal Medicine, 23(7),* 1006-1009.

Leiter, M. P., Frank, E., & Matheson, T. J. (2009). Dem&s, values & burnout: Relevance for physicians. *Canadian Family Physician, 55,* 1124-1126.

Levey, R. (2001). Sources of stress for residents & recommendation for programs to assist them. *Academic Medicine, 76(2),* 142-150.

Linzer, M., Kondrad, T. R., Douglas, J., McMurray, J. E., Pathman, D. E., Williams, E. S., . . . Rhodes, E. (2001). Predicting & preventing physician burnout: Results from the United States & Netherlands. *American Journal of Medicine, 111,* 170-175.

Lovell, B. L., Lee, R. T., & Frank, E. (2009). May I long experience the joy of healing: Professional & personal wellbeing among physicians from a Canadian province. *BMC Family Practice, 10*(18). Retrieved from http://www.biomedcentral.com/1471-2296/10/18/

Lynch, C., Chang, J., Ford, A., & Ibrahim (2007). Obese African-American womens' perspectives on weight loss & bariatric surgery. *Journal of General Internal Medicine, 22(7),* 908-914.

Ma, J., Urizar, G. G., Alehegn, T., & Stafford, R. S. (2004). Diet & physical activity counseling during ambulatory care visits in the United States. *Preventive Medicine, 39,* 815-822.

Ma, J., Xiao, L., & Stafford, R. S., (2009). Adult obesity & office-based quality of care in the United States. *Obesity, 17*(5), 1077-1085.

Macqueen, C. E., Brynes, A. E., & Frost, G. S. (1999). Treating obesity: Can the stages of change model help predict outcome measures? *Journal of Human Nutrition & Dietetics, 12(3),* 229-236.

Maddock, J. (2004). The relationship between obesity and the prevalence of fast food restaurants: State-level analysis. *American Journal of Health Promotion, 19*(2), 137-145.

Magliocca, K. R., Jabero, M. F., Alto, D. L., & Magliocca, J. F. (2005). Knowledge, beliefs, & attitudes of dental & dental hygiene students toward obesity. *Journal of Dental Education, 69,* 1332-1339.

Mann, T., Tomiyama, A. J., Westling, E., Lew, A. M., Samuels, B., & Chatman, J. (2007). Medicare's search for effective obesity treatments. *American Psychology, 62(3),* 220-223.

Marcus, B. H., & Simkin, L. R. (1993). The stages of exercise behavior. *Journal of Sports Medicine & Physical Fitness, 33,* 83-88.

Marcus, B. H., & Simkin, L. R. (1994). The transtheoretical model: Applications to exercise behavior. *Medicine & Science in Sports & Exercise, 26*(11), 1400.

Marshall, S. J., & Biddle, S. J. (2001). The transtheoretical model of behavior change: A meta-analysis of applications to physical activity & exercise. *Annals of Behavioral Medicine, 23,* 229-246.

Mavis, B. E., & Henry, R. E. (2002). Between a rock & a hard place: Finding a place for the OSCE in medical education. *Medical Education, 36,* 408-409.

Mazor, K. M., Zanetti, M. L., Alper, E. J., Hatem, D., Barrett, S.V., Metereko, V., . . . Pugnaire, M. P. (2007). Assessing professionalism in the context of an objective structured clinical examination: An in-depth study of the rating process. *Medical Education, 41,* 331-340.

McCauley, E. (1992). The role of efficacy cognitions in the prediction of exercise behavior in middle-aged adults. *Journal of Behavioral Medicine, 15*(1), 65-88.

McCauley, E. (1993). Self-efficacy & the maintenance of exercise participation in older adults. *Journal of Behavioral Medicine, 16,* 103-113.

McCauley, E., Lox, C., & Duncan, T. E. (1993). Long-term maintenance of exercise, self-efficacy, & physiological change in older adults. *Journal of Gerontology, 48(*4*),* 218-224.

McCrory, M. A., Suen, V. M., & Roberts, S. B. (2002). Biobehavioral influences on energy intake & adult weight gain. *Journal of Nutrition, 132*(12), 3830S-3834S.

McIlvain, H. E., Backer, E. L., Crabtree, B. F., & Lacy, N. (2002). Physician attitudes & the use of office-based activities for tobacco control. *Family Medicine, 34(*2*),* 114-119.

Mechanic, D. (2003). Physician discontent: Challenges & opportunities. *Journal of the American Medical Association, 290,* 941-946.

Meichenbaum, D., & Turk, D. C. (1987). *Facilitating treatment adherence: A practitioners' handbook.* New York, NY: Plenum.

Medicare (2011). Obesity screening and counseling. Retrieved January 20, 2012 from http://www.medicare.gov/navigation/manage-your-health/preventive-services/obesity-screening-and-counseling.aspx

Miller, W., Koceja, D., & Hamilton, E. (1997). A meta-analysis of the past 25 years of weight loss research using diet, exercise or diet plus exercise intervention. *International Journal of Obesity & Related Metabolic Disorders, 21,* 941-947.

Moreland, K., Wing, S., & Diez-Rioux, A. (2002). A contextual effect of the local environment on residents' diets: The arteriosclerosis risk in communities study. *American Journal of Public Health, 92,* 1761-1767.

Must, A., Spadano, J., Coakley, E. H., Field, A. E., Colditz, G., & Dietz, W. H. (1999). The disease burden associated with overweight & obesity. *Journal of the American Medical Association, 282,* 1523-1529.

National Heart, Lung, & Blood Institute Obesity Education Initiative. (1998). *Expert Panel on the identification, evaluation, & treatment of overweight & obesity in adults: Clinical guidelines on the identification, evaluation, & treatment of overweight & obesity in adults: Evidence report.* NIH Publication No: 98-4083: Bethesda, MD.

Nielson, S. J., & Popkin, B. M. (2003). Patterns & trends in food portion sizes, 1977-1998. *Journal of the American Medical Association, 289*(4), 450-453.

Norcross, J. C., Krebs, P. M., & Prochaska, J. O. (2011). Stages of change. *Journal of Clinical Psychology, 67(2),* 143-154.

New York University. (2011). Obesity Counseling & Prevention. Retrieved April 2, 2011 from http://prmeir.med.nyu.edu/research/research-medical-education-outcomes-romeo-unit/focus-areas/obesity-counseling-&-preventio

Ogden, C. L., Carroll, M. D., Curtin, L. R., McDowell, M. A., Tabak, C. J., & Flegal, K. M. (2006). Prevalence of overweight & obesity in the United States, 1999-2004. *Journal of the American Medical Association, 295*(13), 1549-1555.

Olshanksy, S. J., Passaro, D. J., & Hershow, R. C. (2005). A potential decline in life expectancy in the United States in the 21st century. *New England Journal of Medicine, 352,* 1138-1145.

Philipson, T. (2001). The world-wide growth in obesity: An economic research agenda. *Health Economics, 10,* 1-7.

Pinto, B. M., Goldstein, M. G., DePue, J. D., & Milan, F. B. (1998). Acceptability & feasibility of physician-based activity counseling. *American Journal of Preventive Medicine, 15,* 95-102.

Podl, T. R., Goodwin, M. A., Kikano, G. E., & Stange, K. C. (1999). Direct observation of exercise counseling in community family practice. *American Journal of Preventive Medicine, 17*(3), 207-10.

Poortinga, W. (2006). Perceptions of the environment, physical activity, & obesity. *Social Science Medicine, 63*(11), 2835-2846.

Potee, R. A., Gerber, A. J., & Ickovics, J. R. (1999). Medicine & motherhood: Shifting trends among female physicians from 1922 to 1999. *Academic Medicine, 74*(8), 911-919.

Powell, L. H., Calvin, J. E., 3rd, & Calvin, J. E., Jr. (2007). Effective obesity treatments. *American Psychology, 62*(3*),* 234-236.

Prentice, A. M., & Jebb, S. A. (1995). Obesity in Britain: Gluttony or sloth? *British Medical Journal, 311*(7002), 437.

Probert, C. S., Cahill, D. J., McCann, G. L., & Ben-Shlomo, Y. (2003). Traditional finals & OSCEs in predicting consultant & self-reported clinical skills of PRHOs: A pilot study. *Medical Education, 37,* 597-602.

Prochaska, J. O., DiClemente, C. C., & Norcross, J. C. (1992). In search of how people change: Applications to addictive behaviors. *American Psychology, 47,* 1102-1114.

Puhl, R. M., Andreyeva, T., & Brownell, K. D. (2008). Perceptions of weight discrimination: Prevalence & comparison to race & gender discrimination in America. *International Journal of Obesity (London), 32,* 992-1000.

Puhl, R. M., & Brownell, K. D. (2006). Contronting & coping with weight stigma: An investigation of overweight & obese adults. *Obesity, 14,* 1802-1815.

Puhl, R. M., & Heuer, C. A. (2009). The stigma of obesity: A review & update. *Obesity, 17,* 941-964.

Puhl, R. M., & Heuer, C. A. (2010). Obesity stigma: Important considerations for public health. *American Journal of Public Health, 100(*6*),* 1019-1028.

Redfern, S., Norman, I., Calman, L., Watson, R., & Murrels, T. (2002). Assessing competence to practice in nursing: A review of the literature. *Research Papers in Education, 17(*1*),* 51-77.

Ricci, J. A., & Chee, E. (2005). Lost productive time associated with excess weight in the U.S. workforce. *Journal of Occupational & Environmental Medicine, 47(*12*),* 1227-1234.

Riemsma, R. P., Pattenden, J., & Bridle, C. (2002). A systematic review of the effectiveness of interventions based on a stages-of-change approach to promote individual behavior change. *Health Technology Assessment, 6,* 26-35.

Roberts, J., & Brown, B. (1990). Testing the OSCE: A reliable measurement of clinical nursing skills- objective structured clinical examination (OSCE). *Canadian Journal of Nursing Research, 22(*1*),* 51-59.

Rosenberger, P. H., Henderson, K .E., Bell, R. L., & Grilo, C. M. (2007). Associations of weigh-based teasing history & current eating disorder features & psychological functioning in bariatric surgery patients. *Obesity Surgery, 17(*4*),* 470-477.

Roter, D., Hall, J., & Aoki, Y. (2002). Physician gender effects in medical communication: A meta-analytic review. *Journal of the American Medical Association, 288,* 756-764.

Ruelaz, A., Diefenbach, P., Simon, B., Lanto, A., Arterburn, D., & Shekelle, P. G. (2006). Perceived barriers to weight management in primary care- perspectives of patients & providers. *Journal of General Internal Medicine, 22(*4*),* 518-522.

Rutt, C. D., & Coleman, K. J. (2005). Examining the relationships among built environment, physical activity, and body mass index in El Paso, TX. *Preventive Medicine, 40*(6), 831-841.

Ryan, D. H., Espelande, M. A., Foster, G. D., Haffner, S. M., Hubbard, V. S., Johnson, K. C., . . . Yanovski, S. Z. (2003). Look AHEAD (Action for Health in Diabetes): Design & methods for a clinical trial of weight loss for the prevention of cardiovascular disease in type 2 diabetes. *Controlled Clinical Trials, 24(*5*),* 610-628.

Sadovsky, R. (2003). Management of obesity: An official recommendation. *American Family Physician, 67(*2*),* 379.

Sallis, J. F., King, A. C., Sirard, J. R., & Albright, C. L. (2007). Perceived environmental predictors of physical activity over 6 months in adults, activity counseling trial. *Health Psychology, 26,* 701.

Schwartz, M. B., Chambliss, H. O., Brownell, K. D., Blair, S. N., & Billington, C. (2003). Weight bias among health professionals specializing in obesity. *Obesity Research, 11*(9), 1033-1039.

Schwarzer, R., & Luszczynska, A. (n.d.). Perceived self-efficacy. Retrieved on April 2, 2011 from the National Cancer Institute's website: http://dccps.cancer.gov/brp/constructs/self-efficacy/self-efficacy.pdf

Sciammana, C. N., Tate, D. F., Lang, W., & Wing, R. R. (2000). Who reports receiving advice to lose weight? Results from a multistate survey. *Archives of Internal Medicine, 160(5),* 2334-2339.

Serdula, M. K., Khan, L. K., & Dietz, W. H. (2003). Weight loss counseling revisited. *Journal of the American Medical Association, 298(*14*),* 1747-1750.

Shannafelt, T. D., Bradley, K. A., Wipf, J. E., & Back, A. L. (2002). Burnout & self-reported patient care in an internal medicine residency program. *Annals of Internal Medicine, 136(5),* 358-367.

Shannafelt, T. D., Novotny, P., Johnson, M. E., Zhao, X., Steensma, D. P., Lacy, M. Q., . . . Sloan, J. (2005). The well-being & personal wellness promotion strategies of medical oncologists in the North Central Cancer Treatment Group. *Oncology, 68,* 23-32.

Shannafelt, T. D., Sloan, J. A., & Habermann, T. M. (2003). The wellbeing of physicians. *American Journal of Medicine, 114,* 513-519.

Shi, L. (2006). *Managing human resources in health care organizations*. Sudbury, MA: Jones & Bartlett.

Sloan, D. A., Donnelly, M. B., Schwartz, R. W., Felts, J. L., Blue, A. V., & Strodel, W. E. (1996). The use of objective structured clinical examination (OSCE) for evaluation & instruction in graduate medical education. *Journal of Surgical Research, 63(*1*),* 225-230.

Spencer, E. H., Frank, E., Elon, L. K., Hertzberg, V. S., Serdula, M. K., & Galuska, D. A. (2006). Predictors of nutrition counseling behaviors & attitudes in US medical students. *American Journal of Clinical Nutrition, 84(*3*),* 655-662.

Spickard, A., Gabbe, S. G., & Christensen, J. F. (2002). Mid-career burnout in generalist & specialist physicians. *Journal of the American Medical Association. 288*(12), 1447-1450.

Stafford, R. S., Farhatt, J. H., Misra, B., & Schoenfeld, D. A. (2000). National patterns of physician activities related to obesity management. *Archives of Family Medicine, 9(7),* 631-638.

Stange, K. C., Flocke, S. A., & Goodwin, M. A. (1998). Opportunistic preventive services delivery: Are time limitations & patient satisfaction barriers? *Journal of Family Practice, 46(5),* 419-424.

Stange, K. C., Zyzanski, S. J., Smith, T. F., Kelly, R., Langa, D., Flocke, S. A., & Jaen, C. R. (1998). How valid are medical records & patient questionnaires for physician profiling & health services research? A comparison with direct observation of patient visits. *Medical Care, 36*(6), 851-67.

Stunkard, A. J., Berkowitz, R. I., Stallings, V. A., & Schoeller, D. A. (1999). Energy intake, not energy output, is a determinant of body size in infants. *American Journal of Clinical Nutrition, 69*(3), 524-530.

Sturm, R. (2002). The effects of obesity, smoking & drinking on medical problems & costs. *Health Affairs, 21*(2), 245-253.

Sturm, R., & Datar, A. (2005). Body mass index in elementary school children, metropolitan area food prices and food outlet density. *Public Health, 119*(12), 1059-1068.

Svetkey, L. P., Stevens, V. J., Brantley, P. J., Appel, L. J., Hollis, J. F., Loria, C. M., . . . Aicher, K. (2008). Comparison of strategies for sustaining weight loss: The weight loss maintenance randomized controlled trial. *Journal of the American Medical Association, 299(*10*),* 1139-1148.

Teachman, B. A., & Brownell, K. D. (2001). Implicit anti-fat bias among health professionals: Is anyone immune? *International Journal of Obesity & Related Metabolic Disorders: Journal of the International Association for the Study of Obesity, 25*(10), 1525-1531.

Teachman, B. A., Gapinski, K. D., Brownell, K. D., Rawlins, M., & Jeyaram, S. (2003). Demonstrations of implicit anti-fat bias: The impact of providing causal information & evoking empathy. *Health Psychology, 22,* 66-78.

Tervo, R. C., Dimitrievich, E., Trujillo, A. L., Whittle, K., Redinius, P., & Wellman, L. (1997). The Objective Structured Clinical Examination (OSCE) in the clinical clerkship: An overview. *American Journal of Surgery, 50,* 153-156.

Thuan, J. F., & Avignon, A. (2005). Obesity management: Attitudes & practices of French general practitioners in a region of France. *International Journal of Obesity, 29,* 1100-1106.

Tyssen, R., Hem, E., Gude, T., Gronvold, N., Ekeburg, O., & Vaglum, P. (2009). Lower life satisfaction in physicians compared with a general population sample. *Social Psychiatry & Psychiatric Epidemiology, 44,* 47-54.

Tsai, A. G., & Wadden, T. A., (2005). Systematic review: An evaluation of major commercial weight loss programs in the United States. *Annals of Internal Medicine, 142(*1*),* 56-66.

Transportation Research Board-Institute of Medicine, 2005. Does the built environment influence physical activity? Examining the evidence. *National Academies Press;* Washington, D.C.

Urbani, S., Smith, M. R., Maddux, C. D., Smaby, M. H., Torres-Rivera, E., & Crews, J. (2002). Skills-based training & counseling self-efficacy. *Counselor Education & Supervision, 42*(2), 92-106.

Vazquez, G., Duval, S., Jacobs, D. R., & Silventoinen, K. (2007). Comparison of body mass index, waist circumference, & waist/hip ratio in predicting incident diabetes: A meta-analysis. *Epidemiology Review, 29,* 115-128.

Vickers, K. S., Kircher, K. J., Smith, M. D., Petersen, L. R., & Rasmussen, N. H. (2007). Health behavior counseling in primary care: Provider-reported rate & confidence. *Family Medicine, 39(*10*),* 730-735.

Vu, N. V., & Barrows, H. S. (1994). Use of standardized patients in clinical assessments: Recent developments and measurement findings. *Educational Researcher, 23,* 23-30.

Wadden, T. A., Anderson, D. A., Foster, G. D., Bennett, A., Steinberg, C., & Sarwer, D. B. (2000). Obese women's perceptions of their physician's weight management attitudes & practices. *Archives of Family Medicine, 9,* 854-860.

Wadden, T. A., Butryn, M. L., & Byrne, K. J. (2004). Efficacy of lifestyle modification for long-term weight control. *Obesity Research, 12,* 151S-162S.

Wadden, T. A., Butryn, M. L., & Wilson, C. (2007 Lifestyle modification for the management of obesity. *Gatroenterology, 132(*6*),* 2226-2238.

Wadden, T. A., Sarwer, D. B., Fabricatore, A. N., Jones, L., Stack, R., & Williams, N. S. (2007). Psychosocial & behavioral status of patients undergoing bariatric surgery: What to expect before & after surgery. *Medical Clinics of North America, 91,* 451-469.

Wallace, J. E., & Lemaire, J. (2007). On physician well being- you'll get by with a little help from your friends. *Social Science Medicine, 64,* 2565-2577.

Wallace, J. E., & Lemaire, J., & Ghali, W. A. (2009). Physician wellness: A missing quality indicator. *The Lancet, 374* (9702), 1714-1721.

Walsh, M., Bailey, P. H., & Koren, I. (2009). Objective structured clinical evaluation of clinical competence: An integrative review. *Journal of Advanced Nursing, 65*(8), 1584-1595.

Wang, Y., & Beydoun, M. A. (2007). The obesity epidemic in the United States- gender, age, socioeconomic, racial/ethnic, & geographic characteristics: A systematic review & meta-regression analysis. *Epidemiology Review, 29,* 6-28.

Wardle, J., & Johnson, F. (2002). Weight & dieting: Examining levels of weight concern in British adults. *International Journal of Obesity & Related Metabolic Disorders, 26(*8*),* 1144-1149.

Wear, D., Aultman, J. M., Varley, J. D., & Zarconi, J. (2006). Making fun of patients: Medical students' perceptions & use of derogatory & cynical humor in clinical settings. *Academic Medicine, 81,* 454-462.

Wee, C. C., McCarthy, E. P., Davis, R. B., & Phillips, R. S. (1999). Physician counseling about exercise. *Journal of the American Medical Association, 282(*16*),* 1583-8.

Weinsier, R. L., Hunter, G. R., Heini, A. F., Goran, M. I. & Sell, S. M. (1998). The etiology of obesity: Relative contribution of metabolic factors, diet, & physical activity. *The American Journal of Medicine, 105*(2), 145-150.

Whitlock, E.P., Orleans, C.T., Pender, N., & Allan, J. (2002). Evaluating primary care behavioral counseling interventions: An evidence-based approach. *American Journal of Preventive Medicine, 22*(4), 267-284.

Wigton, R. S., & McGaghie, W. C. (2001). The effect of obesity on medical students' approaches to patients with abdominal pain. *Journal of General Internal Medicine, 16,* 262-265.

Williams, D. M., Lewis, B. A., Dunsiger, S., Whiteley, J. A., Pap&onatos, G. D., Napolitano, M. A., . . . Marcus, B. H. (2008). Comparing psychosocial predictors of physical activity adoption maintenance. *Annals of Behavioral Medicine, 36(*2*),* 186-194.

Williams, E. S., & Skinner, A. C. (2003). Outcomes of physician job satisfaction: A narrative review, implications & directions for future research. *Health Care Management Review, 28,* 119-140.

Wing, R. R., & Phelan, S. (2005). Long-term weight loss maintenance. *American Journal of Clinical Nutrition, 82(*1*),* 222S-225S.

Wolff, M. S., Rhodes, E. T., & Ludwig, D. S. (2010). Training in childhood obesity management in the United States: A survey of pediatric, internal medicine-pediatrics & family medicine residency program directors. *BMC Medical Education, 10(*18*),* 1472-6920.

Woodley, F. R., Kane, R. L., Hughes, C. C., & Wright, D. D. (1978). The effects of doctor-patient communication & outcome of care. *Social Science Medicine, 12,* 123-128.

Woodwell, D. A. (1997). National ambulatory medical care survey: 1996 summary. Advance data from vital & health statistics. No. 295. National Center for Health Statistics. Hyattsville, MD.

Yaskin, J., Toner, R. W., & Goldfarb, N. (2008). Obesity management interventions: A review of the evidence. *Population Health Management, 12*(6), 305-316.

Zabar, S., Kalet, A. L., Hanley, K., Kachur, E. K., Stevens, D., Schwartz, M. D., . . . Schwartz, M. (2004). Moving beyond assessing clinical competence: The added value of objective structured clinical exams for residency programs. *Journal of General Internal Medicine, 19* (Suppl.1)*,* 181.

Zhang, Q., & Wang, Y. (2004). Socioeconomic inequality of obesity in the United States: Do gender, age, and ethnicity matter? *Social Science & Medicine, 58*(6), 1171-1180.

Zimmerman, G. L., Olsen, C. G., & Bosworth, M. F. (2000). A 'stages of change' approach to helping patients change behavior. *American Family Physician, 61,* 1409-1416.

Appendix A

Survey on Weight Management Counseling

Survey used with written permission of Sheira Schlair, 2012

Weight Management Counseling

1. Please indicate to what extent you agree or disagree with the following statements:

	Strongly Disagree	Disagree Somewhat	Agree Somewhat	Strongly Agree
Most obese patients will not lose a significant amount of weight	◯	◯	◯	◯
I have been successful in treating patients for obesity	◯	◯	◯	◯
The best role for a physician in weight management is referral not treatment	◯	◯	◯	◯
Most obese patients could reach a normal weight if motivated to do so	◯	◯	◯	◯
Obesity is primarily caused by behavioral factors like overeating and physical inactivity	◯	◯	◯	◯
Obesity is primarily caused by genetic factors	◯	◯	◯	◯
Obesity is primarily caused by a lack of willpower	◯	◯	◯	◯
Treating obese patients is very frustrating	◯	◯	◯	◯
I feel qualified to treat obese patients	◯	◯	◯	◯
I have negative reactions towards the appearance of obese patients	◯	◯	◯	◯
My patients' acute health problems take precedence over weight loss counseling	◯	◯	◯	◯
I am uncomfortable with counseling my obese patients about losing weight	◯	◯	◯	◯
Obesity is a treatable condition	◯	◯	◯	◯
Physicians should be role models by maintaining a normal weight	◯	◯	◯	◯
Most obese patients are well aware of the health risks of obesity	◯	◯	◯	◯
In most cases, obese patients' health improves when physicians counsel them about weight management	◯	◯	◯	◯
Most obese patients will reduce their weight to a healthy range when physicians counsel them about weight management	◯	◯	◯	◯
Patients are more likely to lose weight when their physician speaks to them about obesity and weight management	◯	◯	◯	◯
I feel competent in prescribing weight loss programs for obese patients	◯	◯	◯	◯
It's easier to screen for obesity than perform weight management counseling	◯	◯	◯	◯
Most obese patients will not lose a significant amount of weight.	◯	◯	◯	◯
I feel uncomfortable when examining an obese patient.	◯	◯	◯	◯
It's difficult for me to feel empathy for an obese patient.	◯	◯	◯	◯
Obesity is primarily caused by behavioral factors.	◯	◯	◯	◯

Weight Management Counseling (continued)

2. Please choose the response which best characterizes your CURRENT ABILITY TO PERFORM each of the following tasks:

	Not at all able to perform	Somewhat able to perform	Able to perform adequately	Able to perform well
Ascertain each patient's readiness and ability to work on weight loss according to health beliefs and stage of behavior change	◯	◯	◯	◯
Assess current level of physical activity and provide guidance for setting physical activity goals for optimal health	◯	◯	◯	◯
Assess diet for common unhealthy behaviors associated with obesity (e.g., high intake of sweetened beverages, nutritional quality of snacks, frequent meals from fast food restaurants, etc)	◯	◯	◯	◯
Assist patient in setting realistic goals for weight loss based on making permanent lifestyle changes	◯	◯	◯	◯
Collaborate with Registered Dieticians and refer to community nutrition resources when appropriate	◯	◯	◯	◯
Make effective referrals to weight management programs	◯	◯	◯	◯
Determine body mass index (BMI) from weight and height measurements	◯	◯	◯	◯
Discuss the effect of obesity on present and future health and personalize risk to each patient	◯	◯	◯	◯
Prescribe plan for exercise/physical activity	◯	◯	◯	◯
Provide brief counseling intervention to help patient lose weight	◯	◯	◯	◯
Recognize and screen for common psychosocial problems in obese individuals including depression, emotional eating, binge eating	◯	◯	◯	◯
Respond to a patient's question regarding treatment options including behavior change, medications, and surgery	◯	◯	◯	◯
Take a targeted history and conduct a physical examination to identify common co-morbidities (e.g., arthritis, diabetes, PCOS, sleep apnea, cardiovascular disease) in an obese patient	◯	◯	◯	◯
Use 24-hour recall, food record, or food frequency to obtain diet history	◯	◯	◯	◯
Use motivational interviewing to change behavior	◯	◯	◯	◯
Recognize and refer patients with eating disorders	◯	◯	◯	◯
Recognize which patients should be sent for bariatric surgery	◯	◯	◯	◯
Counsel patients about risks and benefits of different procedures for weight loss surgery	◯	◯	◯	◯

Weight Management Counseling (continued)

3. For each item please indicate how much you KNOW about counseling patients for each of the following methods to help people lose weight:

	Don't know anything	I know a little bit about	I know something about	I know alot about
Role of exercise in health promotion/disease prevention	◯	◯	◯	◯
Selecting an appropriate exercise/physical activity	◯	◯	◯	◯
Referring to appropriate fitness/exercise specialists	◯	◯	◯	◯
Exercising safely and reducing risk of injury	◯	◯	◯	◯
Optimal diet intake of calories, fat, cholesterol, complex carbohydrates, fiber, sodium, and calcium	◯	◯	◯	◯
Diet changes to achieve and maintain desirable weight	◯	◯	◯	◯
Diet changes to decrease fat and cholesterol intake	◯	◯	◯	◯
Appropriate referrals to dieticians or nutritionists	◯	◯	◯	◯
Food selection and preparation advice	◯	◯	◯	◯

4. Please indicate how much you agree or disagree with each of the following statements about your clinical practice over the next few months:

	Strongly Disagree	Disagree Somewhat	Agree Somewhat	Strongly Agree
I will be able to effectively screen all my patients for obesity	◯	◯	◯	◯
I will be able to effectively advise all my obese patients to lose weight	◯	◯	◯	◯
I will be able to effectively assess my obese patients' readiness to lose weight	◯	◯	◯	◯
I will be able to effectively help my obese patients set realistic goals for weight loss	◯	◯	◯	◯
I will be able to effectively use motivational interviewing and brief counseling techniques to help my obese patients' manage their weight	◯	◯	◯	◯
I will be able to effectively refer my obese patients to appropriate programs and treatment	◯	◯	◯	◯
When I counsel my obese patients about weight management, they will lose weight	◯	◯	◯	◯
When I counsel my obese patients about weight management, they will improve their food and exercise habits	◯	◯	◯	◯
When I counsel my obese patients about weight management, it will lead to improved self-confidence and body image	◯	◯	◯	◯

5. We'd like to hear what you think about the effect of your own lifestyle practices on establishing and maintaining your credibility as an obesity counselor.

	Strongly Disagree	Disagree Somewhat	Agree Somewhat	Strongly Agree
My patients will find me to be a more credible and effective obesity counselor if they know that I eat a healthy diet	◯	◯	◯	◯
My patients will find me to be a more credible and effective obesity counselor if they know that I exercise and stay fit	◯	◯	◯	◯
My patients will find me to be a more credible and effective obesity counselor if they know that I maintain a healthy weight	◯	◯	◯	◯

Personal Weight Management Counseling

Now we'll be shifting focus to your own weight management -- we're asking these questions to better understand relationships between the professional and the personal.

6. Please tell us where you currently are on the continuum of weight management. Choose the ONE response that best describes you.

	Please choose the SINGLE best response
I don't need to lose weight because my weight is desirable	◯
I need to gain weight because I am underweight	◯
I haven't given the matter of losing weight any thought at all	◯
I think about losing weight from time to time and then put the matter out of my mind	◯
I keep meaning to lose weight but don't actually get around to it	◯
From time to time I go on a diet but at other times I go back to eating what I want	◯
I have been consciously trying to lose weight for the last 6 weeks	◯
I have been consciously trying to lose weight for longer than the last 6 weeks	◯
I've lost weight in the past and am consciously working to keep it off	◯
I don't feel comfortable answering this question	◯

7. Please indicate how much you agree or disagree with each of the following statements:

	Strongly disagree	Disagree somewhat	Agree somewhat	Strongly agree
If I wanted to, it would be difficult for me to lose weight in the next month	◯	◯	◯	◯
I intend to lose weight in the next month	◯	◯	◯	◯

8. Please tell us where you currently are on the continuum of exercise practice. Choose the ONE response that best describes you.

	Please choose the SINGLE best response
I haven't given the matter of having a regular exercise regimen any thought at all	◯
I think about starting a regular exercise regimen from time to time and then put the matter out of my mind	◯
I keep meaning to exercise but don't actually get around to it	◯
From time to time I start an exercise regimen but at other times I go back to my regular habits	◯
I have been consciously trying to adhere to a regular exercise regimen for the last 6 weeks	◯
I have been consciously trying to adhere to a regular exercise regimen for longer than the last 6 weeks	◯
I've had a regular exercise regimen in the past and am consciously working to maintain this regimen	◯
I don't feel comfortable answering this question	◯

Personal Weight Management (counseling)

9. Please indicate how much you agree or disagree with each of the following statements:

	Strongly disagree	Disagree somewhat	Agree somewhat	Strongly agree
If I wanted to, it would be difficult for me to exercise regularly in the next month	◯	◯	◯	◯
I intend to exercise regularly in the next month	◯	◯	◯	◯

10. Please tell us how confident you are in your ability to do each of the following in the next four weeks:

	Not at all confident	Only a little bit confident	Somewhat confident	Very confident
I can avoid overeating in situations where I sometimes eat too much (e.g., at night, when I'm down, at holiday events)	◯	◯	◯	◯
I can vigorously exercise (+30 mins) regularly (at least 3x/week)	◯	◯	◯	◯
I can read food labels and make healthy food choices	◯	◯	◯	◯
I can eat several small, healthy meals a day	◯	◯	◯	◯
I can control my eating	◯	◯	◯	◯

11. Please indicate how much you agree or disagree with each of the following statements:

	Strongly Disagree	Disagree Somewhat	Agree Somewhat	Strongly Agree
I consistently avoid eating high fat foods	◯	◯	◯	◯
Food is one of my main coping mechanisms	◯	◯	◯	◯
I eat 5 or more daily servings of fruits and vegetables	◯	◯	◯	◯
My diet was much better before I started residency	◯	◯	◯	◯
Food is an important part of my culture	◯	◯	◯	◯
I consume an adequate amount of protein	◯	◯	◯	◯
I meet recommended daily allowances of vitamins and minerals	◯	◯	◯	◯
I've had problems with eating in the past	◯	◯	◯	◯
Food is an important part of my family life	◯	◯	◯	◯
I vigorously exercise at least 3x/week consistently	◯	◯	◯	◯
I've been obese (>30% above ideal body weight) in the past	◯	◯	◯	◯

12. Thinking about diet and exercise generally, what do you do to try and stay healthy? What gets in the way and what helps?

Personal Weight Management (continued)

13. Please choose which of the following categories best describes your family members:

	Underweight	Normal weight	Overweight	Obese	Morbidly obese	Don't Know/Not Applicable
Mother	◯	◯	◯	◯	◯	◯
Father	◯	◯	◯	◯	◯	◯
Oldest Sibling	◯	◯	◯	◯	◯	◯

14. What role(s) do(es) food serve in your life?

15. Do you know (have you ever calculated or been told) your own BMI?

◯ No ◯ Yes

16. Health status:
How would you rate your health?

◯ Excellent
◯ Very good
◯ Good
◯ Fair
◯ Poor

17. Please rate how true each of the following statements is for you:

	Not true at all	Only a little true	Somewhat true	Very true
I haven't given the matter of my medical literature reading habits any thought at all	◯	◯	◯	◯
I don't need to change my medical literature reading habits because my knowledge is sufficient	◯	◯	◯	◯
I don't need to change my medical literature reading habits because I learn sufficiently while on the wards/in clinic	◯	◯	◯	◯
I don't need to change my medical literature reading habits because I read regularly in a problem-oriented fashion	◯	◯	◯	◯
I think about my medical literature reading habits from time to time and then put the matter out of my mind	◯	◯	◯	◯
I keep meaning to read more regularly but don't actually get around to it	◯	◯	◯	◯
From time to time I read medical literature regularly in a problem-oriented fashion but at other times I go back to not reading at all	◯	◯	◯	◯
I have been consciously trying to change my medical literature reading habits for the last 6 weeks	◯	◯	◯	◯
I have been consciously trying to change my medical literature reading habits for longer than the last 6 weeks	◯	◯	◯	◯
I've regularly read medical literature in a problem-based fashion in the past and am consciously working to maintain this habit	◯	◯	◯	◯

18. In the last month, how often on average did you read medical literature?

	Daily	Several times a week	About once a week	Every few weeks	About once a month	Less than once a month	N/A (not on this rotation)
Medical wards	◯	◯	◯	◯	◯	◯	◯
Ambulatory block	◯	◯	◯	◯	◯	◯	◯

19. What generally prompts you to turn to the medical literature?

20. When do you generally find an opportunity to read medical literature?

21. Which resources do you tend to use for directed, case-based reading of medical literature? (Check all that apply)

- ☐ NEJM
- ☐ Journal Watch
- ☐ Archives of Internal Medicine
- ☐ Subspecialty journal
- ☐ Up To Date
- ☐ Journal of General Internal Medicine
- ☐ Harrison's or other textbook
- ☐ Board-review series _____
- ☐ Other _____

22. What rotation are you on right now?

* **23. Please provide your parents' initials so that we may confidentially track your responses over time.**

Mother's initials at birth:

Father's initials at birth:

That's it! You're done.
Thanks so much for taking the time to complete this survey.

Appendix B

Obesity Counseling-Related Communication OSCE

OSCE used with written permission by NYU School of Medicine, 2012

Nutrition Counseling
Station 1

Resident Instructions

Patient Information	Patient Name: Luciana Ferreira Age: 43 y.o. woman
The Scenario	You are seeing Luciana Ferreira, a 43 year-old woman for the **second time.** During her first visit, you did a full history and physical. You both agreed to that she needs to lose weight and planned to discuss this further at the follow-up appointment which is today. She is a healthy woman with no complaints who does not take any medicines. Her family history is significant for her mother having diabetes. Last visit, you also obtained a weight history. She was always thin until she arrived in the US from Brazil and started work as a live-in nanny. Over the past 8 years since she moved to the US, she's gained 95 lbs. **You gave her a 24 hour dietary recall form to fill out in the waiting room** **She is 62 inches and weighs 225 lbs (BMI =41).** **Her blood pressure is 115/75.** **She has striae on her breasts and abdomen.** **Her physical exam is otherwise normal.**
Your Tasks	**Counsel patient about weight loss, diet, and exercise**

NYU School of Medicine
Primary Care OSCE
3/14/08

STANDARDIZED PATIENT INSTRUCTIONS

The Scenario	Your name is Luciana Ferreira and you are a 43 year old woman with no health problems except that you have been gaining weight over the past 8 years. You decided that it was time to go the doctor to see what to do about your weight so during your first visit with him/her, you explained that you really want to lose weight. During that visit, you had a physical examination and agreed that you would schedule a second visit to further discuss weight loss. You have been feeling embarrassed about your weight and don't really understand why you have been gaining weight. You have been thinking about going on a diet but do not know where to start. You just got your Green Card and want to get back to your original weight in the next 6 months so that you can look good when you visit your family in Brazil this coming fall.
Weight History	When you lived in Brazil, your relatives often joked with you that you were too skinny. You weighed about 130 lbs. You had your first child at age 28 in Brazil (now 15 years old-lives with grandparents in Brazil). At age 35, you came to the United States and weighed around 130lbs. Now you weigh 225 lbs. You used to do exercise when you lived in Brazil, dancing twice weekly all year to prepare for carnival celebrations. Now your only activity is taking the kids places and playing with them. You have not tried to formally lose weight in the past 8 years but have thought about it often..
Personality/ Communication Style	A little shy but willing to answer questions openly
Current Life Situation	You have been a nanny since coming to the United States. You have been with this family for 3 years. They have three children, a

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Primary Care OSCE
3/14/08

	2 year old, 7 year old, and a 10 year old. Your 15-year old daughter has been raised by your parents in Brazil. You are not in contact with the father of your daughter and are currently single. You have a bunch of Brazilian friends who you enjoy spending free time with.	
Past Med History	No history of significant illness	
Family History	Your mother has always been very heavy (over 215 lbs but still gaining weight) and has had diabetes for 10 years. Her doctors in Brazil tell her that she may need to go on insulin soon.	
Life-Style History	**Smoking**	Never
	Alcohol/ Drugs	Rare drink at parties, never more than one. No drugs.
	Nutrition	6am: Wake up and prepare coffee with cream and 2 tablespoons of sugar Get children up 7:30am**: Breakfast:** Eat what they eat. Omelette with 2-3 eggs and American cheese Orange Juice—1-2 glasses Bagel with butter 8:30am Take 2 of the kids to school and is with the 2 year old all day 10am: **Snack**: pretzels **12noon: Lunch** for 2 year old: Eat what the child eats Mac n Cheese— whole plate, 3 chicken fingers, apple, cookie for dessert. 16 oz of Snapple 3:30pm Pick up kids at school **Snack**: Ritz crackers and Poly-O string cheese (sometimes have fruit as snack but not today) **8pm Dinner** (Sometimes order Kung Pao chicken or Sesame chicken and rice from local Chinese, rarely cooks) Last night, parents worked late so ordered pizza for the kids. Had 2 large slices of pepperoni pizza, garlic bread, and small salad with Italian dressing.

Luciana Ferreira page 2

11pm: Late night snack in front of TV: small bowl of ice cream.

If you had a particularly stressful day or cannot sleep at night, you sometimes eat sweets at night such as cookies. You are not proud of this and don't talk about this very often. You are not depressed but sometimes miss your daughter and are lonely. Your friends are a great support.

In Brazil, you used to have a very different diet and lifestyle: You'd eat a hot porridge for breakfast, rice and beans at lunch and dinner, and beef or vegetable stew. More vegetables, less snacks. You practiced all year to dance at carnival. You swam regularly at beach. Your waitressing job kept you quite active as well.

Exercise

You don't exercise regularly. You used to walk the kids to school and the playground but the family just got a car. . Your daily activity consists of walking kids to/from school **(about 10 blocks each way, twice per day)** and playing with kids at home. **This exercise is mild-you can easily talk and sing while you do it.** You're concerned about finances and don't think that you have enough money to join a gym. You're also concerned that you don't have the time to exercise with your live-in nanny position.

Timing/ Approach to Interview	**Beginning/Readiness for change:** You're comfortable talking about your diet/weight if the resident is respectful. You are very

eager to lose weight and have recently thought about it a lot since your last visit and since your mother's diabetes has worsened. You also cannot believe how much weight you have gained in the past 8 years.

However, you don't know the best way to lose weight. While you understand that your diet has changed for the worse since coming to the USA, you don't realize that the foods you are eating (which are the same as the family's with which you're living) have a lot more calories. Your friend tried the Atkins diet and another friend tried Herbalife pills but none of them kept any weight off. You initially hope the doctor will give you an easy solution to lose weight such as a pill or a diet shake but quickly come to the realization that diet is more important..

--If asked on a scale of 1-10 how important is it for you to lose weight, you say a 9 (it has become much more important to you over the past 6 months but sending home money for your daughter is the only thing that is a 10 in your life)

--If asked on a scale of 1-10 how confident you are about losing weight, you say a 5 (because you have never really tried to lose weight and don't know if you can really make changes when living in someone else's house).

You want to lose 50-100lbs in the next 3 months but are open to suggestions to set more realistic goals. You are a little disappointed by a suggestion to lose weight slowly (no more than 1-2 pounds per week) and to start with 5-10% weight loss (less than 20 lbs) over 6 months but are easily convinced if it is explained to you that permanent lifestyle changes are important for health reasons and that any diet is associated with weight regain over the long term.

If asked about the health risks of being overweight, you're aware that being overweight and your family history predisposes you to diabetes.

If the resident makes suggestions on how to improve your diet and/or exercise without assessing your current behavior and situation, you are resistant/skeptical about how the suggested changes could fit into your life. For example, if you are told to exercise more without finding out what you are doing, you say that you don't have time and/or complain that gyms are too expensive. . If you are told to eat more vegetables before having your diet assessed, you complain that the family doesn't like

them, that you don't have time to prepare lunch, etc. However, if the resident adequately assesses your diet, exercise, current goals, and motivation, you are very open to changes.

Middle/Counseling on behavior change:

Telling the resident the specifics about your diet (during the 24 hour recall) has started to make you realize that you do indeed eat often. However, you are not that aware that your meals are high in fat and calories and low in fruits, vegetables, and whole grains.

You also don't realize that soda, Snapple and juice have a lot of calories. If the resident explains that these have a lot of calories, you are willing to consider substituting them for water or diet soda.

You also never realized how few vegetables and fruits you eat each day unless it is highlighted by the resident.

If asked how you would feel about making changes in your diet, you respond more favorably if the changes are specific, manageable, and fit in with your lifestyle demands. You are open to small changes such as trying a healthy breakfast cereal or having a green salad with dinner (you like fruits and vegetables, they just aren't always available). You are open to buying your own food or asking the family to stock healthier items. You're especially responsive if you are asked yourself about how to improve your diet --you might include eating fewer or healthier snacks, being careful about eating a lot after dinner, eating more vegetables.

You are resistant to increasing your exercise because you feel that you don't have enough money or time to join a gym and don't realize that walking can be a good form of exercise. You are agreeable with the suggestion of walking the children to school on nice days (it's about a 10-15 minute walk each way). You also are feeling encouraged if it is mentioned that exercise may decrease stress (which could help you sleep better and stop eating sweets at night).

If you're given a laundry list of more than 5 things to change, you're more reluctant and you give vague answers, such "OK, I guess" because it will seem overwhelming, especially with your

job and family. You respond better if you are given some suggestions and then asked to choose specific goals which could include (pick 2-5):

1. Sweetened beverages: switching to water, diet soda. Having fruit instead of juice;
2. Eating a healthy breakfast—cereal, yogurt, egg whites
3. walking 20-30 minutes extra per day
4. Increasing vegetables and fruit in diet
5. Healthier snacks
6. decreasing fat in diet by using low fat cheese, using egg whites
7. decreasing portion sizes
8. keeping a food diary to better understand what you are eating
9. Other reasonable, specific dietary or exercise changes
10. going to weight watchers or a weight management program

Addressing Barriers:
If asked about support systems, the mother of the children you care for has expressed concern over your weight gain and is supportive. She may be open to having both you and her children eat more healthfully. You also can enlist the support of a couple of your Brazilian friends who live in the neighborhood—for instance, one of your friend also cares for children and could walk with you.

Time for doing your own shopping-you sometimes do the shopping based on lists the mother gives you. You could suggest changes and help pick healthier items.

End: You'd be willing to commit to 1-5 specific goals focused on achieving modest weight loss such as the diet/exercise/behavior change goals listed above. You're happy to know that there are small, specific changes you can make without completely changing your lifestyle or disrupting your employer's family's life and needs. You are also reassured by the fact that your physician is taking an active role.

Appendix C

Overall Communication OSCE

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LABEL ID #	**Nutrition** SP Name: Debbie Feldman

COMMUNICATION	Not Done	Partially Done	Well Done
Information Gathering			
Elicited your responses using *appropriate questions:* ▪ No leading questions ▪ Only one question at a time	Impeded story by asking leading/judgmental questions AND more than one question at a time	Used leading/judgmental questions OR asked more than one question at a time	Asked questions one at a time without leading patient in their responses
Clarified information by repeating to make sure he/she understood you on an ongoing basis	Did not clarify (did not repeat back to you the information you provided)	Repeated information you provided but did not give you a chance to indicate if accurate	Repeated information and directly invited you to indicate whether accurate
Allowed you to talk **without interrupting**	Interrupted	Did not interrupt directly BUT cut responses short by not giving enough time	Did not interrupt AND allowed time to express thoughts fully
Relationship Development			
Communicated concern or intention to help	Did not communicate intention to help/concern via words or actions	Words OR actions conveyed intention to help/concern	Actions AND words conveyed intention to help/concern
Non-verbal behavior enriched communication (e.g., eye contact, posture)	Non-verbal behavior was negative OR interfered with communication	Non-verbal behavior demonstrated attentiveness	Non-verbal behavior facilitated effective communication
Acknowledged emotions/feelings appropriately	DID NOT acknowledge emotions/feelings	Acknowledged emotions/feelings	Acknowledged & responded to emotions/feelings in ways that made you feel better
Was **accepting/non-judgmental**	Made judgmental comments OR facial expressions	Did not express judgment but did not demonstrate respect	Made comments and expressions that demonstrated respect
Used words you understood and/or explained **jargon**	Consistently used jargon WITHOUT further explanation	Sometimes used jargon AND did not explain it	Explained jargon when used, OR avoided jargon completely
Education and Counseling			
Asked questions to see what you understood (checked your understanding)	Did not check for understanding	Asked if patient had any questions BUT did not check for understanding	Assessed understanding by checking in throughout the encounter
Provided **clear explanations**/information	Gave confusing OR no explanations which made it impossible to understand information	Information was somewhat clear BUT still led to some difficulty in understanding	Provided small bits of information at a time AND summarized to ensure understanding
Collaborated with you in identifying possible next steps/plan	Told patient next steps/plan	Told patient next steps THEN asked patient's views	Told patient options, THEN mutually developed a plan of action

	Not Done	Partially Done	Well Done	*Comments*
Case Specific Skills Demonstrated				
Assessed current diet using 24 hour recall or typical daily diet	Did not ask for/look at food record	Looked at food record but did not clarify or expand upon what was written	Clarified at least 2 items—i.e. portion sizes, beverages	

LABEL ID #		Nutrition SP Name: Debbie Feldman	

Assessed motivation or confidence	Did not ask about confidence and/or motivation to lose weight	Asked general questions about how motivated and/or I felt	Asked me to quantify motivation and/or confidence on a scale of 1-10	
Assessed level of exercise	Did not assess.	Discussed what was written on diary but did not have you clarify/elaborate further	Elicited more specific information about frequency, intensity, type and time spent	
Counsels me about my weight-loss goal	Does not elicit your weight loss goal	Elicits your eight loss goal but doesn't suggest specific realistic alternative goal.	Counsels patient that 5-10% (or 1-2lbs/wk) weight loss is more realistic goal	
Discusses specific diet, exercise and/or self monitoring goals	Did not set goals	Gives patient laundry list of items to change and/or makes vague statements such as "eat less fat"	Sets 1-5 specific behavior change goals individualized to the patient, including: 1. Less sweetened beverages 2. Healthy breakfast 3. Walking 20 mins/day 4. More fruit & veggies 5. Sub healthy snacks 6. Reduce fats: low fat cheese, egg whites, 7. Smaller portions 8. Food diary 9. Manage stress 10. Weight Watchers or similar program Any other reasonable, specific dietary or exercise changes	
Works with you to set diet, exercise and/or self monitoring goals	Does not ask about personal behavior change goals	Does ask about personal goals but does not set a mutual behavior change plan	Asks about personal goals and incorporates them into a mutual behavior change plan	
Elicits and addresses barriers to exercise and diet change	Did not elicit barriers	Elicits barriers but does not adequately discuss how to overcome	Addressed/incorporated lifestyle and exercise barriers in goal-setting with patient	
Made you want to change your eating, exercise and/or self monitoring behavior	Did not motivate me	Helped me feel somewhat motivated to change	Helped me feel quite motivated to change	
Made you feel like you would be able to change your eating, exercise	Did not make me feel confident	Helped me feel somewhat confident I could change	Helped me feel quite confident that I could change	

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and/or self-monitoring behavior				
Encourage frequent (w/in 1 month) follow up to monitor progress/goals	Does not discuss follow-up	Follow up in greater than 1 month or vague about need for/frequency of follow up	Encourage follow up with MD within 1 month **AND/OR** referral to weight management program, weight watchers, or nutritionist.	

PATIENT SATISFACTION	Not Done	Partially Done	Well Done
The Doctor....			
Fully explored my **experience of the problem** (concerns, symptoms, functions, feelings, ideas)	Did not explore	Explored some aspects of my experience but not all	Fully explored major aspects of my experience
Explored my **expectations about visit** (problem, solution)	Did not explore	Partially explored my expectations	Fully explored my expectations
Took a **personal interest** in me; treated me as a **person**	Did not see me as a person	Viewed me as a person, but did not take personal interest	Took an active personal interest in me
Gave me **enough information**	I was not given any where close to enough information	I was given some information but I still had ?s	I was given all the information I wanted/needed

PATIENT ACTIVATION	Not Done	Partially Done	Well Done
Feelings at End of Encounter....			
This encounter helped me to **understand the nature and causes** of my problem	Did not help me understand	Helped me understand some things but not everything	Helped me fully understand what happened
After the encounter, I **knew and understood the different medical treatment options available**	I did not find out about treatment options	I found out about some of the treatment options	I found out about all of the relevant treatment options
This visit made me feel **confident I can keep my problem interfering** too much with my life	Did not affect my confidence	Helped me feel more confident that I could keep my health problem from interfering w/ life	Helped me feel very confident that I could keep my health problem from interfering w/ life
Because of this encounter, **I am confident I can figure out solutions if something new** comes up	Did not affect my confidence	Helped me feel somewhat confident that I could deal with new issues	Helped me feel quite confident that I could deal with new issues

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Would you recommend this doctor to a friend or family member for his/her....?

Communication Skills	Not Recommend	Recommend with Reservations	Recommend	Highly Recommend
Medical Competence	Not Recommend	Recommend with Reservations	Recommend	Highly Recommend

Overall, how would you rate this doctor's professionalism?

Professionalism	**Not at All Professional** *Most of the following* • Disrespectful • Not compassionate • Not accountable • Not sensitive/responsive to my needs/situation	**Somewhat Professional** *A few of the following* • Disrespectful • Not compassionate • Not accountable • Not sensitive/responsive to my needs/situation	**Professional** • Respectful • Compassionate • Accountable • Sensitive/responsive to my needs/situation	**Very Professional** • Very Respectful • Very compassionate • Not accountable • Not sensitive/responsive to my needs/situation

SPECIFIC (< 1 min) FEEDBACK:
COMMENTS (additional remarks, factors affecting your score, impressions not captured by form etc):

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Appendix D

Frequencies

Physicians' Attitudes Toward Weight Management Counseling

Survey Item	Strongly Disagree (SD)	Disagree Somewhat (DS)	Agree Somewhat (AS)	Strongly Agree (SA)	Mean	SD	Skew	Kurtosis
The best role for a physician in weight management is referral	8	18	12	0	2.11	.73	-.17	-1.03
My patients' acute health problems take precedence over weight loss counseling	0	9	22	7	2.95	.66	.05	-.53
In most cases, obese patients' health improves when physicians counsel them about weight management	4	11	21	2	2.55	.76	-.58	-.04
Most obese patients will reduce their wt to a healthy range when physicians counsel them about weight management	12	20	5	1	1.87	.74	.64	.49
Patients are more likely to lose weight when their physician speaks to them about obesity and weight management	3	8	20	7	2.82	.83	-.52	.03
It's easier to screen for obesity than perform weight management counseling	1	6	16	15	3.18	.80	-.69	-.07

Physicians' Attitudes Toward Obese Patients

Survey Item	Strongly Disagree (SD)	Disagree Somewhat (DS)	Agree Somewhat (AS)	Strongly Agree (SA)	Mean	SD	Skew	Kurtosis
Most obese patients will not lose a significant amount of weight	1	5	28	4	2.92	.59	-.84	2.79
I have been successful in treating patients for obesity	9	22	7	0	1.95	.66	.05	-.53
Most obese patients could reach a normal weight if motivated to do so	0	15	20	3	2.68	.62	.32	-.57
Obesity is primarily caused by behavioral factors like overeating and physical inactivity	0	8	25	5	2.92	.59	.01	.09
Obesity is primarily caused by genetic factors	0	17	21	0	2.55	.50	-.22	-2.06
Obesity is primarily caused by a lack of willpower	4	18	16	0	2.32	.66	-.45	-.66
Treating obese patients is very frustrating	1	9	23	5	2.84	.68	-.34	.49
I feel qualified to treat an obese patient	5	17	16	0	2.29	.69	-.46	-.79
I have negative reactions toward the appearance of obese patients	6	19	12	1	2.21	.74	.06	-.32

I am uncomfortable with counseling my obese patients about losing weight	3	5	18	12	3.03	.89	-.79	.21
Obesity is a treatable condition	0	1	21	16	3.39	355	-.08	-.98
Most obese patients are well aware of the health risks of obesity	-1	12	20	2	2.53	.76	-.48	-.14
I feel competent in prescribing weight loss programs for obese patients	7	18	11	2	2.21	.81	.23	-.33
I feel uncomfortable when examining an obese patient	14	20	4	0	1.74	.64	.30	-.61
It's difficult for me to feel empathy of an obese patient	17	16	5	0	1.68	.70	.53	-.78
Obesity is primarily caused by behavioral factors	0	11	24	3	2.79	.58	.02	-.17

Physicians' Personal Health Habits

Survey Item	Strongly Disagree (SD)	Disagree Somewhat (DS)	Agree Somewhat (AS)	Strongly Agree (SA)	Mean	SD	Skew	Kurtosis
Physicians should be role models by maintaining a normal weight	1	3	26	7	3.05	.62	-.77	2.71
My patients will find me to be a more credible and effective obesity counselor if they know that I eat a healthy diet	0	3	25	8	3.14	.54	.12	.42
My patients will find me to be a more credible and effective obesity counselor if they know that I exercise and stay fit	0	3	24	9	3.17	.56	.06	.13
My patients will find me to be a more credible and effective obesity counselor if they know that I maintain a healthy weight	0	3	24	9	3.17	.56	.06	.13
I can avoid overeating in situations where I sometimes eat too much	1	15	16	4	2.64	.72	.20	-.34
I can vigorously exercise (+30 mins) regularly (at least 3x/week)	11	13	6	6	2.19	1.06	.49	-.93
I can read food labels and make healthy food choices	1	4	17	14	3.22	.76	-.82	.63
I can eat several small, healthy meals a day	3	9	16	8	2.81	.89	-.37	-.49

I can control my eating	0	6	16	14	3.22	.72	-.37	-.95
I consistently avoid eating high fat foods	3	14	19	0	2.44	.65	-.77	-.39
Food is one of my main coping mechanisms	11	13	9	3	2.11	.95	.40	-.75
I eat 5 or more daily servings of fruits and vegetables	14	9	8	5	2.11	1.09	.47	-1.11
My diet was much better before I started residency	4	5	13	14	3.03	1.00	-.79	-.36
Food is an important part of my culture	1	5	15	15	3.22	.80	-.74	.18
I consume adequate amount of protein	2	5	19	10	3.03	.81	-.74	.53
I meet recommended daily allowances of vitamins and minerals	3	12	17	4	2.61	.80	-.21	-.24
I've had problems with eating in the past	19	10	4	3	1.75	-97	1.14	.32
Food is an important part of my life	2	8	12	14	3.06	.92	-.58	-.64
I vigorously exercise at least 3x/week consistently	21	6	5	4	1.78	1.07	1.06	-.29
I've been obese (>30% above ideal body weight) in the past	27	4	2	2	1.40	.85	2.18	3.92